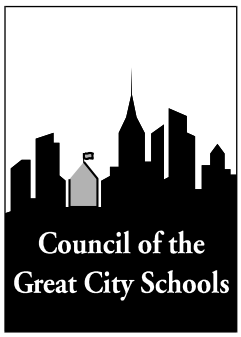
Improving K-8 Mathematics Achievement in the Anchorage School District

Report of the Strategic Support Team
of the
Council of the Great City Schools

Submitted to the
Anchorage School District

By the Council of the Great City Schools



Summer 2011

ACKNOWLEDGMENTS

The Council of the Great City Schools thanks the many individuals who contributed to this project to improve student mathematics achievement in the Anchorage School District. Their efforts were critical to our ability to present the district with the best possible proposals.

First, we thank Superintendent Carol Comeau. It is not easy to ask for this kind of review. It takes courage, openness, and uncompromising commitment to the city's children. Superintendent Comeau has these qualities in abundance.

Second, we thank the Anchorage school board for its support of this project and its patience as the report was being written.

Third, we thank the staff members of the Anchorage School District, who provided all the time, documents, and data that the Council needed in order to do its work. Their openness and enthusiasm were critical to our understanding of the challenges faced by the Anchorage public school system.

Fourth, we thank the many individuals, groups, organizations, and associations with which we met. Our only regret is that we were unable to meet with everyone whom we know had something valuable to contribute.

Fifth, the Council thanks the school districts and organizations that contributed staff members to this effort. They included the Albuquerque, Austin, Boston, and Richmond school districts. The enthusiasm and generosity of these school districts serve as further examples of how the nation's urban public school systems are working together to help each other improve student performance.

Finally, I thank Council staff members Ricki Price-Baugh and Gabriela Uro whose skills were critical to the success of this effort. Thank you.

Michael Casserly
Executive Director
Council of the Great City Schools

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INTRODUCTION

The Anchorage School District is one of the Great City School systems that is working hard to boost student performance, close achievement gaps, and retain the confidence of its community. Like most large and mostly urban districts, it must balance shrinking budgets while improving the opportunities for its students to graduate fully prepared for college and careers.

Anchorage is a unique school district. It is an urban system that is spread across a large and often suburban and rural area and located in a sparsely populated state. It has a highly mobile population that moves between urban and rural life, with students who speak over 90 languages, many of which are unique to the state. However, the five most common languages other than English are Spanish, Hmong, Samoan, Filipino, and Yup'ik. Native Alaskan students make up a substantial portion of the enrollment, but there are few Native Alaskan teachers.

The school district is led by a superintendent who is widely respected in Anchorage and across the nation and has the support of her elected school board. Her extensive experience in Anchorage and her dedication to the district have prepared her for the demands of the superintendency. She has worked in Anchorage since 1974, having served as a principal, the executive director of elementary education (1990-1993), the assistant superintendent for instruction (1993-2000), and acting superintendent of the district (September-December 2000) before being named permanent superintendent. In addition, she served as the president of the Anchorage Education Association from 1984 to 1985, has chaired the Council of the Great City Schools, and is heavily involved in numerous civic and national organizations.

The district is well known for its proactive stance toward challenges and issues that often vex other large school systems nationally. It responded to the charter school movement by including charter schools under its own purview. It established a leadership program to cultivate internal talent and address the high turnover of principals. It is a nationally recognized leader in emphasizing social and emotional learning alongside its academic priorities. And it has been at the forefront in designing instructional programming that makes Anchorage among the top performers among the Great City School districts.

The district is also unique because of the movement of its varied and mobile student body. ASD has an average mobility rate of 27 percent, and much of this reflects high transience between rural and urban areas. Only a handful of ASD schools have a

stable student body where students who are enrolled in the school in the fall are the same ones enrolled there at the end of the year.

To address this issue and its effects on student achievement, the superintendent encouraged the district to adopt uniform textbooks across the district that would provide continuity in instruction even when students changed schools during the school year. How this is working in math is the subject of this report, which was developed at the request of the superintendent and presented by the Council of the Great City Schools to her, her staff members, and the board of education as they all pursue their goals of higher student achievement in the diverse Anchorage community.

The superintendent and her very talented team have devoted extensive resources to improving literacy throughout the district. The administration instituted a 90-minute reading block at elementary school and, at the time of the Council's visit, had nine instructional reading specialists providing support at the school level. The district also has a 65-minute *guideline* for daily mathematics and has adopted the *Everyday Mathematics* program as the core numeracy program for most of its elementary schools.

The district was an early adopter of this mathematics program. The book is now in its third edition, having made changes over the years to respond to feedback. According to the What Works Clearinghouse (WWC), *Everyday Mathematics* has scientific evidence showing positive achievement results for students. The WWC rates the effects of a program in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative. *Everyday Mathematics* is rated as potentially positive in the areas of concepts, operations, and problem solving.

The textbook features a focus on real-life problem solving, student communication of mathematical thinking, and appropriate use of technology. The program builds in practice with concepts over time, rather than massing practice for a few units of study. Sometimes the spiraling introduces a concept in one grade level that is not taught in depth until the subsequent grade level. The textbook also balances different types of instruction (including collaborative learning), using various methods for skills practice, and fostering parent involvement in student learning.[1]

In addition, the program's approach emphasizes a deep understanding of why mathematics processes work in a way that is different from the way most adults learned mathematics. Thus, the textbook has ignited controversy since its publication, a controversy reflected in the spectrum of highly positive to highly negative comments the Council's team heard during its site visit.

As part of this project, the Council of the Great City Schools conducted a survey with the help of ASD in February 2011 to gather comments and input from principals and teachers in addition to what we obtained through extensive interviewing. Some 60 out of 79 principals responded. Of the respondents, 39 used the *Everyday Mathematics* program. The results produced an even split on the question of whether the program makes it easy

[1] http://ies.ed.gov/ncee/wwc/reports/elementary_math/eday_math/effectiveness.asp

to address the academic needs of all student groups in their schools (three strongly disagreeing, 15 disagreeing, 14 agreeing, and five strongly agreeing).[2]

These views were similar to responses received from 607 teachers in grades K-8. Not surprisingly, teachers were split between those who praised various features of the program, such as its spiraling structure and focus on solving real world math problems, and those who had strong concerns about those same features as too difficult to implement with transient, ELL, or low-performing students. Many respondents indicated that these students needed basic math instruction that emphasized computation and highly scaffolded word problems with little exposure to complex text; and they would like to see the current math program replaced with another.

The Anchorage superintendent has asked the Council of the Great City Schools and its Strategic Support Team to determine why students, particularly ELLs and Alaska Native students, were not making expected gains in mathematics. In addition, she wanted to know if math programs were being implemented with fidelity. If not, she requested suggestions for bringing accountability into the process of mathematics instruction. Finally, she asked the team to recommend ways that the district could better support mathematics implementation with current resources.

The answers to those questions are complicated and not particularly straightforward, but that is what the superintendent asked the Council's team to address. The Council of the Great City Schools assembled a team of math and language specialists from other big city school districts across the nation to provide the school district the best possible answers and advice. This report presents their work.

[2] However, the 11 principals responding from schools using an alternative program (*Saxon Math*) were also split on the same question: 3 principals=Strongly disagree; 1=Disagree; 4=Agree; 3=Strongly agree

Goals and Purposes of the Project

OVERVIEW OF THE PROJECT

The Council of the Great City Schools, the nation's primary coalition of large urban school systems, has prepared this report to summarize its observations and recommendations to the Anchorage School District about improving student mathematics achievement in kindergarten through eighth grades (K-8).

This project was coordinated by Superintendent Carol Comeau; Ed Graff, assistant superintendent of instruction; Enid Silverstein, executive director of curriculum and instructional support; and Laurel Vorachek, executive director of assessment and evaluation.

To conduct its work, the Council assembled a Strategic Support Team (SST) composed of curriculum and instructional leaders who have worked to address some of the same math issues as those faced by the Anchorage School District and who have substantially improved math performance over the last several years in their own districts. Two Council staff members accompanied and supported the team along with a data analyst, and prepared this report summarizing the team's findings and proposals.

In collaboration with Superintendent Comeau and her leadership team, the Council's team reviewed the school district's efforts to improve student achievement in mathematics, benchmarked the district with faster-improving urban districts throughout the country, and examined Anchorage's practices in comparison to those of urban school districts that have seen substantial improvement.

The team made its site visit to Anchorage on November 16-19, 2010, and its work began with a discussion with Superintendent Comeau and her staff on the strengths of the district, the challenges it faces, and the efforts it is making to improve its math achievement. That discussion was followed by two days of fact-finding and a day devoted to synthesizing the team's findings and mapping out preliminary strategies for improving math achievement. The team debriefed Superintendent Comeau at the end of the site visit.

The district also provided the team with extensive written materials, which were essential to the analysis and recommendations made in this report. In order to hear from the broadest number of principals and teachers, the Council of the Great City Schools in collaboration with ASD also conducted an online survey that included open-ended responses about the district's mathematics textbook, assessments, professional development, and supports that principals and K-8 teachers indicated would improve mathematics achievement.[3]

We commend the superintendent, the school board, and the staff for their courage and openness in conducting a peer review such as this. It is not easy to subject oneself and

[3] Council of Great City Schools (2011). Principal Survey. Report Date: 2-16-11. And Council of Great City Schools (2011). Teacher Survey. Report Date: 2-16-2011. These survey results are integral parts of the Council's report to the Anchorage School District (ASD)

the institution one leads to the scrutiny that such an analysis entails. These leaders deserve the public's thanks.

PROJECT GOALS

School district leaders posed three questions:

1. Why is the Anchorage School District not seeing steady growth in academic achievement in mathematics?

2. How can ASD better support the implementation of its math program with current resources?

3. Are the math curricula and program being implemented with fidelity? If not, what needs to be done to bring more accountability to the implementation process?

Based on these questions, the Council formulated the mains goals of its review:

- Review the math K-8 program in the Anchorage School District and assess the district's potential for accelerating student achievement in the midst of a severe financial crisis.

- Propose ways for the Anchorage School District to strengthen its instructional program in mathematics and accelerate math achievement gains.

- Identify expertise, resources, strategies, and materials from other city school systems across the country that the Anchorage School District could access and use to accelerate student math performance.

THE WORK OF THE STRATEGIC SUPPORT TEAM

The Strategic Support Team visited the Anchorage School District on November 16-19, 2010, and was primarily made up of curriculum and instructional leaders from other urban school systems that have been improving student math achievement.

The team began its work by discussing the academic status of the Anchorage School District with Superintendent Comeau and her assistant superintendent of instruction. In that discussion, the superintendent laid out the challenges facing the district and the steps the district was taking to address them. The team used this discussion to sharpen its focus for the subsequent two days as it examined the school system's broad instructional strategies. This work included extensive interviews with central office staff members, school board members, principals, teachers, representatives of outside organizations, parents, and others. The team also reviewed numerous documents and reports and analyzed data on student math performance.

The team examined the district's broad instructional strategies, materials, core math programs for grades k-8, office structure and organization, assessment programs,

and professional development efforts. It also reviewed district priorities and analyzed how well Anchorage's strategies and programs reflected those priorities. At the end of the site visit, the team briefed the superintendent and her leadership team on preliminary findings and proposals. After the visit, team members gathered additional information, refined their initial recommendations, and reviewed the draft report.

This approach to providing technical assistance to urban school districts working to improve student achievement is unique to the Council of the Great City Schools and its members and is proving effective for a number of reasons.

First, the approach allows the superintendent to work directly with talented, successful practitioners from other urban school systems that have established track records of performance and improvement.

Second, the recommendations developed by these peer teams have validity because the individuals who developed them have faced many of the same problems now encountered by the school system requesting a Council review. Team members are aware of challenges faced by urban schools, and their strategies have been tested under the most rigorous conditions.

Third, using senior urban school managers from other communities is faster and less expensive than retaining a large management consulting firm. It does not take team members long to determine what is going on in a district. This rapid learning curve permits reviews that are faster and less expensive than could be secured with experts who are not as well versed on how urban school systems work.

Finally, the teams comprise a pool of expertise that a school system such as Anchorage can use to implement report recommendations or develop other strategies. Members of the Strategic Support Team included the following individuals—

STRATEGIC SUPPORT TEAM

Maria Crenshaw Director of Instruction Richmond School District Richmond, Virginia	Ricki Price-Baugh Director of Academic Achievement Council of the Great City Schools Washington, D.C.
Linda Davenport Senior Program Director of Elementary Mathematics Boston Public Schools Boston, Massachusetts	Gabriela Uro Manager of ELL Policy and Research Council of the Great City Schools Washington, D.C.
Thomas Genné Director of Research, Deployment and Accountability Albuquerque School District Albuquerque, New Mexico	David D. Baugh Senior Data Analyst (Consultant) Council of the Great City Schools Washington, D.C.

Norma Jost K-12 Academic Supervisor for Mathematics Austin Independent School District Austin, Texas	

CONTENTS OF THIS REPORT

This report begins with an introduction providing background on issues facing the Anchorage School District as it works to boost student achievement in mathematics. Chapter 1 presents an overview of the Anchorage School District and student performance. Chapter 2 summarizes the findings of the SST, and chapter 3 presents its recommendations to improve student math achievement. Chapter 4 discusses the findings and recommendations.

The appendices of the report include a number of items. Appendix A lists the people with whom the team talked during its site visit. Appendix B lists the documents that the team reviewed. Appendix C consists of three-year cohort data between 2008 and 2010 showing changes in student performance at the four achievement levels on the state test. Appendix D provides an analysis of predicted math scores by school, poverty level, and math textbook. Appendix E discusses a sample alignment of *Everyday Mathematics*, the Alaska GLEs, and the state testing blueprint. Appendix F compares Alaska's math standards with Anchorage's. Appendix G provides brief biographical sketches of team members. Appendix H features a brief description of the Council of the Great City Schools and a list of reviews the organization has conducted over the last decade to improve urban education nationally.

The Council has now conducted more than 200 Strategic Support Team reviews in over 50 major city school districts in a variety of instructional and management areas. These reviews have included examinations of instructional systems, finances and budget operations, transportation, food services, security, procurement, technology systems, and many other facets of urban schooling.

The Council tailors its reports specifically to each district and to the particular challenges it faces. The Council recognizes that each city is different and that no city has exactly the same mixture of student demographics, staffing patterns, and resources that Anchorage has. Our recommendations, therefore, may not be precisely applicable elsewhere.

Moreover, the Council does not use a template in its reviews but rather is guided by the organization's cutting-edge research on why—and how—some urban school systems improve while others do not.[4] This research focuses on key organizational and instructional strategies behind the academic gains of some of the fastest-improving urban

[4] Snipes, J., Doolittle. F., Herlihy, C. (2002). *Foundations for Success: Case Studies of How Urban School Systems Improve Student Achievement*. MDRC for the Council of the Great City Schools.

school systems in the nation and how those reforms differ from those of districts that are not seeing much progress.

It is also important to note that this project did not examine the entire school system. And this analysis cannot be considered an audit as such. We did not, for example, spend time looking at food services, special education, federal programs, transportation, personnel, facilities management, security, or other operational functions. We did not conduct an in-depth review of the ESL or Indian education programs *per se*, although we did look at broader instructional factors that might affect the academic attainment of ELLs and Alaska Native students. The SST did not conduct a detailed review of staffing allocations and did not examine staff qualifications, although the team was generally impressed with the quality of the individuals in the district. We did not look at school board policies or other governance issues in any depth. Our focus in this report is exclusively on student achievement in mathematics in grades k-8 and how to improve it at a systems level.

CHAPTER 1. BACKGROUND

LEADERSHIP

The Anchorage School District (ASD) is governed by a seven-member school board (officially called the Board of Education), elected at-large for overlapping three-year terms. In addition, the school board appoints a nonvoting delegate to represent the Fort Richardson Army Post and Elmendorf Air Force Base.

The Board of Education's responsibilities include setting policy, approving the budget, establishing goals and accountability standards, and promoting parent, family, and community involvement in schools. Standing committees of the board encompass three priority areas: audit, policy, and legislative. The district broadcasts its twice-monthly board meetings.

Carol Comeau was appointed superintendent of schools in December of 2000 after a long career in the district, serving as executive director of elementary education (1990-1993), assistant superintendent for instruction (1993-2000), and acting superintendent. Her stable and intelligent leadership allows the district to focus strategically on leveraging resources in ways that take advantage of the unique culture of the city and the district.

Anchorage includes about half the population of the state of Alaska. The school district is approximately the size of Delaware—slightly over 1,900 square miles. In 2010, the district had 60 elementary schools, 10 middle schools, eight comprehensive high schools, eight charter schools, and about eight other alternative schools and programs.

The Anchorage school district has a highly mobile, diverse population (average of 27 percent mobility). The percentage of students in ASD who are English language learners (ELL) is growing, and the top five languages spoken by district students, after English, are Spanish, Hmong, Samoan, Filipino, and Yup'ik.

STUDENT CHARACTERISTICS

The Anchorage School District is the largest school system in the state of Alaska, enrolling some 49,592 students in 2009-10, the most recent year for which these data are available nationally from the National Center for Educational Statistics. The district enrolls about 37.7 percent of the state's students. Since the team did not want to compare the district to statewide averages when the district itself makes up so much of the state, we disaggregated NCES data to exclude the district's data from the rest of the state. (See exhibit 1.) However, exhibit 1 also presents state data with Anchorage included.

The team also collected NCES data for members of the Council of the Great City Schools (CGCS) in order to compare Anchorage to other urban districts. In addition, exhibit 1 presents data on both national averages and national averages excluding CGCS districts.

The results showed that Anchorage students were about as likely as their peers statewide to be poor. Some 36.0 percent of Anchorage's students were eligible for free or reduced-price lunches—a rate only slightly lower than the 36.5 percent in the rest of the state. This percentage was lower than in most urban school districts nationally, however, and about 10 percentage points lower than the nation at large.

Like urban districts generally, the Anchorage School District had a student enrollment from a variety of racial and ethnic groups. Still, the district's demographics were different from the rest of Alaska (i.e., with Anchorage data excluded from the state). And the district's demographics were different from urban districts that are members of CGCS and from the nation as a whole.

Not surprisingly, American Indian/Alaskan-native students comprised 9.0 percent of Anchorage's student enrollment. This percentage was 15 times greater than among CGCS districts in the aggregate, but 3.5 times less than school districts in the rest of Alaska. The percentage of Asian students (10.2 percent) in Anchorage was approximately three times greater than the rest of Alaska (3.4 percent) and about twice that of other CGCS districts. About 9.9 percent of ASD students were Hispanic—nearly three times the Hispanic percentage elsewhere in the state. And 6.3 percent of Anchorage's students were African American in 2009-2010, compared with 2.3 percent in the rest of the state.

Like the rest of the nation, the largest ethnic group in Anchorage was white (48.1 percent), but that percentage was lower than the rest of Alaska, where the majority of students were white (56.3 percent). About 16.6 percent of district students were classified as "other"—a far greater percentage than elsewhere in Alaska (3.2 percent) or in CGCS districts (1.7 percent).

The Anchorage School District also has a higher percentage of students with Individual Education Plans (IEPs) than the rest of the nation, but comparatively close to the rest of Alaska (13.2 percent). Finally, about 8.7 percent of the district's students were English language learners (ELLs), a percentage that was slightly lower than the rest of the state (9.5 percent), but about the same as the nation as a whole. Students in Anchorage speak some 90 languages.[5] (See exhibit 1.)

Moreover, the average school in Anchorage enrolled some 506 students in 2009-2010, compared with an average school enrollment statewide of only 196 students.[6] The district had a higher student/teacher ratio (17.0:1) than the average Alaskan school district outside of Anchorage (15.9:1).

In fact, Anchorage had a higher student/teacher ratio than other urban districts in the Council of the Great City Schools or the nation as a whole. In addition, the per-pupil expenditures for Anchorage were approximately $5,000 lower per pupil than the rest of the state of Alaska and approximately the same as the average CGCS district. (See exhibit 1.)

[5] Data that is more recent than the NCES data used in exhibit 1 indicate that some 11 percent of ASD enrollment is ELL.

[6] This statistic includes all schools—elementary, middle, and high.

Exhibit 1. Comparison of Anchorage, Alaska Excluding Anchorage, Alaska, Council of the Great City Schools (CGCS), All Schools in the Nation Excluding CGCS, and All Schools in the Nation[7]

	Anchorage	Alaska Excluding Anchorage	Alaska	CGCS	Nation, Excluding CGCS	Nation
Enrollment	49,592	82,069	131,661	5,902,464	43,797,209	49,699,673
% American Indian/Alaska Native	9.0%	31.5%	23.0%	0.6%	1.4%	1.3%
% Asian	10.2%	3.4%	5.9%	5.2%	4.8%	4.9%
% Hispanic	9.9%	3.4%	5.8%	36.9%	20.8%	22.7%
% Black	6.3%	2.3%	3.8%	34.9%	14.0%	16.5%
% White	48.1%	56.3%	53.2%	20.7%	57.3%	52.9%
% Other	16.6%	3.2%	8.2%	1.7%	1.8%	1.8%
% FRPL	36.0%	36.4%	36.2%	66.2%	43.4%	46.1%
% with IEPs (2008-09 data)	14.0%	13.2%	13.5%	12.6%	12.8%	12.8%
% ELLs (2008-09 data)	8.7%	9.5%	9.2%	16.3%	7.7%	8.7%
Pupils/Teacher	17.0	15.9	16.3	16.6	15.8	15.9
Schools	98	418	516	10,126	93833	103959
Students/School	506	196	255	583	467	478
Spending/Pupil (2008-09 data)	$14,193	$19,339	$17,414	$14,128	$12,083	$12,376

Trend data also show that between 2007 and 2010, unlike most urban districts, Anchorage's enrollment increased (up by 615 students). The district's racial/ethnic makeup remained steady during the same period. There was a 0.1 percentage point increase in the proportion of American Indians and Alaska Natives and a similar increase in the percentage of black students. In addition, there were small decreases in the percentages of Asian students (-1.9 percentage points), white students (-0.8 percentage points), and Hispanic students (-0.3 percentage points).

However, the proportion of students eligible for free and reduced-price lunches showed the greatest increase—6.6 percentage points between 2007 and 2010. Moreover, the category of "other" (which includes mixed races/ethnicities and those who do not

[7] Source for all but IEPs, ELL, and spending: U.S. Department of Education, National Center for Educational Statistics (NCES), Common Core of Data, "Public Elementary and Secondary School Universe Survey," 2009-2010.
Source for IEPs, ELLs, and per-pupil spending: U.S. Department of Education, National Center for Educational Statistics (NCES), Common Core of Data, "Public Elementary and Secondary School Universe Survey," 2008-2009 FTE and FIN databases—the latest year available for those data.

identify any ethnicity) grew from 12.7 percent of the enrollment in 2007-08 to 16.6 percent in 2009-10. Between 2007 and 2010, there was also a small increase (0.3 percentage points) in the proportion of students with Individual Education Plans (IEPs).

Most importantly, the district managed, in spite of its increased enrollment, to lower its pupil/teacher ratio from 17.7 in 2007 to 17.0 in 2010. (See exhibit 2.)

Exhibit 2. Trends in Anchorage's Student Demographics, 2005-06 to 2009-10

	'07-'08	'08-'09	'09-'10
Enrollment	48,857	48,837	49,592
% American Indian/Alaska Native	8.9	8.7	9.0
% Asian	12.1	9.2	10.2
% Black	6.2	6.0	6.3
% Hispanic	10.2	10.2	9.9
% White	49.9	49.2	48.1
% Other	12.7	16.6	16.6
% FRPL	30.6	32.7	36.0
% ELLs	10.8	8.7	
% with IEPs	13.7	14.0	
Pupils/Teacher	17.7	17.2	17.0
FTE Teachers	2,754.5	2,833.3	2,912.0

English Language Learners

The Anchorage School District also enrolls speakers of some 90 different languages. According to information furnished by the district, the five most frequently occurring languages after English, were Spanish, Hmong, Samoan, Filipino, and Yup'ik.

There was a wide range in the number of English language learners (ELL) enrolled in Anchorage public schools where language proficiency (ELLP) services are provided. In 2010-2011, among the district's elementary schools, 18 enrolled fewer than 21 ELL students, 12 enrolled between 21 and 50 ELLs, 27 enrolled more than 50 ELLs, and seven enrolled more than 100 ELLs.

The distribution of ELLs across the middle schools appears relatively balanced, but the district has several schools with low numbers of ELLs. In 2010-2011, of the 14 middle schools, only three enrolled fewer than 20 ELLs, five enrolled between 20 and 50 ELLs, and four enrolled between 51 and 100 ELLs. Two middle schools enrolled more than 100 ELLs and comprised some 7 percent of the district's total ELL enrollment. (See exhibit 3.)

Exhibit 3. ELL Enrollment in Anchorage School District Elementary and Middle Schools, 2010-11*

Number of ELL Students	Elementary	Middle School
Less than 10	8	
Between 11 and 20	9	3
Between 21 and 50	11	5
Between 51 and 100	21	4
Over 100	7	2
TOTALS	**56**	**14**

*Source: Anchorage School District Data furnished to the team.
Note: The district-provided ELL enrollment includes an additional 88 limited English proficiency (LEP) students attending alternative programs and charter schools. The English Language Learners Program Student Enrollment (dated 12/01/10) includes only schools at which English Language Learner Program (ELLP) services are provided. ELL data fluctuate somewhat depending on date, source, and definitions.

STUDENT ACHIEVEMENT

The Council's Strategic Support Team also examined student math achievement in grades 3 through 8 in the Anchorage School District from several vantage points—spring 2010 results, 2010 results compared with 2008 results, cohort groups enrolled in the district between 2008 and 2010, Anchorage's results compared with the state, and Anchorage's status on *No Child Left Behind* (NCLB*)* and state accountability systems. Finally we examine student math performance by school and program.

State Assessment in Mathematics[8]

Alaska's student assessment system in mathematics is composed of its Standards Based Assessment (SBA), which is designed to measure student achievement against state math performance standards in grades 3 through 10, and the TerraNova, a commercial norm-referenced test in grades 5 and 7. The SBA is administered in April, whereas the TerraNova is administered on a fixed date in February.

While school districts are required to report TerraNova results on their systemwide report cards, it is SBA performance that is used for school and district accountability purposes under *No Child Left Behind* and the state's accountability systems. Moreover, since TerraNova is not explicitly aligned to Alaska's standards, the Council's team limited its data analysis to performance on the SBA.

The SBA classifies student achievement according to four categories: advanced, proficient, below proficient, and far below proficient. The cut scores in mathematics have remained stable over time in grades K-8. At every grade level, the minimum score for the proficient level is 300 out of 600. However, the cut scores for the advanced category vary

[8] The team restricted its analysis to the focus area of the study. The state also assesses performance in reading and writing in grades 3-10 and science in grades 4, 8 and 10.

from grade to grade but range between 370 in eighth grade to 389 in third grade.[9] (See exhibit 4.) When the state refers to percentages of students proficient in mathematics, that percentage includes students who performed at either proficient or advanced levels.

Exhibit 4. Proficiency-Level Cut Scores in Mathematics for the Standards Based Assessment (SBA)

Proficiency Level	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8
Advanced	390 or above	383 or above	373 or above	376 or above	383 or above	379 or above
Proficient	300-389	300-382	300-372	300-375	300-382	300-378
Below Proficient	263-299	260-299	252-299	258-299	248-299	258-299
Far Below Proficient	262 or below	259 or below	251 or below	257 or below	247 or below	257 or below

Source: AKDEED Form # 05-09-042, revised 05/07/09

In 2010, the Anchorage School District met the state annual measurable objective (AMO) in mathematics in every grade level for the district at large. The percentage of students achieving at proficient levels or above were highest in third grade (81.2 percent) and lowest in seventh grade (70.3 percent). Higher percentages of elementary school students scored at proficient and advanced levels than did middle school students. (See exhibit 5.)[10]

Spring 2010 math SBA results indicated that Anchorage students outperformed their Alaska grade-level peers in third through seventh grades and scored as well as statewide peers in eighth grade. When student achievement results in Anchorage School District were removed from the statewide data set, one can see that the Anchorage School District's grade-level performance raises the statewide math performance at every grade level except eighth.[11]

ASD third-graders in 2010 outperformed their statewide peers by 6.1 percentage points rather than the 4.0 percentage point difference when Anchorage schools are included in the statewide data. ASD students outscored their non-ASD Alaskan peers by 3.1 percentage points in fourth grade, 2.9 percentage points in fifth grade, and 5.5 percentage points in sixth grade. However by seventh grade, the difference between ASD students and their statewide peers is very small (0.7 percentage points).[12] (See exhibit 6.)

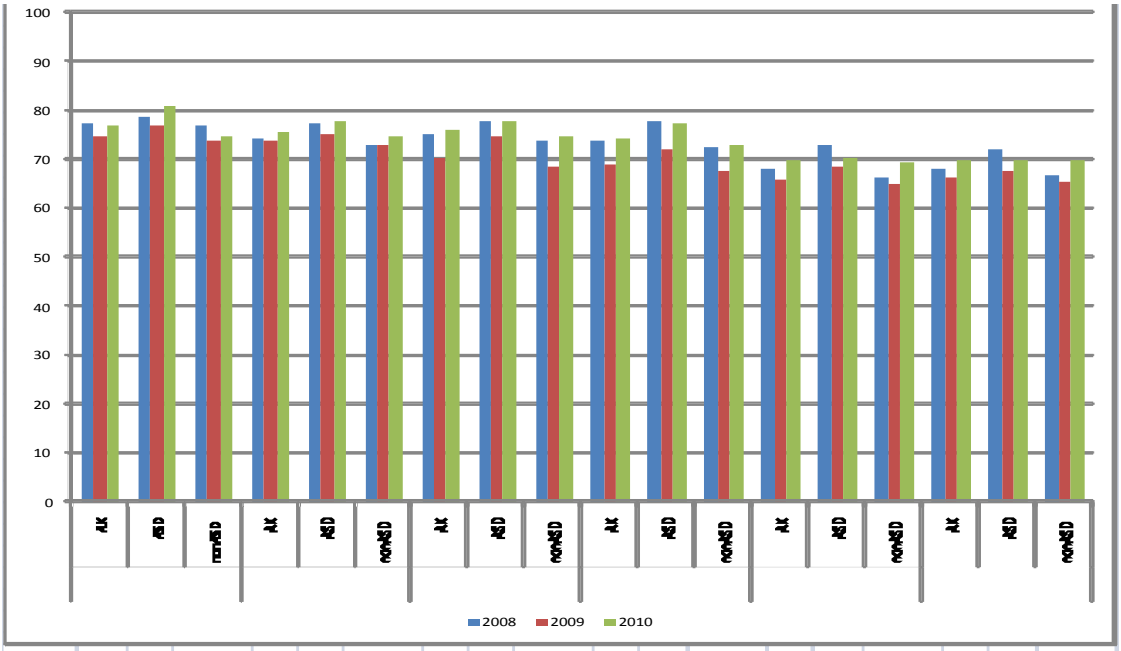
[9] AKDEED Form #05-09-042, Appendix G 4 AAC 06.739 Assessment proficiency scores, revised 05/07/09.

[10] In creating exhibit 5, the team used state data derived from the Department of Education Website in the state of Alaska. For Anchorage data on the SBA, the team calculated student performance based on data furnished to it by the school district. This may result in some figures being slightly different from the proficiency rates published by the state.

[11] Anchorage does not participate in the Trial Urban District Assessment (TUDA) of the National Assessment of Educational Progress (NAEP), but Alaska's statewide scores on NAEP in 2009 suggest that Anchorage might score around the national average on NAEP if it participated in TUDA, placing it at a performance level comparable to Charlotte-Mecklenburg and Austin.

[12] The team did not conduct tests of statistical significance on these differences.

Exhibit 5. Performance on the Mathematics Standards Based Assessment (SBA) for the State of Alaska, Anchorage School District, and the State of Alaska Removing Anchorage School District Performance, Spring 2008 to Spring 2010



	Grade 3			Grade 4			Grade 5			Grade 6			Grade 7			Grade 8		
Year	AK	ASD	nonASD	AK	ASD	nonASD	AK	ASD	nonASD	AK	ASD	nonASD	AK	ASD	nonASD	AK	ASD	nonASD
2008	77.7	79.0	77.1	74.3	77.4	72.9	75.2	77.7	74.2	74.1	77.8	72.5	68.4	73.1	66.4	68.4	72.4	66.7
2009	74.9	77.0	74.0	73.8	75.3	73.1	70.4	74.6	68.4	69.3	72.3	67.9	66.2	68.7	65.0	66.4	68.0	65.7
2010	77.2	81.2	75.1	75.7	77.7	74.6	76.0	77.8	74.9	74.6	77.5	73.1	69.8	70.3	69.6	70.0	70.0	70.0
Change	(0.5)	2.2	(2.0)	1.4	0.3	1.7	0.8	0.1	0.8	0.5	(0.3)	0.6	1.4	(2.8)	3.2	1.6	(2.3)	3.3

Data sources: For Alaska see http://www.eed.state.ak.us/tls/assessment/results/2010/statewide_SBA.pdf; Anchorage data derived from district Excel spreadsheet data furnished to the team; non-ASD data computed from data from those two sources.

Exhibit 6 uses data from state reports[13] available on the state Website rather than data provided to the team. Consequently, figures may be slightly different from those on Anchorage in exhibit 5. Exhibit 6 shows trends in ASD student achievement at each of the four performance levels in mathematics.

The data show the proportion of students achieving at the advanced level on the SBA mathematics test is greater in elementary school than in middle school. Fifth grade tends to have the highest portion of students at advanced levels (47.4 percent in 2010) while eighth grade tends to have the lowest (30.6 percent in 2010). With the exception of fifth grade, performance at the advanced level appears to be flat

The combined proficient and advanced levels in ASD appear to have peaked in 2007 on the SBA. The 2009 math performance was generally lower than either 2008 or 2010. However, gains in 2010 did not bring the performance level back to the 2007 peak. (See exhibit 6.)

[13] RCyy_District_Proiles_Table.xls where yy is the fiscal year.

Exhibit 6. Anchorage School District Performance Level Percentages on Mathematics SBA, Spring 2006 to Spring 2010

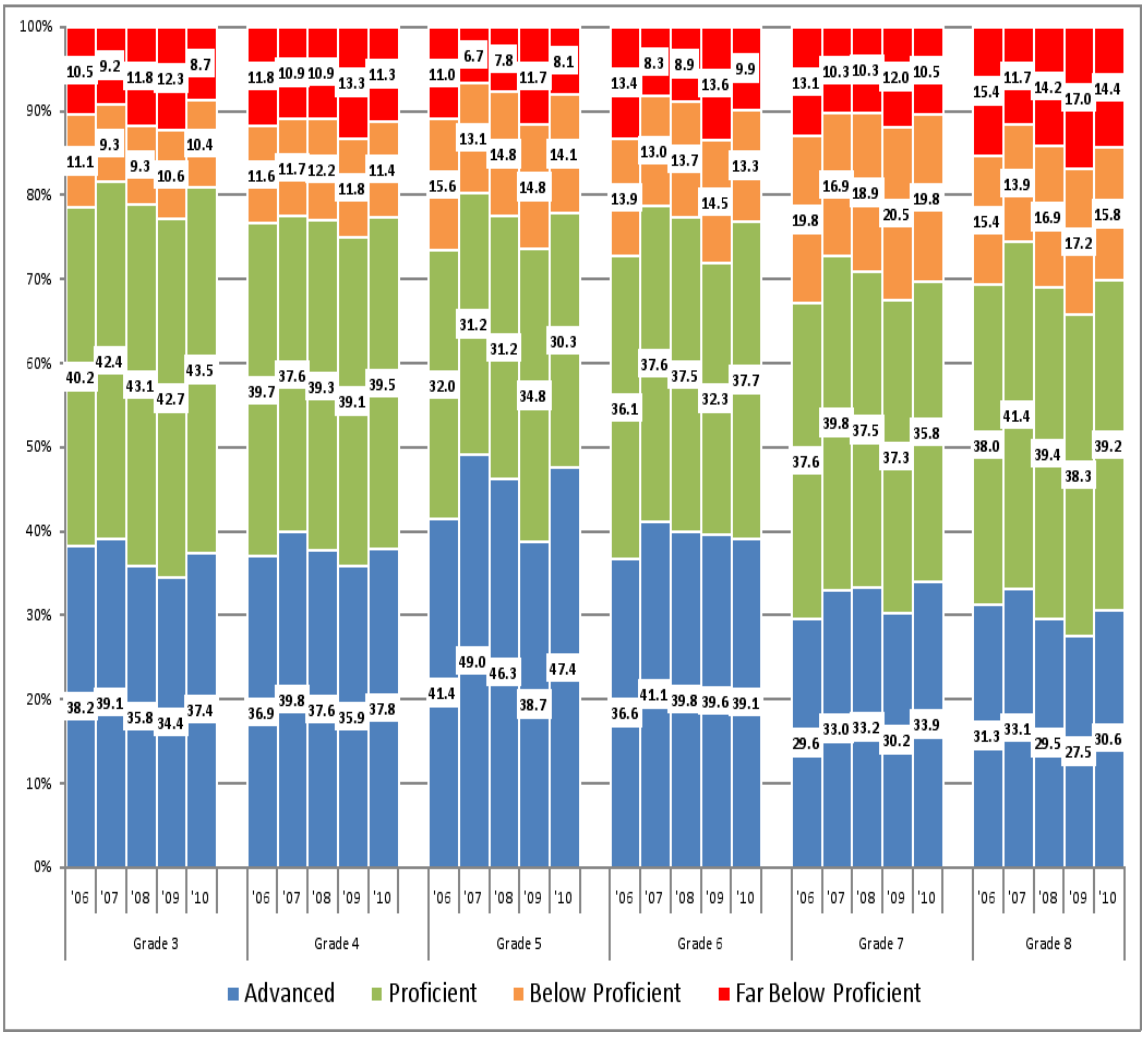
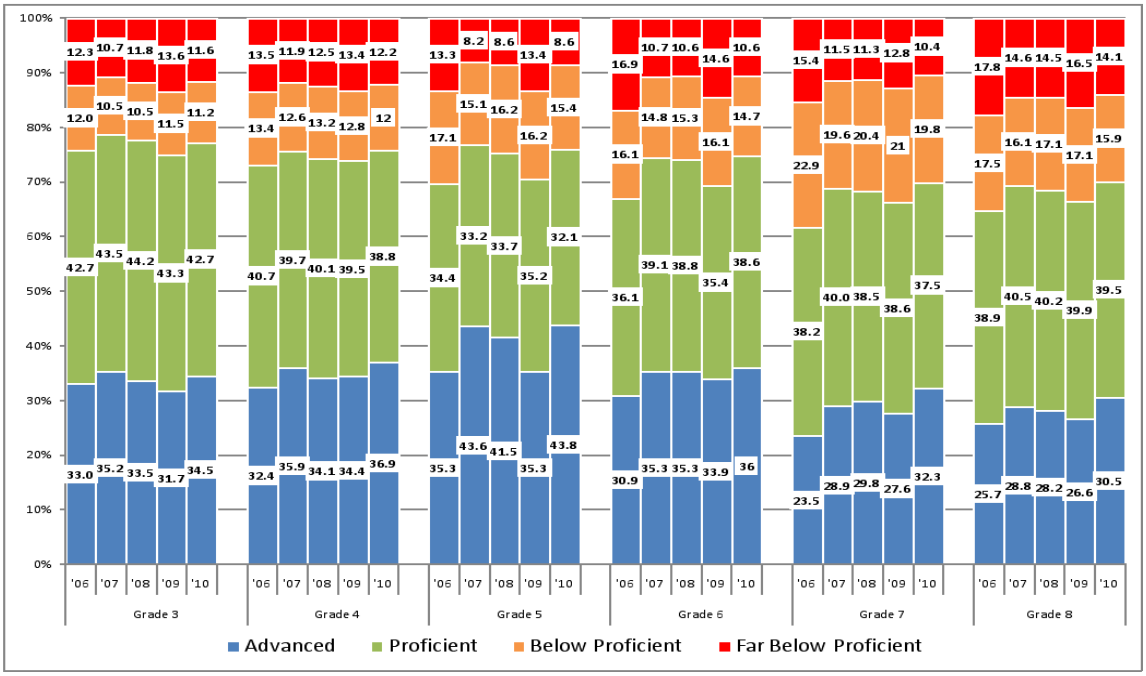


Exhibit 7 shows achievement levels for all of the students in Alaska, including those in Anchorage. These results track closely to those in Anchorage in terms of peaks and valleys. However, statewide performance at the advanced level in mathematics in every grade and in every year is lower than in Anchorage.

Also, the statewide proportion of students in Alaska at the lowest level of performance (far below proficient) is always greater than Anchorage in grades 3 through 6. However, overall in 2010, the proportion of Anchorage students performing far below proficient in mathematics was about the same or slightly higher than their Alaska grade-level peers. (See exhibits 6 and 7.)

Exhibit 7. Alaska Performance-Level Percentages on Mathematics SBA, Spring 2006 to Spring 2010



2010 Results by Selected Student Groups

The Council's team also used the district-furnished database of 2010 student achievement results to assess achievement gaps by ethnicity. Exhibit 8 shows the four performance levels for each student group and grade level. The exhibit then shows performance levels for each student group across grade levels 3 through 8. For example, in third grade, the proportion of white students scoring at the advanced level on the 2010 mathematics SBA was 51.1 percent. In addition, 38.4 percent of white third graders achieved at the proficient level, 6.0 percent scored below proficient, and 4.4 percent were far below proficient. Among all white students in grades three through eight, about 50.1 percent attained the advanced level, 35.0 percent were at the proficient level, 9.4 percent were below basic, and 5.5 percent were far below basic.

Exhibits 8 and 9 have been organized in order of performance at the advanced level for all students of a given ethnicity on the 2010 SBA in math. About half of all white students in Anchorage scored at the advanced level (50.1 percent). Among other ethnic groups, between 33.6 percent and 20.0 percent scored at the advanced level. The next highest level of achievement is "proficient." The state accountability system combines the proficient and advanced levels. Exhibit 8 shows that, for every ethnic group, elementary grades generally had higher levels of proficient and above scores than did the middle school grades. For all groups, except Caucasians, seventh-grade performance was lower than eighth grade. However, both seventh- and eighth-grade performance was lower than in grades 3-6. Far below proficient is the lowest category of performance.

Exhibit 8 indicates that for every student ethnic group in the Anchorage School District in 2010, eighth grade generally had the largest percentage of students performing far below proficient on the SBA. The ranges in grades 3-8 varied with each student group. For Caucasians, the range was small—between 4.2 and 8.4 percent. For the multi-ethnic group, between 7.5 percent and 18.7 percent scored far below proficient. For Asian/Pacific Islanders, the range was between 9.1 percent and 16.6 percent; for Hispanic students, between 11.2 percent and 20.8 percent; for Alaska Native/American Indian students, between 14.1 percent and 22.6 percent; and for African American students, between 14.1 percent and 24.2 percent.

Next, the team wanted to look longitudinally across three years of the SBA math data for each ethnic group (spring 2008 through spring 2010) and compare their performance to the same ethnic groups outside of Anchorage. While the ASD database would have allowed us to examine Alaska Natives, American Indians, Asians, and Pacific Islanders as separate groups, they are only reported on the state Website as Alaska Native/American Indian (AK/AI) and Asian/Pacific Islander (A/PI). In order to compare their scores, we used the state classifications in constructing exhibits 10 and 11.

Exhibit 10 shows the percentage of students scoring proficient or above in 2010 in grades 3, 5, 6, and 8 for white, African American (Black), Hispanic, Asian/Pacific Islander, Alaska Native/American Indian, and multi-ethnic groups. The data compare performance in ASD with the rest of Alaska and show the gap between the two in each of the three years (2008-2010). The final columns look at the change between 2008 and 2010. The table shows gaps between white and Alaska Native/American Indian students. Exhibit 11 shows the data from exhibit 10 in another way. It places both ASD and Other-Alaska data on the same bar for a given grade level and year. When the proportion of Anchorage students achieving at proficient or above exceeds the proportion of Other Alaska students, the difference is shown in *green*. When the state performance is higher, the difference is shown in *red*.

Exhibits 10 and 11 show that, with the exception of Asian/Pacific Islanders (A/PI), the performance of most ethnic groups in Anchorage improved between 2008 and 2010 in the four selected grade levels. Between 2008 and 2010, A/PI did decline slightly in all selected grade levels (-2.13 percentage points in grade 3, -1.26 in grade 5, -5.49 in grade 6, and -1.43 in grade 8). In addition, Alaska Native/American Indian performance in ASD declined in grades five and six (-2.34 and -7.23 percentage points, respectively). Between 2008 and 2010, eighth-grade math performance declined among all ethnic student groups in ASD with the exception of Alaska Native/American Indian. Overall, Anchorage outperformed non-Anchorage students in grades 3, 5, 6, and 8. White students everywhere outperformed all other groups, with ASD doing better with this group than elsewhere in the state. ASD's Alaska Native/American Indian students generally scored between 20 to 30 points lower than their white counterparts. However, Alaska Native/American Indian students in Anchorage consistently outperformed their AN/AI peers statewide. Results for multi-ethnic students are more mixed, with ASD sometimes doing better than the state, sometimes worse. ASD has a consistently lower proportion of Asian/ Pacific Islander and black students achieving at proficient or above than the rest of the state. Hispanic students in Alaska generally do better than in Anchorage.

Exhibit 8. Anchorage Mathematics Standards Based Assessment (SBA) Level and Percent, 2010

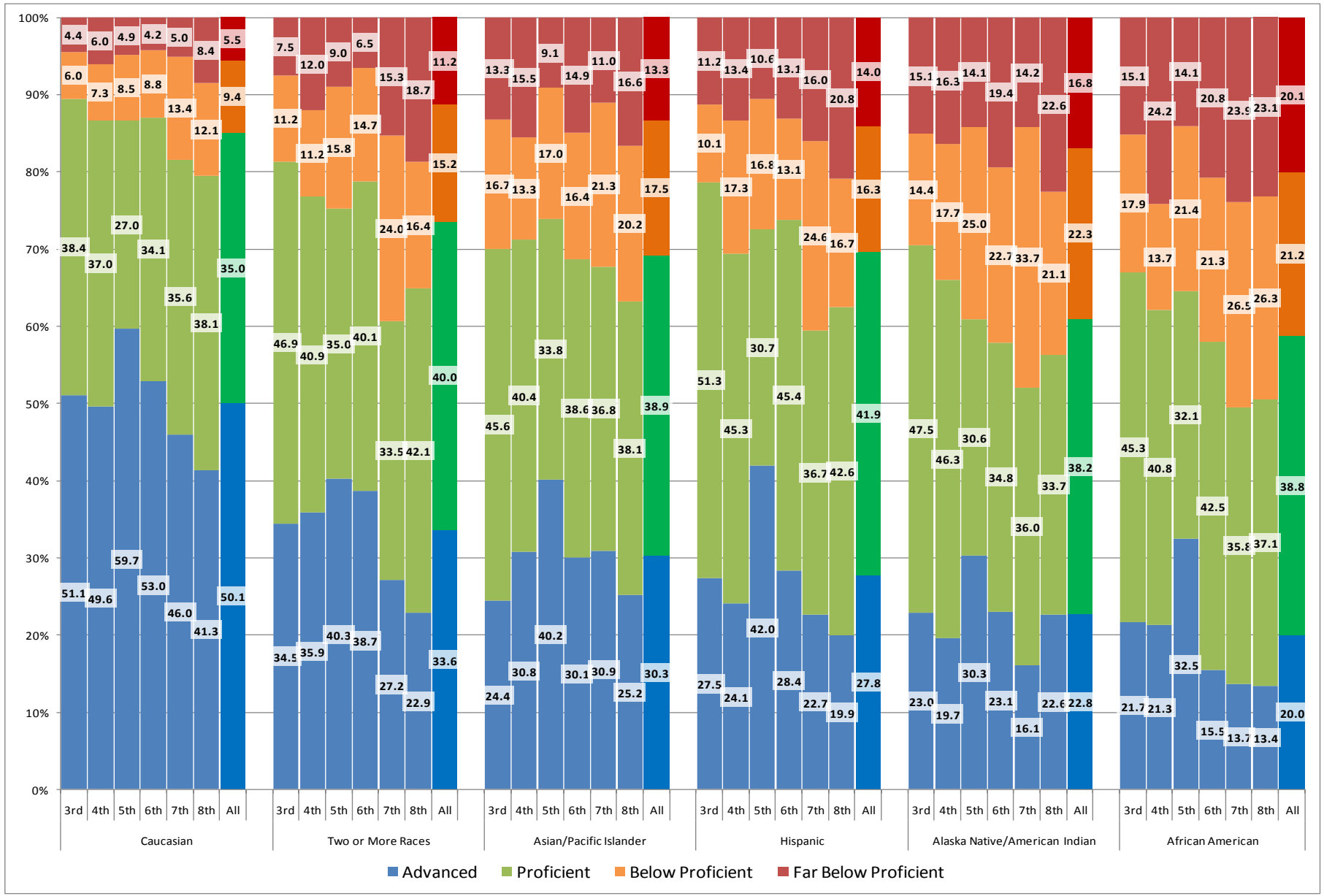
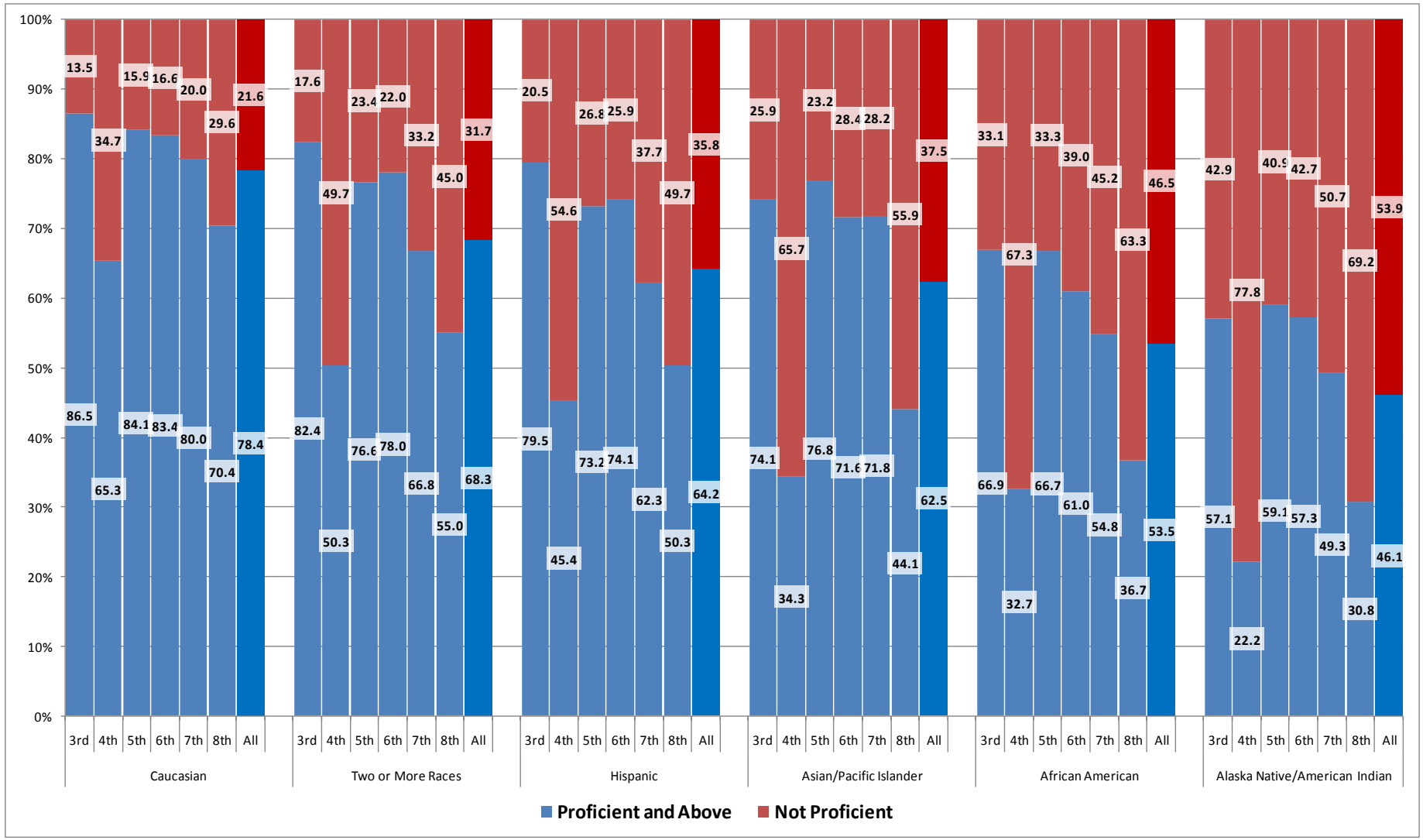


Exhibit 9. Alaska 2010 Mathematics Standards Based Assessment (SBA) Disaggregated by Ethnicity, Percentage Proficient and Above and Percentage Below Proficient and Far Below Proficient



Note: Alaska data by ethnicity was reported on the state Website by two performance levels only.

Exhibit 10. Anchorage Mathematics SBA Percentage Proficient or Above by Ethnicity Compared to the Rest of Alaska, 2008-2010

SBA Mathematics % Proficient and Above	2007 - 2008			2008 - 2009			2009 - 2010			2 yr change		
Ethnicity	ASD	other AK	Gap	ASD	other AK	Gap	ASD	other AK	Gap	ASD	other AK	Gap
Grade 3												
White	89.01	**85.99**	3.01	86.88	83.54	3.34	**89.51**	85.17	4.34	0.50	(0.82)	1.33
Black	64.24	68.68	(4.44)	59.56	68.42	(8.86)	66.98	66.90	0.08	2.74	(1.78)	4.52
Hispanic	69.94	80.62	(10.68)	70.68	75.80	(5.12)	78.71	80.70	(1.99)	8.77	0.08	8.69
Asian/Pacific Islander	72.21	76.87	(4.66)	66.59	74.56	(7.97)	70.08	81.88	(11.81)	(2.13)	5.02	(7.15)
Alaska Native/American Indian	63.88	60.38	3.50	62.37	56.56	5.80	70.49	54.98	15.51	6.61	(5.40)	12.01
Multi-Ethnic	78.10	77.63	0.47	78.20	76.33	1.87	81.34	84.16	(2.82)	3.24	6.53	(3.29)
Total	**79.00**	**77.08**	**1.91**	**77.00**	**73.97**	**3.03**	**81.18**	**75.04**	**6.14**	**2.19**	**(2.04)**	**4.23**
White and Alaska Native/American Indian Gap	*(25.13)*	*(25.61)*	*0.48*	*(24.51)*	*(26.97)*	*2.46*	*(19.02)*	*(30.19)*	*11.17*	*6.11*	*(4.58)*	*10.69*
Grade 5												
White	86.68	82.44	4.24	84.44	78.33	6.10	86.68	82.85	3.83	0.00	0.41	(0.41)
Black	60.00	69.09	(9.09)	52.07	60.87	(8.80)	64.53	70.54	(6.01)	4.53	1.45	3.08
Hispanic	69.12	77.20	(8.08)	67.09	67.40	(0.31)	72.61	74.02	(1.40)	3.50	(3.18)	6.68
Asian/Pacific Islander	75.20	81.07	(5.87)	68.71	73.98	(5.27)	73.94	82.33	(8.39)	(1.26)	1.26	(2.52)
Alaska Native/American Indian	63.22	56.26	6.97	56.99	50.13	6.85	60.88	58.72	2.16	(2.34)	2.47	(4.81)
Multi-Ethnic	71.31	76.74	(5.43)	73.77	69.55	4.22	75.27	78.93	(3.65)	3.96	2.18	1.78
Total	**77.75**	**74.15**	**3.59**	**74.63**	**68.43**	**6.20**	**77.80**	**74.90**	**2.90**	**0.05**	**0.75**	**(0.70)**
White and Alaska Native/American Indian Gap	*(23.45)*	*(26.18)*	*2.73*	*(27.45)*	*(28.20)*	*0.75*	*(25.80)*	*(24.13)*	*(1.67)*	*(2.34)*	*2.05*	*(4.40)*
Grade 6												
White	85.95	81.60	4.36	82.71	77.75	4.96	87.07	81.64	5.43	1.11	0.04	1.07
Black	51.05	62.42	(11.38)	54.17	60.58	(6.42)	57.97	65.28	(7.31)	6.92	2.85	4.07
Hispanic	70.39	74.10	(3.71)	63.48	65.24	(1.75)	73.78	74.49	(0.71)	3.39	0.38	3.00
Asian/Pacific Islander	74.17	79.86	(5.70)	67.18	74.39	(7.21)	68.67	77.24	(8.56)	(5.49)	(2.63)	(2.87)
Alaska Native/American Indian	65.09	54.86	10.23	54.18	**47.65**	6.53	57.86	57.22	0.64	(7.23)	2.36	(9.59)
Multi-Ethnic	75.56	73.26	2.30	66.76	71.43	(4.67)	78.80	76.64	2.16	3.25	3.38	(0.13)
Total	**77.82**	**72.51**	**5.31**	**72.31**	**67.90**	**4.41**	**77.50**	**73.09**	**4.41**	**(0.32)**	**0.58**	**(0.90)**
White and Alaska Native/American Indian Gap	*(20.87)*	*(26.74)*	*5.87*	*(28.53)*	*(30.10)*	*1.57*	*(29.21)*	*(24.42)*	*(4.79)*	*(8.34)*	*2.32*	*(10.66)*
Grade 8												
White	80.59	75.79	4.81	79.71	74.51	5.20	79.45	78.75	0.70	(1.14)	2.97	(4.11)
Black	54.22	52.50	1.72	**36.87**	53.16	(16.29)	50.54	55.14	(4.60)	(3.68)	2.64	(6.32)
Hispanic	67.70	60.64	7.06	58.39	58.46	(0.07)	62.50	74.54	(12.04)	(5.20)	13.89	(19.10)
Asian/Pacific Islander	64.66	71.88	(7.23)	57.05	70.97	(13.92)	63.23	77.86	(14.63)	(1.43)	5.97	(7.41)
Alaska Native/American Indian	55.66	50.77	4.88	48.58	49.00	(0.41)	56.32	52.21	4.11	0.67	1.43	(0.77)
Multi-Ethnic	68.62	59.76	8.86	66.57	64.55	2.02	64.94	73.06	(8.13)	(3.69)	13.31	(16.99)
Total	**72.36**	**66.75**	**5.61**	**67.95**	**65.74**	**2.21**	**70.03**	**69.99**	**0.04**	**(2.33)**	**3.25**	**(5.58)**
White and Alaska Native/American Indian Gap	*(24.94)*	*(25.01)*	*0.07*	*(31.12)*	*(25.52)*	*(5.61)*	*(23.13)*	*(26.54)*	*3.41*	*1.80*	*(1.53)*	*3.34*
Grades 3, 5, 6 and 8												
White	85.45	81.35	4.10	83.35	78.51	4.84	85.66	82.10	3.56	0.21	0.75	(0.54)
Black	57.59	63.39	(5.80)	50.76	61.15	(10.38)	60.43	64.94	(4.51)	2.84	1.55	1.29
Hispanic	69.38	73.45	(4.07)	65.38	66.95	(1.57)	72.02	75.88	(3.85)	2.64	2.42	0.22
Asian/Pacific Islander	71.52	77.29	(5.77)	64.82	73.49	(8.67)	69.14	79.87	(10.73)	(2.38)	2.58	(4.96)
Alaska Native/American Indian	62.17	55.53	6.64	56.02	50.99	5.02	61.58	55.77	5.81	(0.60)	0.24	(0.84)
Multi-Ethnic	73.83	72.38	1.45	71.78	70.82	0.96	75.52	78.54	(3.02)	1.69	6.16	(4.47)
Total	**76.77**	**72.56**	**4.21**	**73.02**	**69.07**	**3.95**	**76.74**	**73.27**	**3.47**	**(0.03)**	**0.71**	**(0.74)**
White and Alaska Native/American Indian Gap	*(23.28)*	*(25.82)*	*2.54*	*(27.33)*	*(27.52)*	*0.18*	*(24.08)*	*(26.33)*	*2.24*	*(0.80)*	*(0.51)*	*(0.30)*

Data Sources: Anchorage database provided to the team; statewide data: statewideSBA.pdf (http://wwweed.state.ak.us/); Statewide SBA09; and Statewide_SBA.pdf

Exhibit 11. Anchorage Performance by Ethnicity, Percentage Proficient or Above on the SBA by Grade Level and Selected Ethnicities Compared to Ethnic Peers in Rest of Alaska, 2008-2010

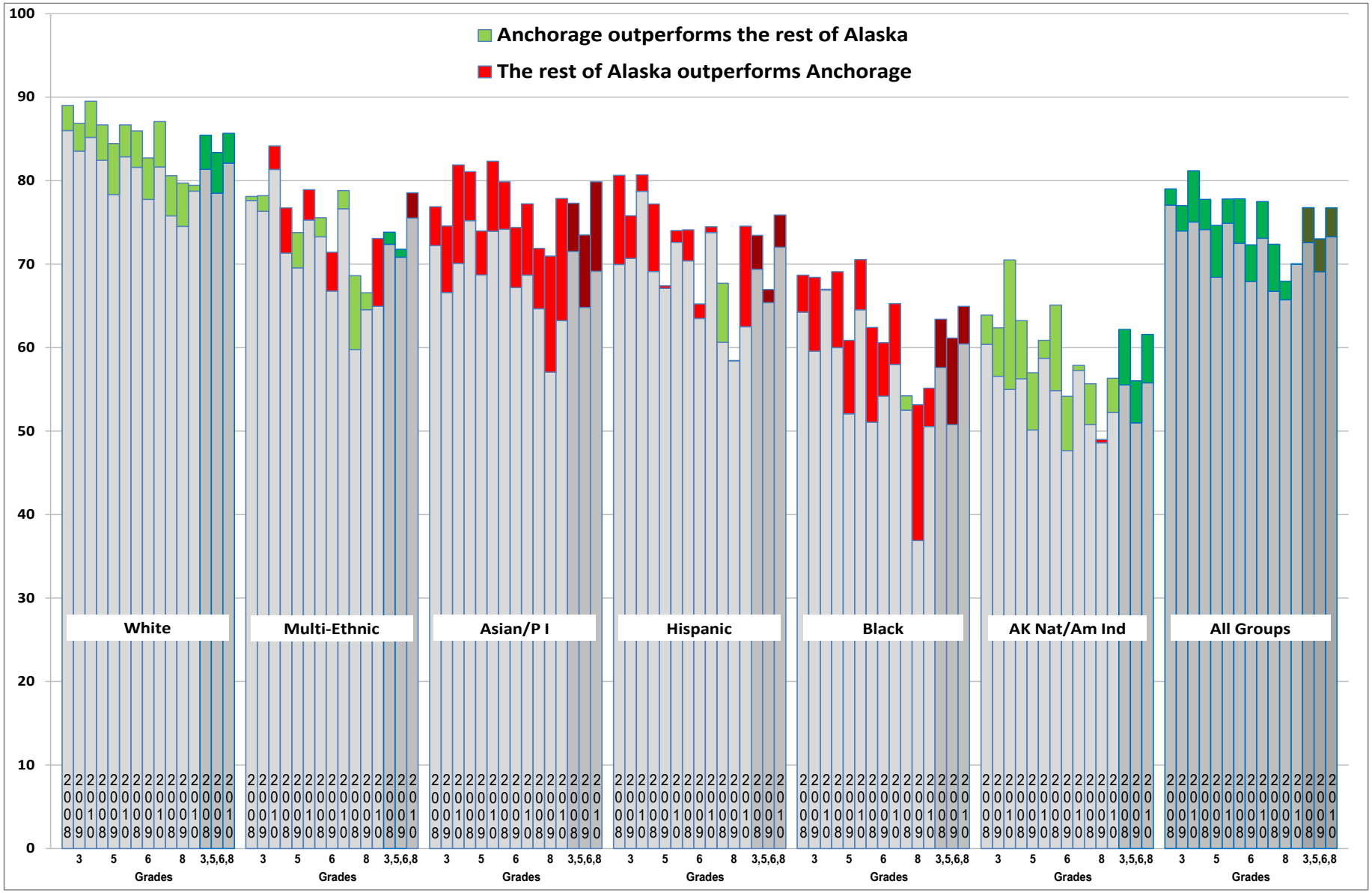


Exhibit 12. Anchorage Math Performance and Performance Gaps between English Language Learners (ELLs) and Non-English Language Learners (non-ELLs) by Percentage Proficient or Above on the SBA by Grade Level, 2008-2010

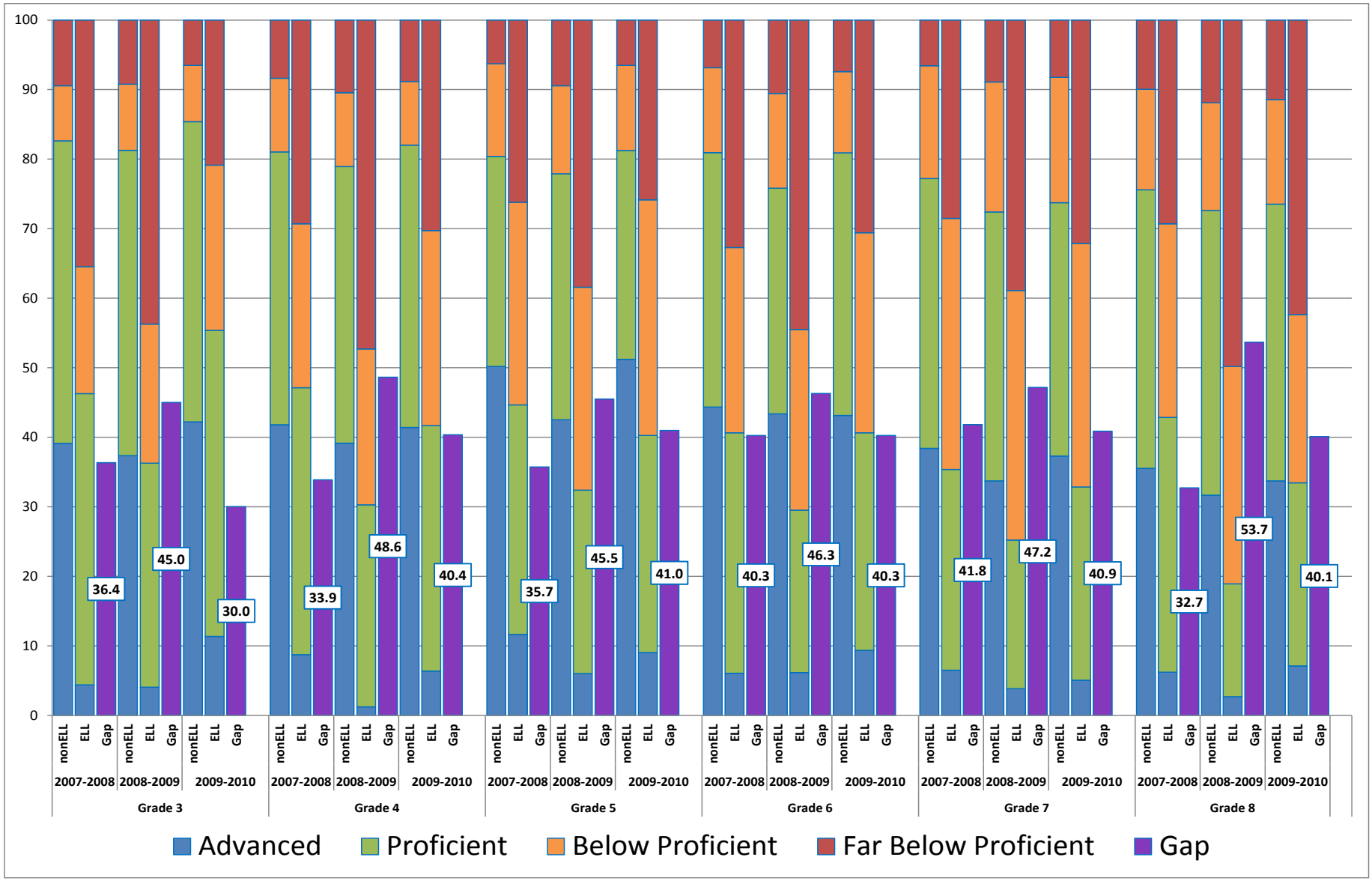


Exhibit 12, on the other hand, shows trends in the math achievement of English language learners (ELLs) and compares and contrasts that performance with the math attainment of non-ELL students. The results show substantial gains in math scores at the advanced and proficient levels among ELLs in grades 3-8 between 2007-08 and 2009-10, although there was an unexplained dip in scores in 2008-09.[14] There was also a substantial narrowing of gaps between ELLs and non-ELL over the three-year period, but the difference between the two group's attaining advanced and proficient levels was still 30 percentage points in 2009-10.

Three-Year Longitudinal Cohorts

Status scores alone, however, do not provide a complete picture of student performance in math because annual performance levels represent a changing cohort of students every year. Fourth-grade performance does not reflect the same students who were in third grade the previous year, for instance—an important issue in Anchorage where student mobility is high. In addition, the test itself can vary from year to year and across grade levels. Annual snapshots of students performing at proficient levels each year also do not account for differences in starting points among students, who may be beginning their cohorts at very low levels. Consequently, annual changes in performance levels can give the reader some information, but the picture remains incomplete. Alaska itself is beginning to report two-year cohort data in ways that are similar to the methodology used here.

We screened district data to determine which students remained in the district for *three* consecutive years (2007-08 through 2009-10), and we examined the SBA data on each student over each of the three years.[15] This methodology eliminated students who were in pre-kindergarten through second grade in 2007-08 and in seventh and eighth grades that year.

Of the ASD students who were in third grade in spring 2008, there were 2,803 who were also enrolled in ASD in fourth and fifth grades over the three-year period. We then examined the SBA math data on those students in four ways.

First, we examined the number and percentage of those students achieving at each performance level in spring 2008 and spring 2010, and we calculated the change in the numbers and percentages of students scoring at each level over time. For example, in the spring 2008 SBA test, about 36.1 percent (1,012 students) of the 2,803 ASD third graders scored at the advanced performance level; 43.4 percent scored at the proficient level; 8.7 percent, at the below-proficient level; and 11.8 percent, at the far-below-proficient level.

By spring of 2010, however, an additional 346 students who were in Anchorage schools all three years improved their math performance to the advanced level. About

[14] There are a number of possible explanations for the dip in scores in 2008-09, but the Council considered them beyond the scope of this review.

[15] The district furnished student data from its warehouse but removed student names and identifying information and then created a set of pseudo identification numbers for use in the analysis.

376 fewer students scored at the proficient level on the SBA than in spring 2008. As a result, the percentage of ASD students scoring at the advanced level increased from 36.1 percent to 48.4 percent of the cohort.

At the same time, the number of students doing math at the proficient level fell by 13.4 percentage points, the proportion of students scoring at the below-proficient level rose by 5.0 percentage points, and those far below proficient decreased by 3.9 percentage points. The district improved the scores of 109 students who had initially been at the lowest math level. (See exhibit 13.)

Exhibit 13. Math Performance on the SBA for Three-Year Longitudinal Cohort of Anchorage Students, Grade 3 in 2007-08 and in Grade 5 in 2009-10*

	07-08		09-10		Gap	
Performance	**Student**		**Student**		**Student**	
Level	**Count**	**Percent**	**Count**	**Percent**	**Count**	**Percent**
Advanced	1,012	36.1	1,358	48.4	346	12.3
Proficient	1,217	43.4	841	30.0	(376)	(13.4)
Below Proficient	244	8.7	383	13.7	139	5.0
Far Below Proficient	330	11.8	221	7.9	(109)	(3.9)
Total Students	2,803	100.0	2,803	100.0		

*Data source: Anchorage School District data furnished to the team.

Second, the Council created a rudimentary "value added" measure by examining how individual students in this cohort changed their math performance levels between spring 2008 and spring 2010. In exhibit 13 below, the first (far left) column shows how many students scored at each performance level in 2007-08. The percentages under the 2009-2010 heading show the performance levels of those students after three years of attending ASD schools. For example, of the 1,012 third graders in ASD over three years who attained the advanced level in math in spring 2008, 86.8 percent were still performing at the advanced math level two years later. About 12.1 percent dropped to the proficient level, and about 1.0 percent dropped to the below proficient level.

Surprisingly, a small number of students who had been at the advanced level in 2008 fell to the far-below-proficient category in 2010 (0.2 percent). (See exhibit 13.) Therefore, the gain in the advanced level seen earlier does not reflect the fact that there were some third graders who had been at the advanced level in 2008 but who were not performing at that level three years later.

Of the 1,217 third grade students in the cohort who were at the proficient math level on the SBA in 2008, the district was able to improve the math performance of 38.1 percent of them to the advanced level by 2010. Some 47.9 percent remained at the proficient level, 12.3 percent declined to the below-proficient level and 1.6 percent declined to far-below-proficient level.

Of the 244 third grade students scoring at the below-proficient level in spring 2008, about 43.0 percent were still at that level in spring 2010. Some 36.1 percent of those students had improved to the proficient level by 2010, and an additional 4.1 percent had moved to advanced. However, 16.8 percent had dropped to the far-below-proficient category. Moreover, of the 330 third graders who scored at the far-below-proficient level in 2008, over half had progressed to a higher performance level in math by 2010: 35.8 percent rose one level to below-proficient, 14.5 percent rose to proficient, and 1.8 percent went all the way to the advanced level by fifth grade. However, 47.9 percent remained at far-below-proficient. (See exhibit 14.)

Exhibit 14. SBA Math Value-Add for the Three-Year Longitudinal Cohort of Anchorage Students, 2007-08 to 2009-2010*

	Mathematics Achievement Three-Year Cohort Value-Add Percentage			
	2007 – 2008 to 2009 – 2010			
Column: Number of students achieving at these levels in spring 2008. *Row: Level of same students in spring 2010*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=1012)	86.8	12.1	1.0	0.2
Proficient (N=1217)	38.1	47.9	12.3	1.6
Below Proficient (N=244)	4.1	36.1	43.0	16.8
Far Below Proficient (N=330)	1.8	14.5	35.8	47.9

*Data source: Anchorage School District data furnished to the team

Third, we determined the total number and percentage of students who had progressed, regressed, or remained at the same proficiency level over the three-year period. Of the 2,803 students in the third grade cohort in 2008, the school system had improved the achievement levels of 26.2 percent of them by 2010. Most of this improvement was by one performance level (23.9 percent), but 2.1 percent improved two levels, and 0.2 percent improved three levels. (See exhibit 15.)

Exhibit 15. Percentage of Anchorage Students in the Longitudinal Cohort who Remained at the Same Performance Level on the Math SBA or Improved or Declined by One to Four Levels, 2008 through 2010*

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	12.3		11.2	1.1	0.1
%No Change	61.5	61.5			
%Progressed	26.2		23.9	2.1	0.2

*Data source: Anchorage School District data furnished to the team

On the other hand, some 12.3 percent had declined in their math performance. About 11.2 percent had dropped one level; 1.1 percent, two levels; and only 0.1 percent, three levels. About 61.5 percent attained the same performance level in spring 2010 that they had attained in spring 2008. One should note that Anchorage had a high proportion of its third graders at the advanced level, so these could not move to a higher level.

Fourth, the team created a "net weighted impact metric" to compare district gains and losses among students in 2008 with those same students who remained in the district for the subsequent three years and were tested on the SBA in each of those three years. To derive the metric, the team applied a positive or negative multiplier to the percentage of students who gained or regressed performance levels over the three years. The weight for regressing one level was (-1); for regressing two levels, (-2); and so on. Gains in performance levels earned positive weights. The weighted scores were then totaled to derive a "net weighted impact metric." The resulting total is a relative measure of how the district's instructional program in mathematics has impacted its students who have been enrolled for three years. In the case of third graders, the impact has been a positive one.

Net weighted impact metric	
positive	**15.2**

This methodology—the net weighted impact metric—assumes that the state tests are aligned in terms of both content and level of difficulty from year to year. But the reader should treat the data cautiously and avoid over-interpretation. The Council stipulated this caution because—

(1) The standard error of measurement is different for each grade and subject.

(2) Scale scores for each subtest may not be vertically equated across grades.

(3) Test score comparisons from one year to the next are less valid at the individual student level, a pattern particularly true for the highest and lowest performing students.

In spite of these limitations, the team went forward with the analysis because it provided a helpful big-picture story about how the district's schools were doing. Also, the analysis signals to the state that both its assessment system and how it is calibrated continue to include challenges that prevent this report from being free of caveats.

The team conducted this same cohort study on all major student groups, as well as for grades 4-6, grades 5-7, and grades 6-8. In general, students who were enrolled in Anchorage *elementary* schools for those three years of mathematics study tended to improve their SBA performance level in math.[16] This is particularly true for all groups of students who were in ASD in third grade in 2008 and for English language learners (ELL). In 2008, ELL students demonstrated the strongest net weighted impact metric of

[16] Complete charts for all of these groups are found in Appendix C.

any student groups in both third and fourth grades (37.8 and 25.0, respectively). These ELL net weighted metrics are three times greater than for non-ELL students in the third-through-fifth-grade cohorts and about five times greater than for non-ELL students in the fourth-sixth-grade cohorts. (See Exhibit 16 and Appendix C.)

On the other hand, there was a tendency among older cohorts (grades 5-7 and 6-8) for the net weighted metric to fall as they progressed through the middle school grades. For instance, between 2008 and 2010, the metric declined by 21.6 points for students in the grade 5-7 cohort and by 22.1 points in the grade 6-8 cohort. This decline mirrors the general tendency of students in Anchorage and statewide to show lower scores in middle school than in the elementary grades.

In addition, Alaska Native and American Indian students showed a positive metric in the grade 3-5 cohort, but in the grade 5-7 and 6-8 cohorts, the metric declined by more than that for the all-students category (-28.2 and -24.3, respectively). All other groups at the middle school levels showed relatively stable metrics. It is notable, however, that, except for the grade 3-5 cohort, black students had slightly negative metrics (-2.1), compared with other cohorts. On the other hand, Hispanic students had positive metrics in every cohort group, with the greatest growth in the grade 3-5 cohort (22.8). (See exhibit 16 and appendix C.) These findings are consistent with the previous analysis.

Exhibit 16. Net Weighted Impact Metric by Student Group on the Spring SBA Mathematics Test for Anchorage Cohorts of Students Enrolled Continuously in Anchorage Schools between 2008 and 2010.

Student Group	Grade 3 2008-Grade 5 2010	Grade 4 2008-Grade 6 2010	Grade 5 2008-Grade 7 2010	Grade 6 2008-Grade 8 2010
All Students	+15.2	+5.8	(21.6)	(22.1)
Alaska Native/ American Indian (combined)	+11.7	(1.6)	(28.2)	(24.3)
Alaska Native	+11.3	--	--	--
American Indian	+16.7	--	--	--
Black	+17.8	(2.1)	(2.1)	(2.1)
Hispanic	+22.8	+2.5	+2.5	+2.5
White/ Caucasian	+11.2	+7.7	+7.7	+7.7
English Language Learners (ELL)	+37.8	+25.0	+7.7	(2.1)
Non ELL	+12.5	+4.4	+4.4	+4.4
Students with Disabilities	+10.9	+9.3	+9.3	+9.3
Gifted	+1.5	0.0	(9.0)	(11.7)
Qualified for FRPL	+15.6	+2.5	-25.6	-26.7
Not FRPL	+12.6	+6.9	-18.6	-19.1

Finally, the relatively low metrics among the gifted student cohort were probably due to the fact that it was impossible, by definition, to move beyond the advanced level over the three-year period. And since the metric weights growth by the number of levels gained, there was no opportunity for increases of more than one level.

Student Achievement by School and Math Program

Considerable discussion in the Anchorage School District revolves around which math textbook would lead to improved achievement results. The district furnished a table of the elementary math textbooks in use in each school, beginning in the 2008-09 school year. The data included seven elementary schools that use a textbook other than *Everyday Mathematics* (EDM) for three years or more and 54 unnamed elementary schools that use EDM. Birchwood ABC and Northern Lights ABC continually used *Saxon Math* during the three-year period. *Saxon Math* was used in 2010-11 in Northwood ABC and Alaska Native Charter. Chugach Optional and Polaris K-6 have been using *Investigations* for the past three years. Denali Montessori used *Montessori Math* all three years of this analysis.

Based on that information, the team removed several schools from the data in order to arrive at 61 schools[17] and asked the district for data on the schools using pseudo-identification numbers in order to examine the percentage of students who attained a ranking of proficient or above on the math SBA in 2009-10 by elementary school grades 3-6 against the percentage of students who were eligible for a free or reduced-price lunch (FRPL).[18]

The results show that in 2009-2010, in the school with 4.1 percent FRPL enrollment, the general socio-economic status of the school was high. Conversely, in 2009-2010, in the school where 89.0 percent of the enrollment was FRPL, the student body was much poorer. The team then graphed the 2009-10 math SBA results using a dot to represent each school. Each school dot corresponds on the vertical axis to the percentage of FRPL students at the school and on the horizontal axis for the percentage of students in grades 3-6 at that school who achieved at the proficient level or above in math. The blue dots indicate schools using EDM in 2009-10. Schools using *Saxon Math*, *Investigations*, and *Montessori Math* are labeled and shown in a different color. (See exhibit 17)

If there were no correlation between the level of poverty and student achievement, then one would see random dots and a trend line that was basically horizontal. That is not what we find in Exhibit 17, however. Instead, we have a definite trend line that indicates that, as the percentage of students eligible for free or reduced-price lunch goes up, the proportion of students achieving at proficient or above goes down. Indeed, the correlation coefficient for the 61 schools in the graph is -0.823.

[17] The team removed the following schools from the data set: Debarr Residential Treatment, Family Partnership Charter School, Frontier Charter School, Girdwood School, Outreach, Rilke Schule Charter School, Whaley Center, Winterberry Charter School.

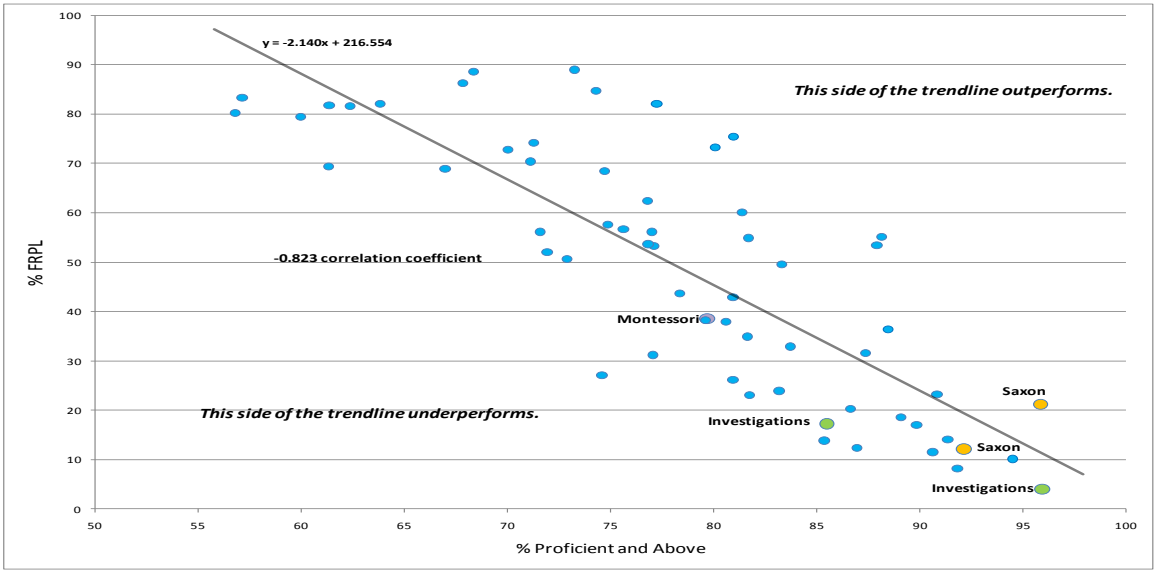
[18] The latest year of SBA data available to the team is 2009-10.

Schools that are above the trend line had student achievement that was higher than predicted statistically based on poverty levels. Schools below the trend line performed worse than predicted statistically. The vertical distance a dot lies away from the trend line indicates how much better or worse a school performs than predicted from this socio-economic demographic.[19]

The team then calculated a dimensionless metric to indicate the relative vertical distance each school dot was from the predicted trend line. The full list is shown in Appendix D. The metric ranges from a +14 to a -13. Positive metrics indicate that schools whose percentages of students attaining proficient or above in math are higher than was predicted by the use of FRPL data. Conversely, negative scores indicate underperformance. Twenty-seven schools performed better than predicted by the trend line. One school is precisely on the trend line, and 33 performed worse than predicted.

All of the schools using textbooks other than EDM between 2008 and 2010 tended to have lower or much lower proportions of students in poverty. In addition, all of the schools using textbooks other than EDM had high percentages of students at proficient or above. However, the graph shows that all but one of these schools underperformed the trend line. One of the schools using *Saxon Math* underperformed and one outperformed the trend line prediction. The one school that outperformed shared the rank of 14th among EDM schools that also outperformed the trend line. The two schools using *Investigations* had very few students in poverty, but both underperformed the trend line prediction. The Montessori program likewise underperformed for the composition of its student body.

Exhibit 17. School Performance as Percent Proficient and Above on SBA Math Grades 3-6 versus Percent Qualified for Free and Reduced-Price Lunch, 2009-10



[19] The trend line equation is y = 2.1399x - 1.1655. The distance from the trend line is calculated by subtracting the actual y value from the predicted trend line y value for a given x.

DISTRICT ACCOUNTABILITY

In Alaska, Adequate Yearly Progress (AYP) under *No Child Left Behind* is determined for the district as a whole, individual schools, and student groups greater than 25 at each school within a district. Student groups include:

- o Schoolwide—all students
- o African American/Black
- o Alaska Native/American Indian
- o Asian
- o Caucasian
- o Hispanic
- o Two or more races (multi-ethnic)
- o Economically disadvantaged (EDS)
- o Students with disabilities (SWD)
- o Limited English proficient (LEP)

AYP requires each of these groups to meet a specific passing rate on the SBA. However, making sufficient annual gains toward the annual goals (Safe Harbor) can satisfy AYP requirements. Safe harbor is calculated for the district as a whole, individual schools, and student groups for grade spans 3-5, 6-8, and 9-10 rather than by individual grades.

The annual measurable objective (AMO) in Alaska—i.e., the percentage of students that must score at the proficient level or above, has increased steadily since 2003-04. (See exhibit 18.)

Exhibit 18. Annual Measurable Objectives (AMO) for the State of Alaska, 2004-05 through 2013-14.

Year	Language Arts AMO	Mathematics AMO
2002-03	64.03%	54.86%
2003-04	64.03	54.86
2004-05	71.48	57.61
2005-06	71.48	57.61
2006-07	71.48	57.61
2007-08	77.18	66.09
2008-09	77.18	66.09
2009-10	77.18	66.09
2010-11	82.88	74.57
2011-12	88.58	83.05
2012-13	94.28	91.53
2013-14	100%	100%

Source: http://www.eed.state.ak.us/tls/assessment/Accountability/AKAYPWkBk_120710.pdf, State Accountability Workbook, page 37.

This target moved higher again in the 2010-11 school year and will move each year afterwards until 2013-14 when it reaches 100 percent proficiency. Since the math AMO will continue to rise each year, attaining AYP becomes an ever more difficult goal.

The district as a whole is at Level 4 under *No Child Left Behind.* The district meets the required 95 percent testing-participation rate for all groups and meets the required graduation rate. As a district, the AMO for language arts was met in 2010, but six subgroups did not meet the standard.[20] The district as a whole also met the 2010 math AMO, but African Americans, students with disabilities, and limited English proficient (LEP) students did not meet the standard. Alaska Native and American Indian and economically disadvantaged student groups met the AMO through Safe Harbor.[21]

Of 58 elementary schools in ASD, substantially more than half (33) made AYP in 2010. However, 14 of those schools made AYP through Safe Harbor. Math performance was a factor in 11 of the 25 elementary schools that did not make AYP. Of Anchorage's 11 middle schools (if we include Stellar Secondary 7-12), nine did not make AYP in 2010, and one made AYP through Safe Harbor. All together, 16 elementary and middle schools (including one charter school) made AYP through Safe Harbor.[22]

In addition, seven of eight charter schools made AYP, and one did not. Of the seven, one charter made AYP through Safe Harbor. Among other types of schools in ASD, five made AYP in 2010 and five did not. All of those making AYP do so through Safe Harbor. In three of the five schools, math performance was a factor in not making AYP. (See exhibit 18.)

Exhibit 19. Anchorage AYP Performance for 2010.

	Number	Made AYP	Made AYP Through Safe Harbor	Did Not Make AYP	Math Was a Factor in Not Making AYP
Elementary	58	33	14	25	11
Middle Schools	11	2	1	9	9
Charter Schools	8	7	1	1	0
Other	10	5	5	5	3

Of the elementary schools in ASD that did not make AYP in 2010, seven were in Level 1 sanction, six in Level 2, and four were in Level 3. ASD had four elementary schools in Level 5. One of these was in the second year of Level 5, and one was in the third year.

[20] African American, Alaska Native and American Indian, Asian, economically disadvantaged, students with disabilities, and LEP students

[21] 2009-2010 Adequate Yearly Progress, printed 08/27/10

[22] Baxter, Campbell, Chinook, Chugiak, Creekside, College Gate, Kincaid, Mountain View, Mt. Spurr, Northwood ABC, Taku, Park, Ursa Major, William Tyson, Wonder Park Elementary Schools, Alaska Native Charter School, and Goldenview Middle School.

Only one middle school was in Level 2 sanction under *No Child Left Behind* and only one in Level 3. Middle schools tended to have been in sanction status longer than most elementary schools. Seven middle schools were in various stages of Level 5 sanction. (See exhibit 20.)

Exhibit 20. Accountability Status of Anchorage School District Schools, 2009-2010

AYP Status	Elementary	Middle	Charter	Other
Level 1	7	---	---	---
Level 2	6	1	---	---
Level 3	4	1	---	---
Level 4	4	---	---	---
Level 5	1	1	---	2
Level 5, Year 2	2	1	---	---
Level 5, Year 3	1	3	1	1
Level 5, Year 4		2	---	1
Level 5, Year 5				1

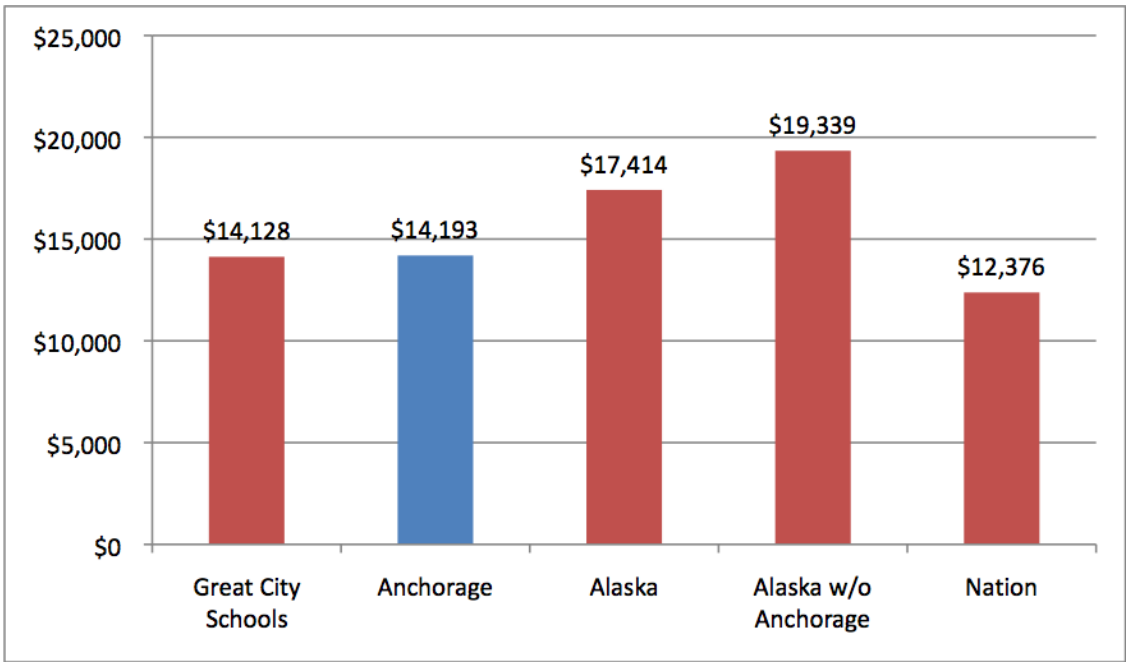
One should also note that 11 schools in ASD *did* meet AYP for the first time in 2010, after having been in various stages of corrective action. District data furnished to the team indicated that five elementary schools made AYP after having been in Level 2 sanction. One elementary school from Level 3 and one elementary school from Level 4 made AYP for the first time in 2010. In fact, two elementary schools were able to move from Level 5 to meeting AYP for the first time. Almost all schools achieved that goal through Safe Harbor. This was also true for the one middle school that moved from Level 3 and for the Crossroads school that moved from Level 5 to make AYP in 2010.

Finances

Finally, the Council team used the latest available data (2008-09) from the National Center for Educational Statistics to look at the district's overall spending level, compared with the state and Great City School averages. The data indicate that Anchorage spends $14,193 per pupil, an amount that is almost exactly the same as the Great City School average of $14,128 per pupil. The national spending rate per pupil in 2008-09 was $12,376.

Moreover, the spending level in Anchorage was substantially below the statewide average of $17,414 per pupil. The difference between the city and the state is greater, however, when one takes Anchorage out of the statewide averages. In this case, the statewide spending level was $19,339 per pupil, a level that was over $5,000 greater than the per pupil amount in Anchorage. Put another way, Anchorage's spending level actually lowers the statewide expenditure by over $2,000 per pupil. (See exhibit 21.)

Exhibit 21. Expenditures per Pupil in Anchorage, compared with the State, the Great City Schools, and the Nation, 2008-09



Chapter 2: Findings

This chapter summarizes the findings of the Council's Strategic Support Team (SST) on the Anchorage School District's mathematics program. Research by the Council of the Great City Schools indicates that urban school districts that have improved academic performance significantly share a number of common characteristics that set them apart from urban systems that have not shown much progress.[23]

This report organizes the Strategic Support Team's findings and suggested next steps around these 10 common themes among urban districts with substantial achievement gains: political preconditions, goals, accountability, curriculum and instruction, professional development and teacher quality, reform press (or the ability to get reforms into the classrooms), assessment and use of data, lowest-performing students and schools, early childhood education and elementary schools, and middle schools.

Since the purpose of the team was to examine the district's math program, we focus our findings on the mathematics program *per se*. However, when other influences are likely to impact the mathematics program, we include those issues in the findings.

FINDINGS

The SST assembled by the Council of the Great City Schools interviewed dozens of people and reviewed scores of documents for this project. All findings and observations are current as of November, 2010, when the team made its site visit. We included updated information since the site visit as the team obtained about it.

HIGHLIGHTS

- ★ The superintendent is a nationally recognized leader in curriculum and instruction. She also enjoys one of the longest tenures of any urban school superintendent in the nation and has a good working relationship with the elected school board.
- ★ The district is facing sharp budget cuts and, like many big-city school districts, has limited control of its revenues.
- ★ The district works hard to build multicultural understanding and has developed strong relations with community groups.
- ★ While the district's state-assessment scores in mathematics decline between third grade and eighth grade, student cohort data show improvement in math achievement on the SBA.

[23] Snipes, J., Doolittle, F., Herlihy, C. (2002). *Foundations for Success: Case Studies of How Urban School Systems Improve Student Achievement*. MDRC for the Council of the Great City Schools.

- ★ The district has high student-mobility rates and spending levels below the statewide average.

- ★ The district has been using *Everyday Mathematics* as its elementary textbook and has adopted *MathScape* for middle schools.

- ★ The district has devoted considerable resources and attention to its literacy program and is capable of doing quality professional development in mathematics.

- ★ Overall district support and technical assistance to its schools on the implementation of its math programs is not strong.

A. POLITICAL PRECONDITIONS

Urban school districts that have improved significantly over the last several years have a number of common characteristics. These commonalities also set them apart from urban school systems that have not seen significant improvements. One key indicator of an effective urban school district is the political unity of the school board, its focus on student achievement, and its ability to work with the district administration to improve academic performance. The Strategic Support Team met with six of the seven members of Anchorage School District's school board.

Positive Findings

- All school board members are elected and fill at-large seats rather than serving a single district. Members expressed a strong feeling of responsibility for all Anchorage students and were focused on students' academic attainment.

- A high number of schools have student achievement at or above state-required levels needed to make Adequate Yearly Progress (AYP) under *No Child Left Behind*. (See previous chapter.)

- Interviewees indicate that the school board and superintendent maintain good working relationships and that there is open communication between the board and the superintendent.

- The district conducts annual surveys of the public to gather feedback on programs and practices. Survey responses indicate that the superintendent is well respected, and interviews conducted by the team also reflect the high regard that stakeholders have for the superintendent.

- The district has established and supported eight charter schools.

- The school district leadership team is committed to the district and its students and expressed openness to recommendations for improving the math program and student achievement.

- The district spends about $5,000 less per pupil than the balance of the state of Alaska but still manages to provide a quality education for the community's children.

- The district has been proactive in developing a pipeline for new administrators.

- District staff members and the community strongly support school options and choices available throughout the district.

- Community groups interviewed by the team were strong advocates for students and parents. Interviewees were knowledgeable about community needs and seemed to have the respect of community members.

- Some parents were engaged in the schools and very articulate about issues within the district, including the pros and cons of the district's mathematics program.

- The superintendent posts major cultural and religious days of significance on the district's Website to ensure that district and schools take the community's diverse needs into account in scheduling events.

- Parents can access the district's Zangle database through ParentConnect to obtain information about their children.

Areas of Concern

- School board meeting agendas show time being set aside at each session for updates on projects and student performance, but the reports examined by the team do not indicate analysis of data for next steps.

- The district is faced with a tight budget and had to cut $12 million as state and local budgets responded to the weak economy. The district derives its funding from state (approximately 64 percent), local (approximately 31 percent), and federal sources (approximately 3 percent).

- The mobility rate in Anchorage averages 27.0 percent. About 48 of 98 schools have higher rates.

- Many individuals interviewed by the Council's team conveyed little sense of urgency about improving student achievement among minority students or English language learners.

- Despite district efforts regarding cultural competency, interviewees sometimes expressed low academic expectations for Alaska Native students, students with interruptions in their formal education (SIFE), and ELLs (especially long-term ELLs).

- The district uses surveys to gather information about how it is being perceived, but it lacks a formal process to hear and respond to stakeholders who raise concerns. Similarly, it lacks a mechanism by which it ensures that any changes made in response to stakeholder concerns actually penetrate schools and classrooms. Many interviewees indicated that they had expressed concerns about the district's math program but that they had not been heard. Stakeholders are often not clear that their concerns are actually linked to district next steps.

  For example, in the interviews, some parents and teachers expressed long-standing concerns that students in elementary math were not being taught math facts. These concerns were also noted in the on-line survey conducted by the Council. However, the team reviewed the district's curriculum documents and found that part of every math lesson was to be specifically devoted to math facts and memorizing math facts. Unfortunately, the district did not point out to those raising the concerns how it was addressing the issues—at least, it did not communicate in a way that people heard. Nor was the district able to make all administrators and teachers aware of the requirement or aware of where they could access district-provided practice materials on math facts. Finally, the district had few mechanisms to ensure that practice on math facts was being put into place in classrooms. In fact, some teachers interviewed by the team chose to pursue this practice, others invented their own materials, and others chose not to do math facts at all.

- There is a perception in the community that curriculum support at the central office is over-staffed, without recognizing its core function to support campus work. Districts successfully implementing the type of math program used in ASD often devote considerable resources to on-site staff development and planning around math concepts and pedagogy, along with just-in-time, structured technical assistance and coaching on upcoming lesson concepts and skills. The Council team did not find the same level of support available to ASD schools.

B. GOALS

Urban school systems that have seen significant gains in student achievement often have a clear sense of where they are going. This clarity is exhibited not only in the leadership consensus about the system's direction, but also in how leaders translate that broad vision into explicit academic goals that are set for both the whole school district and for individual schools. These goals are realistic, measurable, and accompanied by specific timelines, but they also stretch the district beyond its comfort zone.

Positive Findings

- The Anchorage Board of Education adopted five goals in August 2010 that included preparing students for success beyond high school—

  - All students will graduate from high school prepared for postsecondary academic/vocational/career opportunities.

  - The achievement gap between racial, ethnic, and economic groups in the highly diverse ASD will be eliminated through education that is accessible, culturally responsive, supportive of students, and safe.

  - ASD will partner with parents and the community for greater educational success for our students.

  - ASD will manage effectively and efficiently all financial and human resources.

  - All ASD departments will support the mission of the District with good customer service, both internally and externally.

- The district has a six-year strategic plan in place to guide its work. The original plan was organized around the first three board goals that were in place in June 2007. Individual department plans are written annually to support the six-year plan. Goals in annual department plans change to reflect changes in the school board's adopted goals for that year, a practice that the Council does not often see but which we think is a good practice.

- The school board requires an annual report on how well the district is meeting annual objectives in the district's strategic plan.

- The strategic plan includes a goal for ASD students to successfully complete Algebra I, a practice that exceeds state graduation requirements.

- The middle-school section of the strategic plan calls for a two-year cohort analysis of the percentage of students scoring proficient in mathematics on the SBA. The goal calls for a greater percentage of eighth graders in the cohort to score at proficient levels than they did in the seventh grade.

- The district provided the team with two documents that indicated annual progress on the strategic plan.[24] These documents were generally well thought out and contained considerable information on school system strides.

- Schools develop individual plans for improvement and plans must include goals for social emotional learning, writing, and one other academic goal.

- School board adopted goals are featured in both principal and teacher evaluation documents.

Areas of Concern

- Some district goals and strategic plan objectives provided to the team were contradictory. For example, the district has a goal to close the achievement gap

[24] The *Math Department Six-Year Plan Evaluation for FY 2007-2008 and the 11/8/2010 draft of the Six-Year Instructional Plan* each have comments on the status of all initiatives and objectives.

among accountability groups. However, the annual student achievement goal for each of the student groups is to improve 2.5 percent. If goals are not differentiated by group, then the district is not likely to be able to close achievement gaps.

- Existing goals in the strategic plan only address improving the percentage of students achieving proficiency. It lacks stretch goals to improve the percentage of students achieving advanced levels.

- The use of arrows stretching across multiple years in the six-year strategic plan does not indicate how objectives will evolve each year over the period.

- The six-year math department plan evaluation for FY 2007-2008 measures attainment of or progress on initiatives at a very superficial level. The plan lacks measures of the objectives that were met or an analysis of why some objectives were partly met or not met. Moreover, when objectives were not met, there was no indication of how those results will impact next steps. For example—

    - "Math support teachers wrote additional items to expand the GLE item bank. (p. 127)." This measure does not provide the number of items, their quality, or how that quality would have been determined.

    - The pilot for Math 6 enhancement classes to be held at nine elementary sites (p. 128) was deemed "met" simply because the classes were held at nine elementary sites serving 98 students from 27 elementary schools. There was no reference to the quality of the implementation or the impact of the implementation.[25]

    - Goal 1 regarding overall scores on the SBA target was not met for all students or all designated groups. The evaluation listed the results for all students by grade level. In seven out of eight grade levels, proficiency percentages decreased. However, the evaluation of the target did not list results for individual student groups as called for in the target (p. 128). Moreover, the team did not see any reference to an analysis that would propose reasons for the lack of positive growth or would suggest next steps.

- Most interviewees could not readily articulate the district's goals, nor could they recite their own goals.

- School goals are set by individual sites and do not necessarily roll up into district goals. Schools are required to have a goal in writing. However, schools may choose to have their second goal in language arts or math. Therefore, some schools have no mathematics goals in their school plans.

[25] The 11/8/2010 draft "Six-Year Instructional Plan 2009-10" has a similar measure for meeting the target to implement middle school mathematics support classes (initiative 3). That year's success was measured by having 10 middle schools implementing 54 sections of math support classes. Again, there was no measure of the quality of the implementation or the effect it was having on students.

- In most interviews, the team perceived a general lack of urgency around meeting goals and little recognition of the consequences this has for students.

C. ACCOUNTABILITY

It is not sufficient for a school system, particularly an urban one, to have goals if no one is held accountable for attaining them or there is not a sense of shared ownership of results. Urban school systems that have seen substantial improvement have devised methods for holding themselves responsible for student achievement or building a sense of professional accountability for student outcomes. Some successful districts also have instituted rewards or other incentives for achieving their goals, although the research continues to be mixed on their effectiveness.

Positive Findings

- The superintendent must report annual progress on the district's strategic plan as part of her evaluation.

- Interviewees often refer to SBA results as a measure of personal and professional success.

- The teacher evaluation system was written in collaboration with the Educational Excellence Joint Committee of Anchorage Education Association teachers and ASD administrators. The evaluation system requires pre- and post-classroom visits and follow-up conferences.

- Title I staff members measure progress and success by AYP results.

- Principal evaluations are conducted annually. Principals are charged with guiding instruction and supporting an effective learning environment with high expectations for student learning and staff performance. In addition, principals are charged with ensuring the district's adopted curriculum is the basic instructional program.[26]

Areas of Concern

- There is no quantitative measure for evaluating the results of district initiatives. Task completion is a more prevalent measure than the analysis of program impact.

- The district depends heavily on informal relationships to implement initiatives, and the concept of "mandatory" is not well accepted, so it is difficult to hold people explicitly accountable on specific performance measures. Such explicit accountability, in fact, could damage the relationships on which the district depends, but the situation makes it difficult to ensure that any initiative is well

[26] Anchorage School District Certificated Employee Evaluation Document-APA, August 2006, page 6.

implemented and it may undercut the willingness of staff members to pursue professional development on program implementation or use.

In the case of mathematics, the district has many tools and professional development opportunities related to the proper implementation of the math program, but there is little assurance that the adopted program is being used as intended. The district has no method to build deeper understanding about math content and pedagogy, nor is there any way to know if classroom instruction adheres to the ASD alignment documents that adjust for weaknesses in the adopted texts.[27]

- In general, staff members interviewed by the team did not appear to be particularly reflective about their own practices or how they contributed to or hindered student achievement.

- The evaluation system for principals is not connected to student achievement or meeting school goals. The evaluation system for teachers does not reference student performance on state assessments.

D. CURRICULUM AND INSTRUCTION

Anchorage requested that the Council's team focus specifically on the district's mathematics program in grades K-8. Urban school districts with substantial improvements in student achievement often have a curriculum that is focused, coherent, and articulated clearly. Also, these districts analyze the content of their textbooks and other materials to compare them to state standards and adopt or create supplemental materials to fill any gaps.

Positive Findings

- The Anchorage School District has written its own standards for grade-level expectations to define the learning the district expects in mathematics at each grade level. These standards are easy to access on the district Website, and appear in the form of a checklist that teachers can use throughout the year. They are organized into strands. These strands remain consistent across grades K-8.

- The district also brings state standards to the attention of teachers through a variety of documents found on its Website. For example, pacing guides and textbook alignment documents reference the state standards.

- A number of schools use math textbooks other than *Everyday Mathematics* as their foundation program. Those schools tend to have higher than average socio-economic enrollment and high math achievement on the SBA. However, the analysis of school math performance in 2009-10 shown in chapter 1 suggests that

[27] The need to bring attention to weaknesses is not an indictment of any textbook. All textbooks in every school district always have some areas that are not in perfect alignment with state and local requirements.

schools using these books generally produce lower achievement results than would be predicted statistically, based on their demographics.

- The district has placed a strong emphasis on literacy as the foundation for all content area instruction.

- The district has worked to break down typical district silo-structures by creating a STEM (science, technology, engineering, and mathematics) department in place of the traditionally separate departments for science and mathematics. This department has the potential of building stronger linkages across content areas at the school level.

- The district is beginning to place greater emphasis on Response to Intervention (RTI), a practice in evidence in school improvement plans presented to the team. Key to RTI is an emphasis on Tier 1 instruction—the general education curriculum.

- Both the principal and teacher evaluation systems require the use of the district's adopted program as the basis for classroom instruction. Both evaluation systems also require principals and teachers to be knowledgeable about the content and procedures in the Anchorage School District curriculum.

- The district has created a cohesive, systemwide elementary school mathematics program to serve its highly transient student population.

- The district can show definitively that a cohort of its students enrolled in third grade in 2007-08 and tested each year in ASD schools had made substantial gains on the SBA math test by the time they were in fifth grade. The "net weighted impact metric" (See chapter 1) for all students over a three-year period was 15.2, meaning that the district produced an overall net benefit for students instructionally in math. In addition, the metric is positive for all subgroups, particularly for ELL students (37.8).

- Sixty of 79 elementary and middle school principals responded to a February 2011 survey designed by the Council of the Great City Schools with input from the Anchorage School District's math and assessment and evaluation departments. The results are shown in separate documents filed with this report.

- Between 2005-06 and January 2008, the district undertook five initiatives to review and evaluate its math programs and materials. The extensive processes included a 2005-06 effort to identify factors associated with high math performance. This was followed in December 2006 and February 2007 with a random-stratified survey of 30 elementary schools and all middle school teachers to gather information on opinions and practices in math programming. In April 2007, a committee of approximately 53 elementary and middle school teachers, principals, and coordinators, including representatives from special education, Indian Education, charter schools, and English language learners (ELL),

conducted a review of the math curriculum. This Curriculum Review Committee established the four rubrics described in the next bullet. These efforts were followed by a review process for adopting new math textbooks in middle schools (May 2007) and for K-6 (November 2007).

- Prior to the textbook adoption process, the district created four rubrics (student, teacher, content, and assessment) to define non-negotiable beliefs that would guide the math program in Anchorage and to serve as lenses for reviewing textbook options. For example, the content rubric includes alignment with standards, attention to the diverse cultural needs of the district, and bridges between elementary, middle, and high school math content. In addition, the rubric sets expectations for a suggested pacing guide with clearly stated content and language objectives. It calls for integration of technology into the classroom and suggests ways for students to apply math to real-life situations, along with opportunities for students to revisit, maintain, and apply knowledge previously taught.

- Curriculum materials for the K-6 math adoption were reviewed by representatives from each elementary school and two charter schools and by 10 combination-class teachers, nine principals, four ELL teachers, three Indian Education staff, four Title I teachers, three parents, four math support teachers, and the math coordinator.

- There is a single textbook adoption for all ASD middle schools (*MathScape: Seeing and Thinking Mathematically, Courses 1, 2, 3, Glencoe/McGraw-Hill, 2005*). According to the Math Program Evaluation and Review Process notebook, this text was selected in May 2007 from four options examined by teachers and parents from each middle school. The books were rated in four areas using a common rubric.

- The district has provided teachers with a written alignment of Alaska's grade level expectations (GLEs) to specific lessons in *Everyday Mathematics* (EDM) and *MathScape*. (See appendices on alignment.)

- Materials furnished to the team from *MathScape's* professional development sessions indicate that the district pointed out to teachers which lessons could be omitted and how to customize the textbook for use in the district.

- The district has pacing guides in mathematics that allow considerable classroom flexibility in meeting student needs. For example, the third grade *Everyday Mathematics* (EDM) pacing chart specifies 120 lessons, while setting aside 51 days for review, enrichment, and supplementation.

- In 2009-10, the district back-mapped essential indicators to be taught and mastered at each grade level from kindergarten through eighth grade, so that students could successfully complete Algebra I. The district designated the

functions and relations strand for special focus in 2010-2011 and designed formative assessments for grades K-6 to measure progress on that strand.

- The district's third-grade math curriculum documents provide mini-assessments for GLE performance for early, mid-year, and second semester to illustrate expectations. In addition, the curriculum documents list EDM games aligned to GLEs as well as questions teachers can use in their classrooms when working with students on specific GLE instruction. The documents also provide generic guidance for differentiating instruction. The third grade documents, for example, provide lists of resources on a variety of topics that teachers can use for struggling learners.

- The resource guide for parents provides samples of various computation algorithms.

- Some interviewees felt they had a clear view of how to use EDM, either from their own experiences or from district support.

- The curriculum department established a Wiki for grade 7 teachers to share curriculum support materials. Moreover, professional development outlines reviewed by the team call attention to using the Wiki.

- The district adopted *TransMath* to support ELLs and exceptional education students.

- The team was told that the Exceptional Education Department was planning to build bridges from *TransMath* to EDM.

- The distribution of ELL students from school-to-school is determined largely by neighborhood, the availability of ELL programs and placement recommendations from central office staff, and a few centralized sites for ELL services to maximize staffing and expertise in providing ELL services (e.g., Newcomer Center).

Areas of Concern

- The term "curriculum" in ASD documents sometimes refers to textbook programs and sometimes to district expectations or state GLEs. If the multiple textbooks are seen as the curriculum rather than as mechanisms to deliver the curriculum, then the district's expectations of what students are to learn may be unclear to teachers.

- The district seems more textbook-driven than driven by curriculum or state and/or district standards.

- While Anchorage has its own set of grade level expectations in math, there are often large gaps between ASD's standards and the Performance Standard Grade Level Expectations on the Alaska state Website. For example, The Anchorage standards seem to focus on computation, and do not specify important strategies,

models, and representations that are very explicitly named in the Alaska standards. Second, the Alaska standards build fluency with number and operations across the grade levels, starting with addition and subtraction, and then building up to multiplication and division, while the Anchorage standards lump all the operations together regardless of the grade level. Third, some of the Anchorage standards are misplaced. For instance, work with money is listed as a number sense standard in Anchorage but comes under the "measurable attributes" strand and the "measurement techniques" strand for Alaska. In addition, Alaska has an area of emphasis in its standards called "Number Theory" addressing properties of numbers that is not addressed at all in the Anchorage standards. These gaps are particularly pronounced in the area of geometry in grades K-2. Moreover, these two sets of standards begin to diverge even more in the intermediate grades, with the state standards having many concepts eligible for state assessment that are not seen in the ASD standards.

- It is unclear from interviews whether all staff members know there is a difference between the state and local standards. Since the district has documents showing the alignment of textbooks with the state GLEs but not with its own standards, the purpose of maintaining local standards is not clear.

- While the district has taken care to link lessons in *Everyday Mathematics* to state GLEs, it is obvious that some GLEs are not addressed in the EDM textbook.[28] In addition, there are whole units—such as grade 5, unit 8—that have a preponderance of GLEs from sixth, seventh, and eighth grades rather than fifth grade. It is uncertain how teachers fill these gaps, if at all. (See appendix E for a detailed description of this misalignment.)

- The team was also concerned that there is a lack of alignment between local curriculum and state curriculum and uneven alignment between classroom resources and state GLEs. For example, in fifth grade the state mathematics test blueprint[29] places nearly one fourth of its test on numeration, which contains 10 assessable GLEs. However, EDM only has six items dealing with reading, writing, order, or counting numbers (N-1), only seven to illustrate the process of adding and subtracting proper fractions or mixed numbers with like denominators (N-7), and only two items describing or illustrating commutative properties of addition or multiplication using models (N-9). Without supplementation, this represents too little practice needed to master the GLEs.

- In examining third-grade materials designed by ASD as power lessons aligned to specific GLEs, the team found an instance where eight third-grade math GLEs were taught in one lesson. The team did not see references to additional teaching materials to supplement the textbook on those GLEs.

[28] In fifth grade, for example, EDM has no alignment with four state GLEs: M-5, M-6, M-7, F&R-3. All but M-7 are eligible for SBA testing.
[29] http://www.eed.state.ak.us/tls/assessment/sbablueprints.html

- Anchorage's emphasis on literacy has overshadowed the needs of its math program and math supports.

- According to Memo #83 to the Board of Education, there was a decline in the percentage of grade 8 students successfully completing Algebra I in 2010, compared with the previous year.

- The district administration established a 65-minute *guideline* for daily instruction in mathematics and has adopted the *Everyday Mathematics* program for most of its elementary schools. However, while this time allotment is similar to requirements in other urban districts, it is almost a half-hour less than the 90 minutes recommended by the elementary mathematics textbook publisher. In addition, it appears that some schools have allotted differing times for math instruction, ranging from three times a week (60 minutes) to 45-90 minutes a day, according to those interviewed.

- The district provided the team with a list of 13 math textbooks and programs in use in ASD elementary and middle schools.[30] The team did not see any report or document about how these programs work in tandem across the district, how they are supported, or how their relative success is measured. Similarly, the team did not find any documents that show teachers how to transition students who have been using one book in one school but another book in a second school into which they may have transferred.

- There are no alignment materials for any sanctioned textbook other than *Everyday Mathematics* and *MathScape*.

- The district lacks a system to determine how well any of the adopted math programs are being implemented. Consequently, progress on student achievement is difficult to tie to any specific textbook. There is little way to determine if the textbook results in weak math gains when there is no monitoring of whether or not the textbooks are used according to recommendation in the district's curriculum.

- While the district is moving towards RTI, one of the key requirements of RTI is to provide evidence that Tier I (the general curriculum) is implemented with fidelity. This primary step appears to be missing in school plans the team reviewed.

- Tier I math from kindergarten to Algebra I is inadequately supported to respond to current performance and language acquisition needs.

- Among most stakeholders the team interviewed, there was a general lack of understanding of the rationale underlying the use of EDM and *MathScape*. This

[30] *Everyday Mathematics, Investigations, Montessori Math, Saxon Math, Success Maker, Navigator* (Tier II intervention in middle schools), *MathScape*, McDougal Litell (pre-algebra, algebra), *Transmath* (special education Tier II intervention), Connect *Math Program II, Number Worlds* (special education), *Do the Math* (Title I), and *Silver Burdett*.

was particularly true of teachers directly supporting ELLs and of the ELL parent community.

- In general, the district has not been sufficiently clear about what it wants students to learn with textbooks and resources (like games to practice math facts). There does not appear to be an end in mind other than finishing a lesson.

- Team interviews and Council-survey responses indicated strong disagreements about the use of the spiraled curriculum in *Everyday Mathematics*. Some cite it as a strength; others cite it as a weakness. This difference of opinion is consistent with the findings of the 2007 survey, which also showed a sharp division about how teachers viewed their textbook and supplemental materials. These results indicated to the site-visit team an insufficient level of classroom support and unclear feedback to teachers, shortcomings that may sustain rather than resolve teacher concerns. In addition, the team notes that concerns about the program for ELL students, students new to the district, and students who have fallen behind are issues that should not be left unresolved. Conversely, many survey respondents wrote powerfully about the need not to simply teach the lesson, but also to attend to the GLE it addresses. Others said they were pleased that students had a challenging math program. Many respondents argued for changing to *Saxon Math* or some other math program, and many *Saxon Math* proponents also asked for greater support for that program.

- While EDM specifically calls for automaticity and drill in computation, teachers, principals, and parents reported a lack of development of computation skills. Parents reported having to supplement EDM with outside materials and purchased products.

- Pacing guides were sparsely written. They indicated which lessons to cover, but the "notes" section mainly indicated holiday breaks and marking periods rather than notes to teachers about important concepts or pedagogy needed for particular lessons. Since the lesson-number references are not annotated, a teacher must also check the textbook to see which specific concepts or portions of the standards are addressed in each lesson.

- Teachers must go back and forth between the GLE alignment and the pacing guide rather than having a single source linking information on them. There is no linkage of state and local GLEs on the Website.

- Interviewees did not remark on district documents other than the pacing charts. The team was provided with a plethora of documents dated from 2008, 2009, and 2010 that were designed to support teachers in their use of the textbook. Given the little time allocated for professional development, the team doubted that teachers had ever been shown how these documents were meant to work together – or even if teachers and staff were aware of them.

- The district does not track teacher use of on-line materials to see if they are useful or even accessed.

- Scheduling problems regarding itinerant teachers appear to shorten time for math instruction. The limited number of ELL teachers, assistants, and tutors requires that many be used as itinerant teachers. They are scheduled in the mornings at the home-base school and they provide support to ELL students in other schools in the afternoons. This entails significant effort to incorporate ELL support into the schedules of various schools.

- The district's department of assessment and evaluation conducted research on factors associated with high math performance in ASD schools and found a significant problem with the placement of students in math courses when transitioning from fifth to sixth grade and from seventh grade to eighth. Lacking centralized guidelines, each school had developed independent criteria that sometimes included the inappropriate use of data and test results. The study found that instructional time was lost for students misplaced in math courses and that placement recommendations were difficult to track since the district lacked a centralized system for doing so.

  The district developed math placement guidelines in 2005-06 for students transitioning between grades,[31] but the guides were silent on the placement of ELLs into math courses. Relying mainly on the math teacher for placement may provide an incomplete picture of a student's capability if ELL tutors or ESL teachers have been the ones working with the student. Neither the documents the team reviewed nor the interviews the team conducted revealed any concerted effort to identify ELLs or Alaska Natives for placement into higher-level math courses. The team also did not hear that ESL teachers, tutors, or the ELL office played any role in the placement process; nor was there mention of using achievement data on ELLs (including English proficiency) to determine placements.

- Interviews revealed a sharp schism in the district and community about the continued use of *Everyday Mathematics* and the process used to select the new edition of the program in 2007. Indeed, while the adoption process openly sought input from all schools and community members, the number of actual respondents per book by grade level was low. Total K-6 teacher responses per book ranged from 16 for *MathScape* to 59 for *Everyday Mathematics*. Responses from the community never exceeded two per book. Thus, even though EDM generally had the highest scores at each K-6 grade level for meeting content standards, the low number of responses could lead some to perceive the approval process as somehow unfair.

[31] *Using Data to Make Math Placement Decisions at the Secondary Level* prepared by Laurel Vorachek, Director of Assessment and Evaluation, Anchorage School District, http://www.cgcs.org/past/gap0743.pdf

- The mean scores on the curriculum survey in November 2007 to determine selection of the K-6 textbook rated *Everyday Mathematics 2007* highest in the four rubric areas for students, teachers, content, and assessment (3.07, 3.41, 3.12, and 3.47, respectively) on a scale from 1 to 4. *MathScape* was a close second (3.06, 3.13, 3.06, and 3.25).[32]

- The 2007 Curriculum Review survey revealed that only 72 percent of all EDM respondents covered at least three-fourths of the content in the math textbook during the school year. Thus, a very high number of students were not exposed to a full grade level's content needed to be successful in subsequent years.

- The mean scores of the middle school math textbook survey to determine the textbook adoption indicate that teachers did not rank any of the four choices as completely meeting the content, assessment, or student rubric standards. Only *MathScape* earned a 3.04 in meeting the rubric standards for teachers. These results indicate the need for supplemental materials and clear guidance for teachers and administrators to ensure close alignment to GLEs and appropriate transition to high school coursework.

- The district document to explain *Everyday Mathematics* to parents is dated 1999. It references state standards by number code only. The language used to describe content standards has not been modified or annotated for parents. No parents interviewed mentioned receiving the Parent Resource Guide. Family letters that come with EDM (Home Link) contain useful activities, but it did not appear to the team that they were regularly sent home to parents. The materials are also available to parents *via* the ASD Website. The team did not hear of any translations of the guide for non-English speakers. A few teachers reported that they referenced specific pages of the guide for homework assignments.

- Newsletters in multiple languages are available for EDM, but teachers have to locate them on-line, and interviewees expressed the belief that parents may not be academically literate in their own language.

- Homelink materials are reportedly difficult for non-English speakers due to the language level.

- The lack of understanding of what teachers are required to teach *versus* what is optional contributes to uncertainty about what is to be taught, even though materials for *MathScape* list lessons Anchorage teachers may skip.

- There appears to be little support for or attention to textbooks in use in the district other than EDM or *MathScape*. The team saw no documents that showed the alignment of those other books with the GLEs or other district expectations. There

[32] 1 = Does not meet standard; 2= Partially meets standard; 3= Meets standard; 4= Exceeds standard; Student lens—six standards; Teacher lens—four standards; Content lens—11 standards; Assessment lens—six standards

were no documents teachers could reference to help to transition students from a *Saxon Math* program to an EDM program or vice-versa.

- ELL specialists and tutors interviewed did not know that *TransMath* was adopted to help ELLs in mathematics. District communications regarding ELLs and exceptional education have not clearly shown the links to the district's adoption to the general education texts.

- ELL tutors interviewed by the team feel that they bear the sole responsibility for the success of ELLs and that responsibility for ELLs is not shared by the teachers of record. There is no district expectation for general education teachers to know instructional strategies for working with ELLs. However, this is changing in schools where the Sheltered Instruction Observation Protocol (SIOP) is being adopted.

- There is no systematic districtwide program to prepare ELL students to access math content and academic math language.

- Providing language-support services to low concentrations of ELL students spread across numerous schools poses logistical and scheduling challenges and is increasingly difficult in a tight budget environment.

- Title I is not formally connected to the curriculum department and does not provide centralized math support to schools, although Title I does provide some support in language arts. Approximately $1.25 million of Title I funding supports the administration of the program and indirect costs. $1.18 million is set aside for professional development. In addition, funds are reserved for pre-school ($840,000) and parent involvement ($118,000). The district devotes $1.888 million to school choice and supplemental educational services (SES). About $7,133,500 is distributed directly to Title I schools. Some schools are able to fund their own math support specialists with their Title I funds, although it was unclear how these campus specialists were supported instructionally.

- The Algebra I pacing guide does not allow time for remediation following chapter assessments.

- The district lacks a clear plan for addressing gaps in math learning or for handling students entering the program from other districts.

E. Professional Development and Teacher Quality

A common characteristic of many faster-improving urban school districts across the country is a high-quality and cohesive professional development program that is closely aligned with instructional standards and offerings. These programs are often defined centrally, in part, but built around the district's articulated curriculum, delivered uniformly across the district, and differentiated in ways that address the specific needs of

teachers and students. These faster-improving districts also find ways to ensure that some of their better teachers are working in schools with the greatest needs.

Positive Findings

- The 2006-07 math program evaluation and review rubric for teachers has one statement that addresses professional development directly: "Teacher receives appropriate and ongoing professional development and training (knowledgeable of pedagogy, content, and vertical alignment of curriculum)." Furthermore, the rubric measures the level of opportunity for peer learning: "Teacher is provided adequate time and opportunity for grade-level and vertical collegial collaboration and support."

- Significant numbers of ASD teachers want professional development in mathematics. Results from the 2007 Curriculum Review Survey indicate that 26 percent of the 568 *Everyday Mathematics* users needed professional development on GLE alignment, 25 percent on assessment, 32 percent on differentiation, and 20 percent on pacing and remediation. Moreover, 30 percent wanted grade-level support.

- The district recognized that having only one math support specialist in middle school and four to cover all elementary schools required innovative outreach to build communication with each school, so it established what it calls "contact teachers." Prior to the 2010-11 school year, these contact teachers were volunteers who served as points of contact on math information for their schools. Beginning in 2011, the district began paying a $100 stipend for math contact teachers to attend training sessions on materials they could share with their school peers.

- At the middle school level, department chairs serve as points of contact for their schools for mathematics.

- The November 2010 Seminar for STEM Math featured a disc with multiple documents to support math contact teachers in their school-site work. The documents deal with aligning classroom assessments with GLEs using on-line tools; benchmark tests along with FAQs, answer sheets, and tracking tools; supplementary activities for *Everyday Math*; reinforcement suggestions from a Differentiation Handbook; and back-mapping algebra concepts and skill development to lower grade levels in order to build a solid foundation for later algebra success.

- In the 2010-11 school year, Anchorage's instructional leaders conferred with the Boston Public Schools (BPS). BPS uses an approach to math similar to *Everyday Mathematics*, and it has been very successful in improving math student achievement on the National Assessment of Educational Progress (NAEP). The district reports that many of the successful ideas and components from Boston are either now being put into practice or will be incorporated into ASD professional development plans.

- A document dated 11/13/08 entitled "EDM Critical Building Blocks and Resources for Struggling Learners" specifically refers to daily exposure to a variety of games and practice materials.

- Two half-days of professional development on the philosophy and delivery of *Everyday Mathematics* are provided for teachers new to the district or new to their grade levels. The sessions familiarize participants with the components of the program, ASD pacing charts, sources for summative assessment, and technology components for EDM. In addition, participants experience a full lesson taught by a trainer. During the lesson, the trainer points out differentiation opportunities and formative assessment opportunities.

- Differentiated training on *Everyday Mathematics* was also held for teachers new to combination classes, special education teachers working with Tier 2 students who would be using EDM, and teachers at schools scoring below the ASD average on the state SBA in math.

- Indian Education tutors received professional development on how six strands of mathematics in *Everyday Mathematics* progress across K-2 and grades 3-6. The two half-day sessions also provided strategies for working through common problem areas in math facts and algorithms, coin identification and counting, writing time from analog clocks, and exponential notation.

- The district provides a teacher-induction program and three-year mentor support for new teachers.

- ASD Tube contains web-based opportunities for mandatory training (bloodborne disease, bullying, etc.), which frees teacher time for professional development on content and pedagogy.

- The district has an intense focus on understanding the cultures represented in the student body.

- "My Learning Plan" documents on-line individual teacher participation in professional development of his/her own choosing.

- The Training and Professional Development Department has been sponsoring the ASD Summer Academy for the past seven years in collaboration with the University of Alaska Anchorage (UAA). The district sponsors credit classes that are based on school board goals and needs as seen by the curriculum department staff. The two-day courses are taught by teachers vetted by UAA or ASD curriculum staff. A teacher may enroll in one to four classes. Last year, approximately 1,511 course enrollments were completed. Classes are voluntary and teachers pay for their own credits unless sponsored by a grant program. Course completions are tracked in the MyLearningPlan.com system. Not all courses are in math. According to data furnished to the team since the visit, ASD is offering five math classes in 2010-11 for 105 teachers. The courses included

Everyday Math and pre-algebra/algebra. Many of the courses were sponsored through the STEM department.

- The district offers its own math consortium during the school year, like the state's summer math consortium. It is an extensive four-month program to examine in detail the Alaska Math Performance Standards. Teachers meet every Wednesday night for three and a half hours from January through April. In addition, they meet on five Saturdays for seven hours. Sessions include strategies to assist students who are not meeting the standards. They also deal with the use of manipulatives, technology, assessments, skill practice, and problem solving. K-12 teachers volunteer to attend. The consortium is taught by three experts—one primary, one middle school, and one high school—to present the scope of how a strand develops across grade levels. Upon completion, teachers earn four credit hours. In 2010-11, 21 ASD teachers participated in the math consortium at a cost of $135. The district paid the salaries of the three expert teachers.

- The district's Title I office is beginning to consider how to use Title I literacy specialists to support math instruction, rather than solely focusing on reading.

- The November 15, 2010 in-service for math support staff included information on the new Common Core State Standards. The district planned for participants to share the information with staff members at the schools they support.

- The principal-evaluation process provides principals with an opportunity for targeted professional development.

- The district is building future administrators through its own two-year program, including coursework in curriculum and instructional leadership, a practicum, and an internship.

Areas of Concern

- The district has only four days per school year set aside for professional development. All other professional development is voluntary. Tight budgets have limited the number of staff members available to support teachers on site.

- The simultaneous rollout of complex content (Houghton-Mifflin Reading, math, and now social studies) caused competition for the four days of professional development time and resources. Math is losing this competition to literacy instruction.

- The district lacks a strategic vision of how to organize, prioritize, and deliver professional development. The district depends largely on teachers volunteering for professional development. While that means some teachers will continue to develop their knowledge base, others may choose not to do so—leaving teachers without the knowledge they need to successfully implement programs of any kind.

- The selection of the "focus for the year" is not clearly linked to the needs of vertical teams or schools in terms of professional development. While the focus streamlines competing priorities, it can inadvertently lead to the omission of vital professional development in other content areas.

- Principals and ELL tutors report not having had training in the rationale, pedagogy, and concepts behind either EDM or *MathScape*.

- The professional development time allotted when the textbook was first adopted was insufficient to prepare administrators, teachers, and parents to understand the rationale behind EDM's approach to math instruction, its content and features, and its relationship to Anchorage's curriculum expectations. This lack of understanding at the outset of the program has been further exacerbated through the years by teacher turnover and uneven access to information the district has developed to clarify its positions.

- While there is professional development on the EDM program for new teachers and teachers new to their grade levels, two half-day sessions are insufficient to orient teachers to a program as complex as *Everyday Mathematics*. This limited time does not allow the district to inform teachers about the district's math expectations, where the book is strong, and where they need to supplement it. Unlike the math program implementation in the Boston Public Schools, ASD does not have an ongoing mechanism to provide just-in-time professional development or technical assistance to teachers on math concepts immediately prior to when the content is about to be provided according to the pacing guide.

- The recent adoption of *MathScape* is in danger of repeating the same lack of initial training that occurred with EDM.

- Veteran teachers not in STEM schools have little to no access to math support, although many interviewees expressed a desire for support.

- The job description of the STEM site-based leader appears to be more focused on science and technology than mathematics.[33] However, reviews of STEM School Requests for 2010-2011 lead the team to believe that these site-based leaders do indeed work on campus to provide math support despite the job descriptions.

- Training for math content specialists does not appear planned or intentional, and it lacks a clear vision for how the need for content knowledge and pedagogy will be addressed over time.

- The fall seminar (November 2010) training for math "contact" teachers—campus-based teachers who serve as information conduits for the central office—included a wealth of materials on CD. However, the team could not open two of the files on the CD. Moreover, many of the accessible materials on the CD could

[33] STEM Site-Based Leader, Updated: 10/12/10

be stronger. For example, opportunities were overlooked to build in explanations of the importance of particular lessons and games referenced in the support documents. In addition, in the first-grade EDM support document regarding functions and relationships, power lessons were referenced by number only. Games as well as open-response items were referenced merely by name and location. This leaves teachers in the position of having to look up each item and determine for themselves what the exercise is really about, how it relates to the concept they are working on, and how that learning serves as a foundation for more complex concepts later that year or in subsequent years.

- Teachers have had no recent professional development on how to work with ELL tutors either in mathematics or in other content areas. There is no formalized process on how to collaborate in the instruction of students. Moreover, the tutors reported that teacher support for tutors working with students in classrooms varies by building. The team learned that teachers do not necessarily provide ELL tutors with materials in advance of the content being taught or information on how an ELL tutor can support student learning.

- The district does not use a differentiated staffing model in its elementary schools that might be able to provide math instruction to schools where math achievement is particularly low. In addition, the district is unclear about how many of its teachers actually have math degrees in order to create a differentiated staffing approach.

- ELL tutors were trained in EDM (elementary), but middle school ELL tutors indicated that they were only trained originally on the organization of the *MathScape* textbook—not on mathematical concepts, language objectives or demands. ELL tutors last year did receive professional development on how to address the word-problem challenges teachers were reporting.

- ELL and Indian education tutors work with students across all content areas and grade levels. This is a heavy content load, and it is a challenge to work with so many different teachers.

F. Reform Press

Urban school systems that are improving student achievement are not waiting for their reforms to trickle down from the central office into the schools and classrooms. Instead, these faster-improving school districts have developed specific strategies to drive instructional reforms into schools and classrooms, and they create strategies to monitor the implementation of these reforms to ensure their integrity and comprehensiveness.

Positive Findings

- The Anchorage School District is an approved provider of supplemental educational services because of an arrangement worked out between the Council

of the Great City Schools and the U.S. Department of Education. Of the 1,493 students participating in SES programs, 67 percent chose ASD as their provider.

- The district's middle-school collaboration with the University of Washington Center for Educational Leadership is developing a focus on instructional leadership and changing school culture to include more reflective practice. A few elementary schools are embarking on this initiative.

- The district furnished the team with six School Improvement Plans on schools in corrective action under the state's accountability system. The plans evidence some commonalities of focus, including the addition of Response to Intervention strategies and blocks of time devoted to reading and mathematics.

- The district provided the team with a walkthrough rubric for *Everyday Mathematics* aligned to key components and philosophy of EDM implementation.

- The district has named 11 schools to pilot a STEM approach to science, technology, engineering, and mathematics. Only four of these schools are classified as low performing although all 11 were below the district average in mathematics.

- The district has four experienced STEM training and instructional specialists and has a number of math contact teachers to assist in providing information to schools. Some Title I schools have chosen on their own to hire mathematics specialists.

- Many ELL tutors appear to have high levels of education and could be called on to provide greater levels of instructional support to students.

Areas of Concern

- Instructional specialists have little regular opportunity to work together to perfect materials and support.

- According to respondents to the Council's February 2011 survey, many schools do not have sufficient funds to hire math specialists or to conduct sufficient afterschool tutoring to help struggling students. Many respondents expressed the belief that on-site support would be useful even to schools not participating in a standard math adoption.

- At the time of the team's visit, the district's STEM program lacked a clear vision and direction in math or science.

- STEM training and instructional specialists spend most of their time on the 11 STEM campuses, leaving schools that need math assistance to their own devices.

- The district does not systematically track the academic progress of transient students who move into and out of the district or students who move to multiple schools in a single school year.

- Task lists for math contact teachers provided to the team appeared to focus more on sharing background information than on developing deeper understanding of upcoming math lessons and pedagogy.

G. Assessment and Data Use

Two of the most noticeable features of urban school systems that are seeing significant improvements in student achievement are their regular assessments of student progress and their use of data to decide (1) on the nature and placement of intervention strategies before the end of each school year and (2) on needed professional development. Moreover, these districts use data to monitor school and district progress and hold people accountable for results.

Positive Findings

- The district has established a strong research department with outstanding, proactive leadership. The department designs and conducts practical research studies and annual surveys. Its reports, such as the Anchorage School District Profile of Performance, demonstrate powerful use of available data.

- Unlike many school districts the Council has reviewed, the Anchorage School District makes use of research findings. For example, the math evaluation survey of 2005-06, involved 50 schools, nearly 600 teachers, and 42 principals. It was designed to compare SBA math results, school demographic information, and staff survey results to determine relationships between specified factors and math performance. Results were used to develop action plans and allocate resources to improve student achievement.[34] When the study found that placement in secondary school math courses was based on individual school decisions and resulted in loss of instructional time, the district instituted math placement guidelines for students transitioning from middle school to high school (grade 8 to grade 9).[35] Placement in math courses during the transition to middle school is now based on math placement test scores, teacher recommendations, and recent standardized testing information. Students can also request a different math placement.[36]

- Interviewees commended the research department for being highly responsive to data requests.

[34] Math Evaluation 2005-06 brochure
[35] *Using Data to Make Math Placement Decisions at the Secondary Level* prepared by Laurel Vorachek, Director of Assessment and Evaluation, Anchorage School District, http://www.cgcs.org/past/gap0743.pdf
[36] http://www.asdk12.org/schools/goldenview/pages/FAQ/index.html

- The rubric for the math program evaluation and the review process considers important student achievement assessment issues. These include alignment to district and state Grade Level Expectations (GLEs), use of multiple assessment methods, and use of assessments as part of a student placement matrix. It calls for diagnostic formative assessments and periodic benchmarking for student and class progress. The rubrics also call for summative assessments to incorporate performance-based projects as well as competency in grade level skills.

- Documents prepared for the Curriculum Review Committee use ASD definitions for formative, benchmarking, and summative assessments and recommend the relative time that should be spent on each.

- The documents the team reviewed often presented data prepared by the ASD Assessment and Evaluation Department. Typically, the data include performance on various SBA strands for all students and subgroups.

- The district has developed an assessment item databank, which is referenced in the EDM curriculum documents. The state asked the district to share its item bank statewide, and ASD has done so.

- The district developed a mid-year benchmark assessment to assess EDM in grades 1-6.

- In January 2011, STEM training and instructional specialists worked with individual schools scoring below the district averages to discuss and analyze benchmark data.

- According to the 11/8/2010 draft Six-Year Instructional Plan 2009-10,[37] the research department has eliminated a separate bilingual survey by adding an ELL identification question to the School Climate and Connectedness Survey (SCCS) and running a separate analysis for the ELL program.

- The district has issued an RFP to create better progress monitoring in math.

- Teachers and principals can get strand data and other student performance data on Zangle. The system also has a parent connection component.

- The district has instituted a system of early warning for eighth graders who could be in danger of not completing their education. In addition, the district uses *Explore* with eighth graders to encourage their planning for future careers.

- Sixty principals and 607 of 1,536 K-8 teachers responded to the Council's on-line survey on mathematics. The team took this response rate as an indication of high interest in the future of the district's math program. Open-ended responses to the Council's survey on mathematics, while often reflecting opposite viewpoints,

[37] 11/8/2010 Draft Six-Year Instructional Plan, 2009-2010, page 7 of 15.

were filled with insights that were useful to the team and may be useful to the district—particularly in the area of needed supports. (See separate reports on teacher and principal survey results.)

Areas of Concern

- Many staff members the team interviewed were not fully familiar with their own data.

- The district may be missing key concepts of Response to Intervention. Universal screening for RTI appears only to consider academics rather than factors such as attendance or social/emotional factors. It also does not appear to examine the quality of Tier I instruction (general educational program) that students have had.

- The state assessment system appears to produce results that change appreciably from year to year, meaning that it may be difficult for the district to accurately determine the effects of its math reforms.

- State test results come back to the district by strand only. Results lack item analysis and are not sufficiently timely to impact classroom instructional decisions.

- The Council's survey found that only five principals of 60 respondents rated their school's math performance as low or very low. Despite the number of schools in corrective action, principals tended to consider their student achievement as average or above.

- According to the 607 teacher respondents to the Council's survey, most teachers work with data independently. About 87 percent of responding teachers reported examining student data weekly or every few weeks. However, that level of data use falls to about 40 percent when teachers were asked if they reviewed math assessment data with other grade-level teachers. Usage falls farther to about 9 percent when teachers were asked if they reviewed math assessment data across grade levels weekly or every few weeks. Nearly 30 percent report that they never worked on data across grade levels. About 24 percent reviewed data with their principal once a year and about 21 percent report that they never reviewed math data with their principal.

- Teachers surveyed reported using a myriad of assessments—ranging from ones they create to unit tests, student work, SBAs, and various vendor products. Many responding elementary teachers reported using the benchmark tests and finding them helpful, but many teachers did not indicate that district benchmark tests were among the assessments they used.

- Some ELL tutors do not have access to student data because access to Zangle could not be restricted only to the information tutors needed without compromising other confidential student information.

- Benchmark test results are reviewed by instructional staff members in the central office, but the results are not used as part of the monitoring of school plans or progress on plans.

- Currently, there are no benchmark assessments at the middle school level.

- There is no monitoring of benchmark data use at the school level and only a limited support for teachers in using the benchmark data. Low performance in a content area could be due to lack of understanding of a concept, but it could also suggest that the concept has not yet been covered in a particular classroom or school—and the benchmark data is not able to determine which is the case.

- Benchmarking results are not posted in Zangle, a fact that could lead some staff to think the benchmark test is not valued as an indicator of student progress.

- According to interviewees, the teacher induction program includes only a 10-minute orientation on the data dashboard.

- The Anchorage School District does not monitor achievement or provide systematic support to students who have high mobility across the district's schools or students who move between ASD and Alaska Native villages. Furthermore, since there are several math textbooks in use in ASD elementary schools, it is possible for these mobile students to encounter vastly different textbooks in a single year.

H. LOWEST-PERFORMING STUDENTS AND SCHOOLS

Urban school systems that are seeing substantial improvement in student performance have a targeted strategy to intervene in and increase achievement in their lowest-performing schools and among students who are farthest behind. Such strategies may vary from city to city, but they share a number of common elements.

Positive Findings

- The district named a set of elementary and middle STEM schools whose percentage of students meeting proficient or advanced levels on the SBA fell below the district mean. These STEM schools receive targeted training and staff members at each school learned to access data on the district's assessment reporting system. In addition, staff training and resources were focused on that site's weakest math strands. Moreover, math support teachers developed professional development for each targeted school. Follow-up evaluations indicated that gains were higher in schools that received this focused training than in those that did not.[38]

- The district has implemented math support classes for struggling middle school students. This provides students more time on task to catch up.

[38] Math Program Evaluation and Review Process, professional development overview

- In the 11/8/2010 draft Six-Year Instructional Plan 2009-10 document, Goal 2 includes an initiative to train more regular education teachers to meet the needs of ELL students.[39] In addition, Initiative 3 of Goal 2 addresses the needs of Alaska Native/American Indian students through on-line courses to improve core-content skills (Project Puqigtut).

- On-line math courses are available for credit recovery.

- The district has purchased programs like *Do the Math* (Marilyn Burns) and *Success Maker* as intervention systems with low-performing students. *Math Navigator* also has been used in the district for two years, but its effectiveness has not been evaluated. None of the intervention systems appear to have been assessed yet for alignment with state standards or GLEs, and the team heard little about how the selection process considered the unique needs of ELLs and Alaska Native students.

- The team reviewed documents describing professional development at Williwaw Elementary School. The presentation focused on data and planning for school improvement. The professional development in the school was also notable for its collaboration between Title I and ELLP offices. This school achieved AYP in 2010 after being a Level 5 school.

- While the Title I program does not offer math support to teachers, the district does use Title I funds to collaborate with University of Alaska Anchorage to build math content knowledge among teachers.

- The six-year plan identifies Tier II interventions in math in Title I elementary and middle schools.

- The ASD executive directors for elementary, middle and high schools, who supervise principals, meet with Level 4 and 5 schools on their implementation plans and performance.

Areas of Concern

- The district lacks a convincing plan (at the district and school levels) to improve the performance of Level 4 and Level 5 schools. Interviewees reported meeting with Level 4 and 5 schools, but the number of meetings provided insufficient support and monitoring to allow these schools to improve student achievement.

- Budget pressures to discontinue summer school were discussed with the team in November 2010. Without a summer school program, low-performing students will not have access to instruction that would help them catch up academically.

[39] 11/8/2010 draft Six-Year Instructional Plan 2009-10, page 5 of 15.

- For schools in corrective action that were required to fill out a column in their school improvement plans showing evidence of program impact, responses were not uniform from school to school. In some cases, the columns were simply marked "achieved." Other campuses provide more detail about what took place on a specified goal. However, no school made comments about the impact of their actions on student achievement.

- Schools in corrective action for mathematics did not necessarily indicate in their improvement plans how their proposed actions in math would be aligned with how students would be measured on state tests. Also, there was little detail in the plans about the support that would be provided to teachers to assist them in meeting individual needs of students or the needs of particular groups of students.

- The team was told that Title I has not supported math instruction for 20 years, while 12 of 26 Title I schools are in Levels 4 and 5. Title I has no math support specialists to support Title I schools.

- The district has adopted multiple intervention programs without a clear system to align them to GLEs and student performance weaknesses. In addition, many intervention programs have not been adequately supported. Without knowing if they were implemented properly, the district cannot determine whether or not they are a factor in achievement gains.

- According to data from the ASD Website, nine elementary schools at Levels 4 and 5 under NCLB enrolled 1,043 LEP students this school year. In five of those nine schools, the LEP student group failed to make adequate yearly progress. Lack of achievement in English language arts was the cause in all of the schools, but lack of progress in math performance was also a cause in two of them.

- According to data from the ASD Website, seven middle schools performing at Level 5 under NCLB enrolled 548 Limited English Proficient (LEP) students or ELLs in 2010-11. Enrollments ranged from 9 LEP students at Gruening to 254 at Clark. The LEP student group failed to make AYP in six of the seven Level 5 middle schools. In each case, mathematics as well as English language arts performance was a factor.

I. Early Childhood Education and Elementary Schools

It is often difficult for urban school districts to improve everything at once. The districts experiencing success in improving student achievement did not take on the entire system at once. Instead, these districts started their reforms at the early elementary grades and worked up to the middle and high school grades.

Positive Findings

- The gifted and talented program is increasing minority participation.

- The early childhood program is collaborating with ELL, Alaska Native, and kindergarten staff at the central office to examine how well its programs transition to general education in grades K-12.

- Early childhood testing indicated that math performance is a weak area of its program. Based on these results, the department is planning to collaborate with curriculum staff to support stronger math instruction.

- Community groups and tribal councils are providing early childhood programs focused on the needs of the families they serve.

- According to data available on the ASD Website, the district enrolled 3,215 limited English proficient (LEP) students at elementary schools.

- The Anchorage School District ELL program staff provided the team with a general description of the ELL program, which was consistent with that outlined in the Anchorage Plan of Service for Limited English Proficient Student, and submitted to the Anchorage Department of Education and Early Development. The plan describes three instructional models: English as a second language (ESL) in grades K-12, sheltered English in grade 7 through 12, and dual language/immersion in selected schools. ESL and sheltered English are the most prevalent in the schools.

- The ELL program plan calls for one to three hours daily for ESL instruction, as determined by the bilingual resource teacher and classroom teacher for Non-English proficient beginner-level students. Intermediate-level LEP students are to receive 30-45 minutes of ESL three to five times a week. Underachieving fluent English proficient (FEP) students are to receive 20-30 minutes of ESL one to three times a week.

Areas of Concern

- Interviews and Council survey responses indicate that the time reserved each day for math instruction is not consistent across the district. Furthermore, staff expectations for students' ability to master complex concepts often appeared to be lower for ELLs, students with disabilities, students of poverty, and students with irregular attendance.

- While a nonverbal assessment is included in instruments used by the district for identifying eligible students for the gifted/talented program, the team did not hear any specific efforts or referral processes for ELL students and ethnic minorities.

- Students in the gifted/talented programs are transported to centrally located schools, but ELLs receive no transportation to obtain specialized instruction at designated schools.

- A total of 32 percent of limited English proficient (LEP) elementary school students are in district Level 4 and 5 schools under NCLB.

- ELL teachers expressed concern that language barriers prevent students from performing well on assessments that would allow them (the students) greater access to higher-level math courses. In addition, it appeared to the team that access to ESL services was inconsistent across the district.

J. Middle Schools

While many urban school systems that see gains in student performance focus initially on their elementary schools, they do not ignore their middle and high schools. There is no national consensus on how to improve high schools, particularly in the nation's urban schools, but the faster-moving districts have put a number of strategies in place to ensure that students who did not learn the basic skills in elementary school do so before they graduate. This report focuses only on the middle-school grades, however.

Positive Findings

- The district has selected a primary text for middle school math—*MathScape.*

- The University of Washington (UW) and the district are developing a walkthrough form for use in middle schools.

- Middle schools, like some elementary campuses, have been working with the UW's Center for Educational Leadership on the university's five dimensions of leadership. This coming year, three middle schools will be selected to develop these dimensions in mathematics. School principals and teachers will work with a University of Washington math expert. The program focuses on math teachers collaborating to build lessons across two schools each month. One model classroom will also be established. Central office staff will also receive four days of training from UW.

- According to data on the Anchorage School District's Website, the district enrolled 1,892 LEP students in secondary schools in 2010-11.

- Math for newcomers is an offering at the district's Newcomer Center for immigrant and refugee students.

- Many comments received on the February 2011 survey indicated the district has a number of very knowledgeable middle school teachers in mathematics who could assist the district in improving instruction in mathematics.

Areas of Concern

- Math performance on the SBA is lower at middle schools than at elementary schools.

- High- and low-performing students are tracked into respective secondary math courses. Overuse of tracking, however, can screen out students who might have been capable of completing more challenging courses. Once in the lower track, it may be difficult to leave it.

- The service plan for ELL students calls for minimal support in mathematics. This was confirmed in the team's interviews with staff. The Plan of Service includes a description of the Math 6/7/8 ESL course provided to a heterogeneous group of ELLs—from non-English proficient to LEP, and struggling LEP students. The description appears to indicate a low level of rigor, and there is no indication of its alignment to the mathematics curriculum or textbook for grades 6, 7, or 8.

- At the secondary level, a total of 86 percent of limited English proficient secondary students attend schools that are at Level 5 under NCLB. All of the schools that missed their AYP targets for LEP did so in both math and English language arts.

- Comments received on the February 2011 survey often expressed frustration with the low level of preparation students had in math at the middle school level.

- The team did not see any district-level focus to ameliorate issues raised by teachers involving student transitions between elementary and middle school math programs and courses.

- The mathematics focus for middle schools is limited to two sites while the other sites focus on RTI in language arts. There is no clear vision yet for how the five-dimension walkthrough process will link to the content and pacing guides. Without the linkage, principals will not know, for example, if the student engagement they observe reflects the depth of knowledge that is on target for a specific concept.

CHAPTER 3. RECOMMENDATIONS

Based on the findings in chapter 2, the Council's Strategic Support Team developed a series of recommendations for Anchorage School District designed to help accelerate student performance in mathematics. These suggested next steps, like the findings in the previous chapter, are organized around 10 key features of significantly improving urban school districts: (1) political preconditions; (2) goals; (3) accountability; (4) curriculum and instruction; (5) human capital, teacher quality, and professional development; (6) reform press (or the ability to get reforms into the classrooms); (7) data, assessment, and evaluation; (8) lowest-performing students and schools and special populations; (9) early childhood education, gifted and talented, and elementary schools; and (10) secondary schools. The recommendations also pay particular attention to English language learners.

A. POLITICAL PRECONDITIONS

Urban districts that have made significant improvements in student performance have school boards that have made student achievement their first priority. They define the initial vision for the district and work closely with the superintendent to transform that vision into a coherent theory of action and to set goals. These boards also work to sell the districts' goals and reforms to the community and to hold the superintendent accountable for results. As the Anchorage School District takes the next steps in its own reforms and improvement, it should consider doing the following—

1. *Review school board policies to ensure that they are consistent with and supportive of the district's key instructional reforms and that time is set aside at least four times a year for updates on math initiatives to demonstrate that student achievement in this area is a high priority. The agenda items might simply be updates on the implementation, the status of the strategic plan, evaluations of professional development or on-site support, or a report on student achievement.*

   In a time of budget cuts, staff layoffs, and ever-dwindling resources, it is easy to focus solely on these critical financial issues and give less attention to academic priorities where improvement is needed. Devoting public time to receiving status reports on math initiatives, reviewing staff analyses of achievement trends, and studying evaluation reports sends an important message to the community and to district staff about the focus and priorities of the board.

2. *Use the opportunity presented by budget shortfalls and staff layoffs to rethink district deployment of both financial and human resources that could be devoted to supporting and improving math instruction.*

   The district is under severe financial strain, but it may want to think more creatively about how it can use its federal Title I, Title II, and Title III funds to create enhanced professional development, coaching, and technical assistance in math for personnel in eligible schools, rather than simply allocating all such funds down to the school level

with no other designated use. The Council can help the school district design a system that would avoid problems with supplement/supplant regulations. Options might include requiring certain lower-achieving schools to use a portion of their Title I allocations on math specialists or math specialists shared across Title I schools. A third possibility might entail using district Title I or Title II funds for differentiated math staffing patterns in selected schools or itinerate math instructors. Of course, having staff dedicated solely to improving math instruction is not sufficient unless there are clear expectations about responsibilities supported by a carefully planned support program involving pedagogy and coaching skills. Moreover, Title III funds could be used for these purposes as well if they are targeted to English language learners. Finally, the district might want to use its considerable web expertise to provide technical assistance to schools on math program implementation.

3. *Charge the assistant superintendent of instruction with forming a team to develop a formal, systematic process for hearing from and openly responding to stakeholder feedback on math programs.*

   This should also include a mechanism for providing stakeholders with information on how the central office has responded to concerns and complaints, so stakeholders understand what has happened with their recommendations. Otherwise, stakeholders and parents simply assume that their concerns were ignored, thereby inviting anger and frustration. (Further recommendations are presented in the section on "reform press.")

4. *Continue to nurture and expand the district's partnering relationships with community and parent organizations.*

   The various community leaders the team interviewed were extremely knowledgeable about their communities and are important links to diverse groups in the city and outlying areas. These groups might be useful in building a clearer understanding about the district's academic program, developing a stronger sense of urgency about the need to improve math performance to ensure that students are college and career ready, and confronting math achievement gaps with broader communitywide action.

5. *Utilize and expand the collaboration with the University of Washington and the district's RTI focus in order to build a sense of joint responsibility for the math achievement of all students.*

   The district is piloting a small collaboration with the University of Washington's Center for Educational Leadership. In addition, many schools are beginning to focus on RTI. If evaluation results indicate that principals and teachers at those sites are making improvement in classroom practice, the district should expand the projects to additional sites and use the opportunity to build a sense of joint responsibility for the achievement of all students.

   The collaboration's five dimensions of learning focus on building improved classroom learning by making staff aware of evidence to be observed in classrooms regarding (1) purpose, (2) student engagement, (3) curriculum and pedagogy, (4)

assessment for student learning, and (5) classroom environment and culture. Adopting this process will enable the district staff to have serious conversations using a shared vocabulary to address the achievement gap among all students.

Similarly, RTI is an evidence-based system. It seeks evidence that a student has had good instruction in the foundation program and has had the opportunity to learn the content and skills even when differentiation was needed to address cultural variables or lack of language proficiency. This approach fits well with the philosophy of the district and is not in conflict with the five dimensions.

The challenge for the district will be to meld the two programs seamlessly for users. To do so, consider how the vocabulary of the two programs can be incorporated with each other in Anchorage. Plan to show how they help educators focus on the evidence of learning, as well as on awareness and continuous improvement of school and classroom practices to improve student achievement.

6. *Consider the possibility of establishing a "parent university"-type program in the district to provide greater information and skills for parents in the math programs implemented in classrooms.*

   This might also include math lessons for parents and exercises that parents could use to build numbers skills with their children. A number of cities, including Boston, are now initiating these kinds of programs with increasing success.

B. GOALS

7. *Clarify the goals and objectives of the district's new STEM program and how it links to state requirements, adopted materials, staffing and professional development. Create a rubric to measure progress toward the vision. Then charge the executive director and central office instructional team to work with principals to ensure their understanding and implementation of math initiatives. Finally, ensure that central office job descriptions reflect expectations for the new STEM department.*

   The district has taken a bold step by creating a STEM department. However, the success of the new department will depend on how clear the district is about the department's underlying rationale and vision. The department will need to be deliberate in working with principals and math contact teachers to ensure that mathematics is not lost within the multiple STEM areas.

   The February 2011 math surveys asked principals for advice on the math program and asked teachers to list what would improve mathematics in the district. Several cited the positive impact of math support staff; others lamented that they could not access support but wanted it. The STEM department should take the leadership in building on-site capacity in math.

8. *Revisit the current strategic plan to ensure that it fully articulates how the district is addressing math needs for all student groups. Actions should flow back and forth*

from district to department and school levels, and goals should be both short term and long term.

Anchorage actively uses its annual targets as evidenced by the written evaluations presented to the team. The math department plans provided to the team were organized according to the adopted board goals in effect that year, something the Council's team does not see often in its reviews of other districts.

However, the strategic plan should call for an examination of how the district is progressing with all student groups in a way that is owned across departments and schools. The Council often sees a tendency in urban school districts for staff to relinquish ownership of student progress when it is perceived that another department is responsible for a particular student group. Anchorage is well positioned to model positive collaboration across silos in order to meet common needs among student groups. In turn, the modeling of collaboration could positively affect working relationships at the school level.

9. *Reconcile the seemingly conflicting goals concerning narrowing achievement gaps and increasing achievement by subgroup by 2.5 percent per year.*

   It appeared to the team that the district had set the 2.5 percentage point growth only to be ready for the next change in AMO, rather than building achievement goals at all levels of the performance spectrum. Some student groups require targets greater than 2.5 percent gain, because they are below other groups in the district.

10. *Review the district's math goals to ensure they include "stretch" measures beyond attainment of No Child Left Behind targets.*

    Goals might include reducing the numbers of students, by group, who are in the lowest level of math proficiency; increasing placements in core or advanced math courses; improving participation rates in Algebra II; boosting math attainment on college-entry examinations; increasing the numbers of students scoring in the advanced range, enhancing the number of ELLs and Alaska Native students in honors class, etc. (The district generally leads the state in the proportion of students achieving at advanced levels on the SBA, but there is no reason not to go higher.).

11. *Ensure that measures of the annual objectives are more specific so that their attainment clearly reflects the realization of objectives. When objectives are not met, require reasonable explanations and possible solutions.*

    The team asks the district to look at more than whether an activity has been completed when it evaluates progress in meeting the strategic plan's goals. Examine the quality of the work that was completed as well as its impact, particularly on student outcomes. When goals are not met, examine the causes and probe for possible solutions. For example, the district or individual schools have not met their targets in mathematics. Leadership might consider naming cross-functional teams of staff members, principals, and teachers to work with specialists working with Indian and

Native Alaskan or English language learner staff to develop solutions within budget parameters.

12. *Charge the executive directors with reviewing School Improvement Plans to ensure their goals align with the district's goals in math.*

C. ACCOUNTABILITY

Urban school districts that are seeing significant gains in student performance attribute some of their progress to improved systems of accountability. Accountability is a mainstay of all district activities. The importance of these accountability systems is that they focus staff attention and energy on a defined systemwide goal. They also make it clearer to staff how they will be evaluated and on which criteria. Finally, accountability systems have the added benefit of signaling to the public that school staff members are responsible for getting results. It is important to note that accountability does not have to be punitive.

13. *Revise the principals' evaluation process to include student achievement, as well as the effective implementation and monitoring of the district's instructional programs. The new evaluation should also include relevant portions of the district's strategic plan.*

    Principals are not evaluated based on meeting school goals for student achievement. The team recommends that, along with adding a measure in that area, principals also be held accountable for implementing the district's reforms, particularly in math. For example, as part of their evaluation, principals should provide evidence of how they are supporting and monitoring the use of the district's pacing guides and the teaching of the state's math GLEs. In order for principals to accomplish these tasks, however, the district should provide them with professional development on what to look for in various grade levels at various points in the year. Ideally, principals should be able to ask for technical assistance from the central office on how to conduct walkthroughs of math classes with greater skill and confidence, and on how to provide non-evaluative feedback to teachers in a way that improves their math practice.

14. *Place central-office department leaders on performance contracts linked to meeting district goals for all students, including ELLs, Alaska Native, and other students.*

    Senior central office staff members play an important role in addressing the challenges of the district. Part of their evaluation might include their role in proposing and implementing systemic solutions to challenges addressed in the strategic plan that result in greater student achievement for all student groups. In addition, it should be clear that staff members are responsible for the academic attainment of all students, not just the ones on which their departments focus.

D. CURRICULUM AND INSTRUCTION

Preliminary research suggests that urban school districts that are improving student performance have standardized their curriculum and have adopted a well-defined

approach to reading and math instruction. This approach brings greater focus to the districts' instructional programs, mitigates the effects of high student mobility, and leverages the ability of districts to design and carry out the support and monitoring of program implementation.

15. *Retain the* Everyday Math *and* MathScape *programs rather than replacing them with* Saxon Math *or other math programs.*

    The district has two main options related to its current textbook. It can discard *Everyday Mathematics* and adopt a more traditional textbook or it could continue EDM and *MathScape.* The Council's team recommends the second option for a number of reasons, but it also proposes that the continued use of these programs be accompanied by a renewed focus on professional development, technical assistance, support, and monitoring.

    First, there is no perfect math textbook that will resolve the many systemic issues that underlie the lack of progress in ASD math achievement. Any book the district would adopt will have strengths and weaknesses, critics and supporters.

    Second, the analysis the team did of student math gains by school indicates that the text used is not the determining factor in academic progress in math. The Council's own experience is that improvements in any content area are rarely related to the commercial text purchased by the district. Instead, success or failure in raising student achievement is more related to the surrounding and systemic supports of the text involving professional development, technical assistance, coaching, use of data, and other resources. Without these things being in place to a greater extent, the district would probably have trouble raising math achievement with any new text.

    The Council of the Great City Schools is currently completing research that compares the math gains of two other major urban school systems, both using the same kind of conceptual-based math text but one showing progress and the other showing no progress. The district that made gains had a series of well-planned systems in place to support the text. The district that did not make progress lacked those systems. As with any tool, the results a district obtains with a textbook depend on its informed use.

    Third, replacing the math texts at this point after a recent adoption would be very expensive to do, especially given that the district is going through substantial budget reductions. The public would have every reason to question the district's judgment about the use of taxpayer dollars in replacing what is already a reasonably new set of materials. In addition, replacing the current texts would entail the costs of aligning the new materials to the curriculum, determining gaps and the need for new supplemental documents, and training on the new materials. Of course, the current programs also have ongoing costs for ancillary materials and the district may want to redeploy some resources in the process of addressing the recommendations in this report, but these costs are likely to be less than those involving a new textbook adoption.

    Fourth, whenever students move from one textbook to another, the district must create a bridge between the two at each grade level. This is a complex and time-

consuming process. Many people commonly believe that publishers write textbooks all with the same concepts and skills at the same grade levels, but this is not the case. Bridging programs is a complex and potentially costly process if the implementation of the new program is to be successful.

Finally, Alaska is not likely to adopt the common core standards, but Anchorage is looking at them as a way of strengthening its own curriculum. EDM and *MathScape* were both written before the development of the common core, so it would be difficult to make claims of alignment, but these two programs are more likely to reflect the conceptual understanding of math that one sees in the common core than many other current commercial products. In addition, a new generation of assessments and textbooks is being developed based on the common core. If Anchorage wants its students to be competitive nationally, it may well want to wait until these new assessments and textbooks take shape, rather than investing in textbooks that may soon be outdated.

Everyday Mathematics is a textbook that is complex and complicated to implement in a large district. Its approach to mathematics asks a lot of teachers, students, and parents because it is not a traditional program. It takes many people out of their comfort zone and out of the knowledge base they learned as students. Many adults feel uncomfortable with learning new ways to solve problems. And many teachers feel uncomfortable in a spiraling program where they are unsure at what point students truly are required to master specific skills. Yet, a meta-analysis by Robert Marzano demonstrated that practice of a concept over time produces better results than sequencing skill mastery one at a time or what is sometimes referred to as "massed practice," which is the typical format of traditional math books. However, a spiraling approach requires depth of content knowledge and a strong idea of when it is okay to move on and when students are struggling and need help. EDM also has multiple components, and this requires teachers not only to know how to access all of them but also to know the criteria for when they are best used and to what purpose. Many students who are learning English as a second language and children of poverty may have difficulty with the requirements to read complex text and to use language to justify their mathematical results. On the other hand, all children eventually need to know how to read such complex text and handle it with confidence. The team members know that the EDM textbook has been used in other urban cities with success, and they also know that some cities have never been able to implement it well.

The team is also aware (see findings) that EDM has significant alignment gaps with the state standards, although we suspect that such gaps would exist with other textbooks as well.

These same issues also apply to *MathScape*. Responses to the Council's February 2011 survey indicate that many teachers were ready to get rid of the program because of the lack of transition between the EDM materials and *MathScape*'s approach. Other teachers felt that they did not have sufficient support in the use of the materials or that the materials themselves were more advanced than their students' math

capacities. The Council's team thinks that the first concern over transitions is real but that is not an argument for getting rid of the text, which would simply lead to other transition problems. Rather, it is an argument for building better transitions with supplemental materials the district could design.

The Council's team is also convinced that teachers do not have ample support to implement these programs, but again, we think this argues not for getting an easier program but for building the supports that would make implementation more effective. Our subsequent recommendations attempt to help the district think about what supports might be feasible. Finally, the team was not in accord with those who thought that Anchorage's students were incapable of doing the math work found in programs like *Everyday Mathematics*, but we do believe that the district needs to think more carefully about how it structures its interventions for students who fall behind.

16. *Expand the district's instructional priorities beyond literacy to include an explicit focus on math.*

    Now that the district has launched its reading initiative, it should broaden its focus to include math more explicitly. Preparing students to be successful in Algebra 1 and beyond is vital for students to be college and career ready. The board and superintendent might jointly announce the expansion of priorities and the reasons behind it.

17. *Ensure that promises made in the EDM adoption memorandum #173 to the school board dated January 28, 2008, have been addressed and incorporated into the six-year plan and monitored for implementation.*

    The memorandum specifically promises that the 2007 edition of *Everyday Math* would better address the needs of Anchorage's diverse student population, including English language learners and low performing students. It declares that parents would be provided with more information and tools to assist with students' learning at home. It also mentions a variety of embedded assessments that would allow teachers to more accurately and consistently monitor progress on Grade Level Expectations (GLEs). And it specifically indicates that the new textbook would have more explicit skill practice than previous editions.

    Indeed, the new textbook addresses these issues, but it is up to the district to clarify to all staff and parents how they are being put into place. The district might start this process by naming a cross-functional team of teachers, principals, and parents from both sides of the adoption question to review current curriculum documents and propose ways to meet the needs of the district's diverse student body.

    Practitioners and parents have real concerns, and involving these stakeholders in resolving them could be constructive and might help inform skeptics about when and how struggling students can succeed when given appropriate supports.

18. *Have the executive directors and central office staff members assist schools in finding ways to systematically schedule 60-90 minutes of math daily, including scheduling of itinerant teachers and ELL tutors.*

    There is no universal solution for scheduling math into daily instruction. However, schools might need help in creating schedules that enable them to expand the time devoted to math instruction. This could also mean posting schedules so anyone could walk into a classroom and see when math was likely to be taught. This proposal is also meant to address a concern raised in the February 2011 survey that students did not have adequate time for mathematics instruction.

19. *Consider eliminating the Anchorage math standards and using only the state standards, or create a document to crosswalk the two sets. (The Council has done some preliminary cross-walks to determine levels of alignment.)*

    The two sets of standards often have wide gaps, are not arranged under the same headings, and are confusing for teachers. The local standards often leave out key concepts, including algebraic thinking, found in the state standards. Since other documents on the Website appear to focus on the state standards, the team suggests that the district simply make the state standards its own. If there are standards that the district wants in addition to the state version, then it should ensure that all state standards are apparent within the district standards by using a side-by-side crosswalk.

20. *Revise pacing guides to include important math content, along with a sample of an assessment item that would measure the attainment of that math concept. Clarify the rationale for the content flow within the spiral so stakeholders see the big picture.*

    It is important that teachers focus on the math goals imbedded in their lessons rather than on textbook activities so that their instruction is more purposeful. It appears that teachers are using textbook activities without a deeper understanding of how those activities lead to content mastery. Furthermore, several people interviewed by the team indicated they feel pressured to move students forward in the textbook even when they see large knowledge gaps. The district should provide guidance to teachers on when and how to handle students who are struggling and need additional instruction at specific points in the text *versus* when the spiraling can be counted on to fill gaps in student understanding.

21. *Incorporate annotations into the pacing guides on how teachers might build academic math language for ELLs and others as they move through the mathematics lessons.*

    The pacing guides could be made stronger support documents for teachers if they were a place where teachers could see, for instance, the vocabulary needs of students that would enhance their understanding of a math concept. This would go beyond typical math terminology to include vocabulary and structural cues that might help students unlock the meaning of complex text. For example, vocabulary might include such words as consequently, therefore, apparent, etc. The district should work with

teachers on how students are currently responding to math texts and the vocabulary that might be incorporated into pacing guides that would help students build greater understanding of informational and quantitative narratives and word problems.

22. *Hold Title I, Title III, and Title VII offices accountable for collaborating with each other in supporting math teaching and learning for all students.*

    This collaboration should include providing support to tutors and other staff so that they can address the language and math needs of students. Consider providing SIOP training to math teachers to give them more strategies for addressing language needs of students and for ensuring cultural relevance. And the collaboration should include ensuring that tutors have copies of the textbooks their students are using.

23. *Revise and/or combine curriculum documents so that teachers don't have to locate materials in multiple sources. Include the full GLE in writing rather than referencing them by alphanumeric codes on the pages where these codes appear. Include specific differentiation suggestions by lesson. Link sample assessments (not just a reference number) to each lesson to clarify expectations for student performance. And clarify EDM requirements for mastery of math facts and computation in alignment with Alaska standards.*

    The district has carefully developed a wealth of excellent materials to support their main textbook adoptions. But these documents were developed over a period of time to address multiple issues and have not been unified into a one-stop place for teachers to quickly find what they are expected to teach, at what level of depth and mastery, and by what time in the year. The unified documents should be clear about when there is optional time to review concepts, so teachers don't feel as rushed or uncertain about when students who are not grasping fundamental concepts need more practice or intervention.

    In addition, there needs to be greater clarity about mastery and fluency with math facts. Teachers indicate correctly that students do not master facts in lock step, and some students need more time than others, but the district should establish some expectations, so the process of mastery does not drag on indefinitely. Parents, teachers, and principals all share a concern about students not mastering math facts, a concern that sows doubt about the entire math program being used in the district.

24. *Establish a mechanism by which the district is able to see, on a random or selected basis, how well teachers and principals understand its curriculum documents and codes.*

    Since the district has such limited professional development and negligible on-site support, there is little way to know for sure how well teachers understand and use the many district curriculum documents. Any mechanism developed by the district should check specifically for how well teachers understand the many codes that appear in these documents. For example, among current curriculum documents, the team reviewed a pacing guide for third-grade EDM. Evidently, in the interest of

brevity, only the number of days and the book sections are listed without any annotation about the content of those sections. Moreover, there are no notations about any particular areas of emphasis. Free days are shown so that teachers can reinforce lessons already taught, use math games, or engage in projects. Teachers interviewed did not reference this document as being useful. Many teachers did feel pressure to meet timelines in the pacing guides, but other data from surveys indicate that many teachers do not complete the lessons in the pacing guide. This means that the central office needs to discuss with end users whether and how these documents are used and how the district might clarify the intended use and revise their formats. The district might establish a task force with the collaboration of the teacher union to pursue this recommendation.

25. *Clarify where* EDM, MathScape, *and other math textbooks should be supplemented in order for students to master the GLEs.*

    This activity should not only clarify where teachers must leave the confines of the textbook but also serve to emphasize that there is no perfect book. All texts require some supplementation. However, the district might discover in the process that one textbook is more aligned than others. In all likelihood, some books will be stronger in some GLEs while other books will be stronger in other GLEs.

26. *Design and implement bridge programs between pre-school and* EDM; EDM *and* MathScape *and between* MathScape *and high school (Algebra I).*

    Student achievement on the math SBA in the Anchorage School District declines between third and eighth grades. Student achievement in one grade level is partly due to the foundation that was created in the prior grade level. The district began addressing the issue when it began back-mapping skills in preparation for Algebra 1. This same detective work needs to be conducted to ensure that all adopted textbooks, pacing guides, and supplemental materials build the proper foundational skills for every child. Teachers also need to know explicitly how their grade level instruction sets the stage for more complex learning in subsequent grade levels.

27. *Ensure that math concepts that are included in homework assignments have been taught in* EDM *classes, and suggest ways in which parents could reinforce skills that are being presented in class.*

28. *Charge a team of central office instructional leaders with examining the classroom practices of teachers and schools where student math performance significantly outpaces other schools. (See chapter 1.) Expand to other schools if transferable.*

29. *Determine whether Tier I math instruction is fully accessible to all students.*

    This recommendation is more complex than it might appear. The district needs to articulate what access to Tier I instruction looks like when implemented well. It should be working toward a system whereby principals and teachers are provided training on a "just-in-time" basis to prepare them for key features of upcoming math lessons and address questions about differentiating instruction for struggling students

who need special support. This proposal may not be implementable across all aspects of the math curriculum simultaneously, but it might be put into place a little at a time as the data indicate special areas of weakness among students.

30. *Incorporate reading in mathematics into the literacy initiative and into English language acquisition initiatives.*

    Even speakers of English who can read with fluency often experience difficulty in reading for information involving mathematics content. Knowing what is being asked and what is not being asked in a word problem is a vital reading skill.

    In addition, understanding the mathematical meaning of words that carry one meaning in one context and another meaning in a second context is critical to understanding math concepts. (For example: John marked a point in the middle of the line. Mary was making the point that studying hard is important. The team won the game by one point. Her pencil had a sharp point. It's impolite to point.) Furthermore, students need commonly used cross-content vocabulary—like consequently, subsequently, however, on the other hand, etc.

31. *Charge a joint curriculum, ESL, and SEL team with using the mathematics pacing guides to develop preparatory language acquisition lessons for districtwide use.*

    Begin by examining the textbook's language requirements in terms of vocabulary and language structure. Look not only for mathematics terms but also for frequently occurring academic language. In addition, examine sentence structures and select particular word problems that students could learn to break apart into meaningful components to understand how academic English works.

32. *Encourage ELL tutors to download and disseminate home newsletters and assistance for homework through their ELL and STEM departments.*

33. *Develop explanatory materials for* EDM *and* MathScape *lessons in parent-friendly language. Invite parents, including ELL and Alaska Native parents, to critique materials as they are being developed and assist in building outreach efforts. Consider pooling federal funds—Title I, III, and Indian Education funding streams—to support this effort. Create parent engagement /math nights around these materials. These workshops should give parents the opportunity to explore strategies, models, and representations their children are working on in school and to explore how they can help their children use these to solve math problems.*

    Revise the 1999 document given to the team to incorporate more parent-friendly language. Parent work needs to go beyond math nights in Anchorage schools to provide opportunities to explore and discuss math content. In order to successfully engage parents, it may be important to partner with community groups and find community centers where parents feel safe and welcome.

E. PROFESSIONAL DEVELOPMENT AND TEACHER AND STAFF EFFECTIVENESS

Many of the faster-improving urban school district across the country are also standardizing and focusing their professional development to ensure better implementation of their curriculum and to clarify to principals and teachers what is expected. This standardized approach does not mean that each school is limited to one kind of professional development. Schools may supplement the districtwide training with other activities, but overall district goals and priorities are clear. This professional development need not be held districtwide on a given day in traditional formats. Personnel can be prepared on campus with appropriate staff groupings.

34. *Review the use of Title I professional development set-aside funds (at district and school levels) and Title II funds to determine how they could be redeployed or reconfigured more effectively to build greater instructional capacity in math among teachers and principals. Be sure the district's strategic plan reflects these professional development activities. Evaluate how well the activities are implemented and their effects on student achievement.*

35. *Inventory the professional development offerings for math teachers across the district (with special focus on lower-performing schools) to determine what the teachers are currently receiving, and redesign the offerings as needed.*

    Math scores indicate that teachers need additional training in teaching math aligned with state and local requirements. District surveys indicate that substantial numbers of teachers want more professional development in math. First, based on these findings, leaders need to determine which aspects of content and pedagogy are most needed and in what priority order. Second, the district should determine how to track who already has what knowledge and skill and who does not. Third, it needs to determine how best to ensure that those who need the professional development actually use it.

    The contact teachers—or teacher-leaders described later—could help provide this training, or the district might explore on-line or webinar formats. Given the limited time reserved for professional development, the district is not likely to boost student math achievement with traditional professional development models. And the district is not likely to succeed using voluntary participation alone.

    The team believes that teachers became teachers because they want to help students achieve. The district should examine the professional development offerings and systems in mathematics to ensure that there is adequate support for teachers to do so.

36. *Consider alternative ways to build instructional capacity in math, e.g., math across the curriculum, imbedded professional development, teacher math teams, differentiated staffing, etc.*

    The team agrees that reading and writing are essential skills for all students and that there is substantial need for deep, cross-cultural understanding. Mathematical literacy, however, is also a gatekeeper for college and career readiness. Therefore, we encourage the district to identify and use connections between these current priorities

and math instruction. For example, look for ways to link reading skills from the literacy initiative to mathematics instruction so that students can incorporate math skills into reading for information and writing explanations of how they solved a complex math problem. The district might also turn to the University of Alaska Anchorage for math talent who might serve as tutors, teachers, or providers of technical assistance, support, or professional development.

37. *Expand the district's math contact-teacher concept into a distinct program designed to develop teacher instructional capacity in mathematics and "teacher-leaders" in each building.*

    The team suggests that the district emphasize on-site expertise in mathematics as part of its overall professional development strategy. The district does not have funds to provide sufficient numbers of math specialists, math support teachers, or coaches for every school. Yet it is essential that every building have at least one teacher who is a "teacher-leader" in mathematics. Making this happen might entail creating opportunities for emerging leaders to meet with math support specialists to examine and deepen their own math teaching practices and to build leadership skills.

    Work with these emerging teacher leaders might begin by being clearer about the goals of the district's math program and how the curriculum is designed to meet those goals. These meetings might also include discussions of frequently asked questions, some of which are identified by the math support specialists and some of which are brought to the math support specialists by emerging teacher-leaders. In addition, meetings might include panels of teacher leaders prepared to discuss best practices (e.g., how to support fluency with basic facts, how to address the language demands that arise, how to productively build partnerships with parents, how to determine when students are sufficiently proficient, given the spiraling nature of the materials, and how to address the particular needs of ELL, Alaska Native, Asian/Pacific Islander, and low income students).

    If teachers are responsive to the idea, the district might consider defining a career ladder defined by increasing levels of capacity demonstrated by teachers as they move up the ladder. For instance, a level one teacher might be able to demonstrate mastery of math concepts, GLEs, and math-program components for a single grade or grade span. A level-two teacher might be able to demonstrate specific instructional techniques in classroom practice. Level three might include evidence that students are demonstrating ever-greater levels of math complexity and mastery. And a level four might include teachers who were able to help other teachers move up the ladders.

    Over time, these teacher-leaders might be supported in taking on greater leadership roles among teams of math teachers in their buildings by providing scheduled release time, summer training, or lighter teaching loads. Grant funding or repurposed funding might be used to pay teacher leaders extra.

38. *Use these contact teachers and emerging teacher-leaders to provide differentiated professional development and technical assistance to other teachers to ensure understanding of math content, concepts and best practices.*

    Expand in-school professional development, support, and technical assistance by having teacher-leaders work with other school staff according to a planned calendar aligned with upcoming lesson content and by addressing problems students typically have with particular concepts. Consider freeing at least one class period or planning period per day for teacher leaders to collaborate and work with grade-level teams and teachers.

39. *Expand professional development on the math curriculum for new teacher and teachers in new grade levels to prepare them with content and pedagogy for upcoming lessons.*

    New teachers need more support than simply knowing the components of the textbook and seeing a modeled lesson. They need support throughout the year to prepare for upcoming lessons, learn where students are likely to need help, and learn how to build in that help within the pacing parameters. This might be done through webinars or CDs. If this method is chosen, the district will need to determine how it will know that the webinars and CDs are high quality, are accessed by teachers, and are useful enough to be used in classroom practice.

40. *Consider creating demonstration classrooms that can provide job-embedded, tiered professional development opportunities*

41. *Provide ongoing support for principals so that they understand the goals of the math program and can be more effective instructional leaders.*

    Principals need defined and targeted professional development preparing them to be instructional leaders in mathematics. They also need to understand the goals of the math program and be able to articulate them to their faculty and parents.

42. *Provide ongoing support for teachers designed to deepen their math content knowledge in order to prepare them to use their curriculum materials effectively with all students. Begin by developing and publicizing a clear rationale for the use of* Everyday Mathematics *and* MathScape *and how their use furthers the district goal of ensuring all students are college and career ready. Focus on particular concepts and skills essential to success in Algebra I.*

    The district has taken an important step by back-mapping the concepts and skills students will need in order to be successful in Algebra I. However, the district provides only brief training for new teachers and teachers new to a grade level. It is important to ensure that all teachers have deep content knowledge. Teachers throughout the district must have the same understanding of district expectations for their grade level and how the learning at their grade level links to previous and subsequent grades. To that end, the team recommends that professional development focus on key areas in order to avoid scattering resources and frustrating teachers.

In kindergarten through grade 2, for instance, concentrate on developing deep understanding of numbers and operations of addition and subtraction, including their application. Address the concern that students are not learning their math facts by ensuring that they do so with designated time devoted to this purpose. At the same time, ensure that teachers know how to develop students' understanding of whole numbers and what they measure.

In grades 3-5, focus on the operations of multiplication and division, as well as the concept of fractions and operations with fractions. Again, ensure that students have fluency with multiplication and division, but also build their ability to determine when to use these operations. Equally important, teachers and students must take the time to understand the concepts that underlie these operations. Deep understanding of fractions and operations with fractions is critical to understanding ratios and proportions, which in turn predicts student success in Algebra I.

Grades 6-7 should focus on proportional reasoning leading to Algebra I.

43. *Provide ongoing, differentiated professional development for* EDM *and* MathScape *for central office personnel, content specialists, school administrators, teachers, tutors and paraprofessionals, as well as community groups and mentors that are used to support these programs. Ensure that all teachers using math texts have received professional development in the use, strengths, and weaknesses of these texts.*

Textbooks should not be confused with the district's curriculum. Books are tools to support the teaching of the district's and the state's objectives. If the math program is to be successful, the district should ensure that every teacher understands what the district expectations are in math and how those expectations link to the curriculum and the textbook. Priority areas should include—

- Rationale and big picture spiral
- Program components and their rationale
- Progress monitoring
- Criteria for when to intervene and when to continue the spiral
- Key learning that must be mastered—such as math facts
- Look-fors in classroom instruction and student work products
- Assessment/data use
- Where to supplement and what can be omitted in *MathScape* and in *EDM* to ensure that all GLEs are mastered. Ideally, all GLEs eligible for assessment should be taught prior to state testing.

Developing systematic, on-site training should include a clear vision of what good math instruction looks like. The training should help teachers implement that model of instruction and inform administrators how to monitor it. These priority areas should be incorporated into curriculum guides and all professional development opportunities. Professional development should be incorporated into grade level and department meetings about two weeks prior to beginning new units to ensure that district staff members are working together toward the same ends.

44. *Consider participating more broadly in National Council of Teachers of Mathematics (NCTM) webinars in order to develop awareness of math issues and to bring a broader view of mathematics teaching and learning that is not directly specific to the adopted instructional materials.*

    In order to create a more solid and broad view of mathematics as reasoning and "sense making," promote the visibility of NCTM and its resources, including resources for principals, teachers, and parents. Encourage participation in NCTM webinars to develop awareness of discussions taking place concerning mathematics instruction.

45. *More clearly define the roles of ELL tutors and charge principals with supporting those roles on their campus and in their classrooms.*

    The team heard of a variety of ways schools use their ELL tutors. Define their role to make use of the instructional support they can offer students. The district should also articulate its expectations for how teachers and tutors collaborate with one another. This would also build multi-cultural understanding among staff and students when tutors are from diverse ethnic, racial, and language communities.

46. *Provide targeted professional development for principals, general education teachers, ELL teachers, and instructional support staff (e.g. ELL tutors) on instructional strategies and approaches specific to ELLs and other lower-performing groups, such as Alaska Native, African American, and Asian Pacific Islander students. Also, incorporate strategies for working with ELLs into general education professional development in math.*

    It would help principals, in particular, to have written descriptions of what they should see being taught at each grade level in math, and the approximate timing during the year to expect that learning. Principals should also have access to samples of student work that demonstrate the level of rigor expected for that grade level. Moreover, they need to understand how to interpret data and how to lead teachers in using the data to inform classroom instruction. Finally, teachers, instructional assistants, and ELL tutors need professional development activities that bring them together to prepare materials and discuss approaches for upcoming lessons and to address individual student strengths and challenges.

47. *Augment the professional development in math of ESL teachers and ELL tutors at the middle school level starting with schools that have the highest number of ELLs and schools that are in Levels 4 and 5. The ELL tutors and ESL teachers should receive training in* MathScape *as well as supplemental math materials, so they can help students develop the ability to access the mathematics content and handle the complex language vocabulary and structures they will need to master the content.*

48. *Evaluate the instructional background of ELL tutors in order to best utilize their knowledge and skills and tailor their professional development. Work with principals to establish guidelines for allocating workspace within classrooms and school buildings so that the tutors can work effectively and efficiently with students.*

49. *Professional development should include data use and analysis to inform instruction. Data teams at the school level should be supported by ongoing training and support from central office staff who handle achievement data.*

F. REFORM PRESS

Urban school districts that are seeing steady progress in student achievement do not develop new policies at the central office and hope that these policies find their way into district classrooms. Instead, these school districts design specific strategies for ensuring that the reforms are being supported and implemented in all classrooms.

50. *Require an executive director and a central office team member to visit schools at least twice per week to provide support, technical assistance to school-site staff, as was done in the Williwaw example.*

- Set a timeline for school visits, starting with Level 4 and 5 schools, to look at their practices and get them used to visits.

- Develop a diagnostic and support plan for visits building on the University of Washington project. This might include—

    - What teams will be looking for
    - What the teams will do with what they observe (such as provision of specific support or technical assistance in areas where the school needs help)
    - Follow-up activities
    - Results expected

- Train stakeholders in the purpose of the visits and build a climate for problem solving and professional growth in mathematics instruction, rather than seeing the visits as personnel evaluations.

- Establish networks with other member districts with strong math results, such as Austin and Boston, in order to share insights and lessons.

- Extend the focus, as time permits, to schools in Levels 2 and 3 under NCLB to prevent their slipping more deeply into sanction status.

51. *Develop a guide for central office staff, principals, and teachers on what is being looked for in math instruction in the new district walkthrough process.*

52. *Begin monthly diagnostic walkthroughs in Level 4 and 5 schools where math achievement has been an issue. Link the observation process for each quarter of the year to key concepts indicated in the curriculum pacing guide. Teachers may need to stray from the pacing to meet student needs, but they should have a plan for ensuring their students will master the key concepts during that quarter. Use "look for" guidelines from central office to build stronger program implementations and improved student achievement.*

The district has initiated a diagnostic walkthrough process. If the walkthroughs are to have real impact, however, the district should articulate how the items on the checklist translate into look-fors in the classroom. It should also be clear what the purpose of the walkthrough is. Observations should be coupled with discussion about how instruction could be enhanced to improve student achievement and where additional support might be needed. In many districts, the walkthrough process is a compliance exercise or an evaluative tool that provides little value to the instructional practice of teachers. Anchorage has the opportunity to define its walkthrough process differently.

53. *Consider naming demonstration classrooms where programs are implemented well or are led by contact teachers or "teacher-leaders."Permit other teachers to visit these classrooms. Consider taping portions of particularly important or traditionally difficult-to-teach concepts and making the videos available to teachers and schools.*

G. ASSESSMENT AND DATA USE

A common feature in urban districts making rapid gains in student achievement is their use of statistical data. These districts use data to monitor progress, identify schools or students that are starting to slip behind, and decide on intervention strategies to bring students back up to speed and also to determine the professional development needed to help teachers strengthen skills.

54. *Develop or adapt a* quarterly *or three-times a year benchmark assessment aligned with state standards to monitor progress in math in grades k-8. Ensure that assessment matches pacing guides, includes GLEs, and is aggregated into the district's data systems.*

The team was concerned that waiting until January to know how well students are progressing in math may allow some students to fall too far behind in the elementary and middle grades. In addition, it would be helpful for teachers to have quarterly information on students who transfer schools mid-year. It is particularly important that timely assessment data be available to principals, teachers, parents, and students to inform and strengthen instruction prior to the SBA at the end of the school year and to ensure students are on track.

While the February 2011 survey indicated that the district's current elementary-grade benchmark tests were being used by some, there were questions about the alignment of items. The district should solicit additional teacher feedback about questionable items and take the time to refine them. If teachers are correct about questionable items, then let teachers know they were right and indicate what the district will do as a result. If the items were actually correctly written, then teachers will need professional development to clarify the concepts being assessed. Moreover, the district should analyze benchmark test results in order to refine curriculum guidance and professional development not only in the grade-level being assessed but also in the previous grades where problems may have originated.

55. *Ensure that professional development on data goes beyond how to access the data system. It should include help on how to interpret the data and how to use it to modify instruction.*

56. *Monitor data use through the recommended diagnostic visit initiative.*

    Teachers and principals report varying uses of data and varying answers on how often data are reviewed and with whom. The diagnostic visit proposed in this report should include look-fors that indicate whether data are guiding instructional decisions for each student group, how data are being used to modify activities, and what interventions are called for.

57. *Review the full extent of universal screening in the Response to Intervention system to ensure it includes academic alignment, student attendance, social/emotional learning, and cultural and other issues.*

58. *Establish a data warehouse user group with representatives from the central office, administrative networks, and schools (heavy users and novices) to provide input on the design of the system and its reports*.

    Cross-functional teams should assist in the design of the district's data warehouse and its reports to ensure that the system meets staff and teacher needs and is a one-stop shop for data. Also, the system ought to incorporate alerts that would trigger action if student performance fell below specified levels at the elementary levels. The data system should be fully accessible and should allow principals and teachers to manipulate and explore the data rather than simply providing pre-set screens.

59. *Charge the research and evaluation department with providing an in-depth analysis of patterns of mobility among the district's students to inform staff on how to allocate resources strategically. Based on the results, either target schools most in need of support or establish a professional learning community for principals, assistant principals, and teachers of the most highly impacted schools to work with central office to narrow achievement gaps.*

    ASD has already created a list of schools sorted by their level of student mobility (transience). The purpose was to enable the district to predict patterns and respond proactively to support the achievement of this student group. Student-specific data should include LEP status, disability, ethnicity, eligibility for free or reduced-price lunch, and achievement levels. Examine the mobility patterns to determine impact on attendance and exposure to multiple textbook approaches to mathematics. The data should inform instructional interventions.

60. *Charge the research and evaluation unit with working with Indian Education and ELL offices and to reach out to the state, tribal councils, and the city's census department to determine specific patterns of migration between Anchorage and the state's Alaska Native villages.*

A cross-functional team of Indian Education, curriculum, and instructional support personnel (Title I, special education, ELLs) should review the data to inform the district's instructional and intervention strategies among groups likely to show the greatest math needs.

61. *Create targeted resources and interventions for students who migrate to and from remote Alaska Native villages to ASD during the school year and charge the grants office with exploring federal funding opportunities to support these resources.*

    Resources might include such things as--

    - Culturally relevant (Native Alaskan, rural communities) instructional and support materials.
    - Potential foundation support to provide hand-held or other devices to maximize access for migrating students.
    - Creating permanent spaces on the Anchorage School District Website to allow students and their families to "stay in touch," and posting practice/review material for students who will return within the year. This site might also have information for parents in their native language with helpful names and phone numbers to facilitate their return to ASD
    - Hand-held computer devices that would allow remote access to ASD instructional resources and homework
    - Collaborative agreements/subcontracts with tribal governments and community-based organizations (CBO) to provide tutoring and instructional support long distance and in tribal villages.
    - Professional development aligned to the ASD curriculum and textbooks to ensure students are supported in a matter that maximizes their opportunities to succeed upon their return to ASD.

    Alaska has received substantial federal funding to develop its Internet grid for reaching remote villages and ASD might follow suit with applications for federal funds that would permit school district efforts to support this migrating group of students.

62. *Work with the Office of Indian Education to explore ways to collaborate with the Alaska State Library system and the University of Alaska to reach Alaska Native students and families who move between Anchorage and smaller, rural villages.*

    In 2010, the Obama administration awarded roughly $10 million to Alaska to improve Internet access to Alaska libraries and enhance Internet literacy and usage in the state's rural communities. The U.S. Commerce Department awarded $5.4 million to the state's library system and $4.5 million to the University of Alaska.[40] The library grant is supposed to be used over the next three years to increase Internet speed at most of Alaska's libraries and launch a free video conference system for all library users. The library upgrades are also being supported by $2.9 million from the Bill & Melinda Gates Foundation and the Rasmuson Foundation. The video conferencing

[40] http://www.adn.com/2010/09/14/1454757/state-gets-10-million-for-internet.html accessed May 25, 2011

capabilities could allow students to stay in touch with their home schools in Anchorage and have tutoring sessions on a regular basis.

H. LOWEST-PERFORMING STUDENTS AND SCHOOLS

Urban school districts that are seeing substantial improvement in student performance have a targeted strategy to intervene and increase achievement in their lowest-performing schools and with their lowest-performing students. These school districts also have clear strategies for teaching special populations such as English language learners and students with disabilities. Such strategies may vary from city to city, but they share a number of common elements. To build towards a successful system, ASD might consider the following steps:

63. *Develop a districtwide monitoring and early-alert system that would track the academic progress of transient students. Charge the executive directors with monitoring the progress of these students and assisting schools in meeting their needs.*

    Anchorage School District has a research-based early alert system that begins in eighth grade to help keep students on track for graduation. It also has the in-house expertise to design a system to monitor the academic progress of transient students. Since the district is aware of patterns of within-district transfers, it might consider how to use its expertise to inform the receiving teachers about how they might best prevent these students from developing gaps in their math knowledge and skills.

64. *Evaluate and assess the effectiveness of the district's new and emerging intervention strategies and programs to see if they are producing the academic effects for low-performing students that the district wants. Also, check these new intervention systems for alignment.*

    The district makes use of a wide variety of supplemental materials and intervention strategies that may or may not be tied to state and local GLEs. There appears to be no system for aligning these materials with the GLEs. In addition, the district needs to clarify how decisions about using the interventions are based on skill deficits that the district and schools are identifying with its assessment system. And the district needs to define linkages between the core math program and the interventions being used. Finally, carefully evaluate whether the interventions are successful with all students, particularly students with weaknesses in predetermined concepts and skills. If the interventions are not producing results, they should be discontinued. The team suggests carefully pursuing the following—

    a. Study the intervention systems that have been purchased to define and clarify precisely which skills and concepts are addressed by each program.

    b. Articulate how decisions are made about which interventions to use to address skill deficits identified on the state test and the district's own tests.

c. Evaluate whether the interventions in place have produced student achievement results. Include an analysis of which interventions are successful with all students, particular types of students, or particular concepts and skills, and which interventions are not successful at all and should be eliminated.

d. Examine the characteristics of students who are struggling in mathematics to determine the exact nature of the barriers to their learning, as called for in the RTI process. Students may be having language issues, may have gaps in their conceptual foundation or skill foundation, or may have moved into a new math program. Determine with math contact teachers how each of these characteristics should be addressed.

e. Determine whether the problem that schools are seeing at a particular grade level is due to the lack of concept mastery at an earlier grade.

f. Discern whether weaknesses are related to instructional gaps or to language deficits rated to vocabulary or weak academic language.

g. Determine whether the problem relates to pacing or the alignment of supplemental materials.

65. *Use Title I funds to hire a math specialist to assist schools that are in Levels 4 and 5 due to low math performance. Ensure in-depth training for this individual, and include improvements in math achievement as part of the specialist's performance evaluation. Link the math specialist seamlessly to trainings and meetings with other district math specialists and ESL staff, so all teachers hear the same messages about the math program and also have some skill in second-language acquisition.*

66. *Before deciding whether to discontinue summer school as part of a budget cut, examine data for students who attended summer school to determine its impact on achievement.*

67. *Include in the district's new strategic plan strategies for improving student achievement for English language learners (ELL) within current budget realities and staffing challenges. At a minimum the plan should include—*

- *Strong, specific, and clear delineation of ELL expectations for math performance, beginning in the elementary grades.*
- *Professional development to ensure that teachers understand the expectations and have the strategies and skills to implement them in their classrooms. The plan should include information on when ELL teachers work with general education teachers and what information all teachers should have about ELLs.*
- *A written overview for principals and supervising superintendents on what to look for in ESL classrooms so that program implementation can be better monitored.*

- *Suggestions for intervening with students who are not mastering the essential knowledge, concepts, skills, and vocabulary in key areas outlined in the curriculum recommendations.*

68. *Charge a cross-functional team of staff members from the ELL Office, Indian Education Office, and STEM office with developing references to supportive materials for working with ELLs, Alaska Natives, and other ethnic minority students struggling with mathematics.*

    The compilation of guides and materials should be available to all schools and incorporated into existing professional development. If resources permit, the district should consider purchasing additional instructional materials for ELLs to supplement the district's current textbooks and providing tutors with additional language-appropriate math resources. Similar resources might be acquired to improve opportunities for Alaska Native students.

69. *Revisit the district's supplemental educational services program under Title I to see if there are opportunities to target afterschool math instruction during these periods since most students choose the district's own program.*

I. EARLY CHILDHOOD AND ELEMENTARY

Districts have pursued early childhood reforms to correct serious curriculum alignment problems in the lower grades and to stem the tide of students entering middle and high schools without solid basic skills. The leadership of the Anchorage School District might consider the following recommendations.

70. *Review early childhood math programming to ensure that it properly links to elementary-grade math instruction.*

    Ensure that the linkage includes concepts, not just skills.

71. *Establish a cross-functional team under the leadership of the assistant superintendent for instruction to ensure that the elementary math program is properly bridged with the middle school program. Include representatives from a variety of viewpoints, including—*

    - Executive director of elementary education
    - Executive director of middle school education
    - Supervisors
    - Director of curriculum
    - STEM
    - ELL
    - Professional development
    - Exceptional education
    - Gifted/talented
    - Principals
    - Teachers

- Parents
- Community groups
- Indian education
- Migrant education
- Refugee education

From the February survey, we know that many teachers work in isolation. A large number indicated they do not regularly converse about math instruction, expectations, data, or achievement across grade levels. Yet, as early as second grade, teacher comments indicated that students are not entering their grade level with prerequisite skills and knowledge.

The task of the cross-functional team would be to identify and resolve poor articulation in math programming across grades that impedes student mastery of their GLEs. The task of the group's leader is to keep the group focused on solutions, rather than blaming programs or people.

J. MIDDLE SCHOOLS

While many urban school systems seeing gains in student performance focus initially on their elementary schools, they do not ignore their middle and high schools. There is no national consensus on how to improve middle schools, particularly in the nation's urban schools, but the faster-moving districts have put a number of strategies in place to ensure that students who did not learn the basic skills in elementary school do so before they graduate.

72. *Clarify a strong vision for secondary math instruction and performance so the program's rationale is understood by all stakeholders.*

    Expectations for math performance at middle school levels have changed in recent years to require ever-greater demands for students not only to master computational mathematics but also to solve non-routine word problems that have mathematical solutions. This is not the same kind of math most adults learned when they were in school. In general, middle school achievement scores fall because students have not had deep experience or instruction in determining what math is needed to solve a particular problem. Indeed, ASD has a vision for mathematics, but very few staff members can articulate what it is.

73. *Create a stretch goal to reduce the number of students who require placement in low-level math courses in the middle grades.*

    The district is not well served if more and more students—or particular groups of students—fill lower math tracks. The team urges the district to monitor who enters the lower tracks, what happens to them, and their achievement levels. Make it a goal to qualify more students for advanced track. Enhance communications with parents about how participation in one track or the other can impact their child's future.

74. *Carefully examine student middle school math achievement data by math strand to see where students are consistently coming up short and to determine where the origins of these weaknesses are at both middle and elementary school levels. Revise programming, professional development, and intervention accordingly. Monitor the effectiveness of these revisions in the walkthrough process through feedback from teachers and improved quality of student work.*

    The responses we received on the February 2011 surveys, indicated that principals and teachers were willing to provide feedback on common problem areas. Based on that feedback and student achievement data, the district could use district teams or consultants to design materials or collect materials already developed by teachers to address math weaknesses.

75. *Once the elementary cross-functional team has completed its work, turn attention to middle school and transitions to high school.*

76. *Consider undertaking a thorough evaluation of all programs designed for non-English speakers in the middle grades.*

    It is beyond the scope of this study to thoroughly address the district's programs for Native Alaskans, American Indians, ELL, migrant, and refugee populations. However, the team is concerned that programs for these students will suffer from pending budgets cuts. Guidelines for services for these students do not always appear in writing, and some instructional practices seem to be derived from tradition rather than research.

CHAPTER 4. SYNOPSIS AND DISCUSSION

The Anchorage School District is among the highest achieving of the Great City School districts nationally, but like all other districts, it has various achievement gaps. Still, the district has seen substantial academic gains over the years and has some of the strongest programs and best staff that the Council has seen in its many reviews. Its superintendent is nationally admired and respected, and its school board has provided stable leadership over the years.

To its credit, the leadership of the school district was not satisfied with its performance and was concerned that its math achievement was not seeing appreciable movement after the district adopted its new math program several years ago. In many ways, this is not entirely surprising. The Council has seen a number of districts stall on their performance after the adoption of a new program, only to see achievement spurt later. Boston Public Schools is a good example of this.

Still, the district has asked a reasonable set of questions: Why hasn't math performance improved? Are the main programs being implemented faithfully? What might be done to improve math performance? A number of other people have asked about whether the current programs ought to be replaced.

At the heart of these questions is a presumption that it is the program that produces or fails to produce academic improvement. To be sure, there are some programs that are better than others, but our research in many big city school districts across the country for many years suggests that improvement is rarely attributable solely to whether a district buys one commercial product or another. Indeed, the data in chapter 1 of this report underscore that conclusion. Even after adjusting for student demographic differences, the district's several math programs produced vastly different results.

In general, we were impressed by the broad instructional program in Anchorage and the overall achievement levels. Our findings suggest, however, that math achievement may not have improved overall because the programs being implemented do not have the supports behind them that are typically responsible for districts demonstrating achievement gains: alignment, professional development, technical assistance and support, use of data to inform instruction, and the like. The school district has many of these elements in place but they appear to be insufficiently strong or uniformly implemented to move the program forward. This dynamic seems particularly true in the case of professional development, which is largely voluntary and delivered in small doses, and in the case of technical assistance, which appears largely absent due to both priorities and budget cuts.

Maybe more to the point, the district does not have the mechanisms in place to monitor whether the programs are being implemented as intended. This is the opposite of what our teams often see. In many urban school systems there is excessive monitoring and unwelcome and intrusive coaching, but often the wrong thing is being monitored or the monitors are looking for a set of instructional strategies that don't really exist. In

Anchorage, it is hard to tell whether the programs are being implemented properly because the typical tools for assessing implementation aren't there as the culture of the district highly values individual discretion.

In the end, we were convinced that the teacher surveys reflected real concerns on the part of classroom instructors that they were not getting the supports they needed to be effective. We did not see evidence of those supports either.

We have attempted to design a series of recommendations that would strengthen the math program on a number of fronts. More importantly, we have fashioned proposals that would strengthen how well the district monitors its program implementation without mandating what teachers and staff do. We have also proposed a number of steps to improve accountability without being too heavy-handed, strengthen professional development and support, and intensify interventions for low-achieving students. We have also underscored the fact that the district needs to make math a priority if it is to see some of the same gains as reading. Over time, we think these and other steps will begin to improve math performance.

We have also attempted to be mindful in our recommendations that the school district is under enormous financial strain. As it is, the district already operates at a level of funding well below that received in the balance of the state. We can't do anything about that for the moment, but we have been careful to make sure that our proposals had as little budgetary impact as possible. Still, we made a number of recommendations on how the district might redeploy some of its federal resources in ways that would give the district the tools it needed to boost its math program.

All in all, the district and its leadership should feel encouraged by the headway they have made over the years with Anchorage's very unique students. The value-add data the Council prepared for this report indicate that a sizable number of students move up performance levels as they progress through their elementary grades. This includes English language learners and other students that major school districts nationally often have a difficult time reaching.

Finally, during periods where gains have appeared to stall, district leadership and school-based staff members are often tempted to call for an overhaul of what they are doing. We think just the opposite is called for in this case. The district is in good condition but is struggling to do what very few districts are ever able to attain, i.e., move from a high level to a situation of real excellence. We are convinced that the Anchorage School District should maintain its strategic direction, but strengthen its tactical activities to make sure the intentions of it big-picture initiatives are realized. We have little doubt that the school district will see its children realizing the dream of all staff and parents of being fully college and career ready.

APPENDIX A. INDIVIDUALS INTERVIEWED

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School District School Board and Staff

- Carol Comeau, Superintendent, Anchorage School District
- John Steiner, President, Anchorage School District Board of Education
- Crystal Kennedy, Vice President, Anchorage School District Board of Education
- Kathleen Plunkett, Treasurer, Anchorage School District Board of Education
- Jeannie Mackey, Clerk, Anchorage School District Board of Education
- Jeff Friedman, Anchorage School District Board of Education
- Pat Higgins, Anchorage School District Board of Education
- Jim Leply, President, Anchorage Education Association
- Enid Silverstein, Executive Director, Curriculum and Instructional Support
- Sharon Brewer, Assessment and Evaluation
- Peter Ljubicich, Supervisor, Gifted Program
- Dough Gray, Director, Elementary Special Education
- Linda Griffith, Director, Middle School Special Education
- Mary Hoppas, Math Training and Instructional Specialist (STEM)
- Penny Williams, Math Training and Instructional Specialist (STEM)
- Ann Ibele, Math Training and Instructional Specialist (STEM)
- Jessica Graziano, Math Training and Instructional Specialist (STEM)
- Michael S. Fenster, Science, Technology, Engineering and Math Coordinator
- Colleen Stevens, Director, Training and Professional Development
- Doreen Brown, Supervisor, Title VII Indian Education Program
- Philip Farson, K-6 ESL Teacher Expert
- Ed Graff, Assistant Superintendent of Instruction
- Vernon Campbell, Director, District Accountability
- Diane Orr, Supervisor, Title I Program and Early Childhood
- Leslie Vandergaw, Executive Director, Middle School Education
- Linda Carlson, Executive Director, Elementary Education
- Sheila Hall, Supervisor, Elementary Education
- Glen Nielsen, Supervisor, Elementary Education
- Beth Snyder, Early Childhood Teacher Specialist
- Amber Thomas, Community Counselor, Indian Education—Title VII
- Rochene Rowan-Hellen, Community Counselor, Indian Education—Title VII
- Shirley Greeninger, Refugee Liaison Support Teacher
- Marina Gangs, ELLP Middle School Specialist
- Beth Hartley, ELLP Middle School Specialist
- La Von Bridges, ELLP Elementary Specialist
- Blia Vue, ELLP Middle School Specialist (and Hmong representative)
- Charmaine Yutuc, Student, A.T. Dimond High School
- Tara Bivins, Teacher, Mear, Grades 6-8
- Dawn Campbell, Teacher, Ravenwood, Grade 5

- Tessie Canada, Teacher, Spring Hill, Grade 6
- Jason Collins, Teacher, Begich, Grades 6-8
- Peter Cusano, Teacher, Willow Crest, Grade 3
- Terri Dunham-Bay, Teacher, Gruening, Grades 6-8
- Denise Demetree, Teacher, Denali, Grades 1-3
- Amy DeWall, Teacher, Kincaid, Grade 4
- Geneva Head, Teacher, Northwood ABC, Grade 1
- Gwen Holt, Teacher, William Tyson, Title I Specialist
- Liliya Huseynova, Teacher, West, Geometry, Pre-Calculus, Trigonometry
- Timothy Johnstone, Teacher, Benson/SEARCH, Algebra
- Elisabeth Kachline, Teacher, Muldoon, Grade 5
- AnneMarie Brigandi, Parent, Dimond High School
- Donnetta Doughty, Parent, Alaska Native Cultural Charter School (elementary)
- Jennifer Fink, Parent, Inlet View
- Jennifer Ford, Parent, First Lake
- Russell Gates, Parent, Susitna
- Jennifer Hayes, Parent, Ursa Major Elementary
- Erin Jettenberg, Parent, Klatt
- Vivienne Murray, Parent, Inlet View
- Teresa Zimmer, Parent, Central
- Jon Forbes, Principal, Eagle Academy Charter School
- Sherry Ellers, Principal, Mirror lake
- Dan Gallego, Principal, Bartlett
- Patrick Garrity, Principal, Sand Lake
- Sven Gustafson, Principal, Romig
- Brandon Locke, Principal, Rogers Park
- Barbara Nagengast, Principal, Homestead
- Bill Shildbach, Principal, Tudor
- Sharon Story, Principal, Russian Jack
- Kersten Johnson-Struempler, Principal, South
- Brendan Wilson, Principal, Wendler
- Amber Bhattarai, Middle School ESL Tutor, Mears
- Maria Billings, Middle School ESL Tutor, Wendler
- Ina Carpenter, Middle School ESL Tutor, Clark
- Louis Carpio, Middle School ESL Tutor, Clark
- Theresa Dougherty, Middle School ESL Tutor, Goldenview
- Francoise Gianoutsos, Middle School ESL Tutor, Romig/Central
- Kristin Hamel, Middle School ESL Tutor, Goldenview
- Pauline N. Haas, Middle School ESL Tutor, Hanshew
- Barbara Hatch, Middle School ESL Tutor, Wendler
- Kristin Hamel, Goldenview
- Pao Lee, Middle School ESL Tutor, Begich
- Bruce Middleton
- Natalia Ramstad, Middle School ESL Tutor, Romig

- Christy Smith, Middle School ESL Tutor, Clark
- Pamela Strickland, Middle School ESL Tutor, Mears
- Anhn Ntray
- Jack Tuia, Middle School ESL Tutor, Clark
- Karen Wood, Middle School ESL Tutor, Romig

Community Groups

- Imtiaz Azza, Counselor, Newcomers Center
- Kimberley Burnett, Alaska Native Advisory Committee
- Kelly Donnelly, Executive Director, Stone Soup
- Starr Marsett, Special Education Advisory Committee (SEAC) member
- Chris Meir, Cook Inlet Tribal Council (CITC)
- Polly Miller, Multicultural Education Concerns Advisory Committee (MECAC) member
- Malcolm Roberts, Board Member for Bridge Builders
- Hillary Seitz, Associate Professor, University of Anchorage, Alaska
- Sarah Tuggle, Alaska Council PTA Administrative Assistant

Other

- Input also received from: 60 respondents to the Council of the Great City Schools Principal Survey, Fielded February 1-11, 2011

- 607 respondents from Council of the Great City Schools K-8 Teachers Survey, Fielded February 1-11, 2011

APPENDIX B. DOCUMENTS REVIEWED

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- Anchorage School District Organizational Chart, July 2010
- Anchorage School District Six-Year Instructional Plan: Fiscal Years 2007 to 2012, June 11, 2007
- Six-Year Instructional Plan 2009-10, Draft 11/8/2010 (Curriculum)
- Math Department Six-Year Plan Evaluation for FY 2007-2008
- Math Program Evaluation and Review Process Notebook
  - ASD Memorandum #173 (2007-08), Elementary Math Materials Recommendation, January 28, 2008
  - ASD Memorandum #344 (2006-07), Textbook Adoption: 6-8 Middle School Math, June 25, 2007
  - Recommendations for Math 6, Math 7 and Math 8, undated
  - Fifth Grade (Survey results regarding *Everyday Math* and Heath)
  - Fourth Grade (Survey results regarding *Everyday Math* and Heath)
  - Third Grade (Survey results regarding *Everyday Math* and Heath)
  - Second Grade Reflections/Observations (Survey results regarding *Everyday Math* and Heath)
  - First Grade (Survey results regarding *Everyday Math* and Heath)
  - Math Data Review: Elementary Special Education EDM 4/25/07
  - LEP (Survey results regarding *Everyday Math* and Heath)
  - Anchorage School District Performance Standards Check Sheet (Kindergarten Math – Sixth Grade)
  - Math Curriculum Survey Fall 2007: Elementary Results, 12/6/2007
  - Lucky Number
  - K-6 Math Curriculum Review (Orientation Presentation), November 2007
  - K-8 Math Curriculum Review, Anchorage School District, Spring 2007 (R. Mount)
  - Math Review Timeline, undated
  - Math Curriculum Review Survey Results for 2007 Elementary Math Teachers
  - Read Me First: 2007 Math Curriculum Survey Results on CD
  - Math Curriculum Review Survey Needs
  - ASD Memorandum #335 (2005-2006), Math Program Evaluation, June 26, 2006
  - Math Evaluation 05-06 (brochure)
  - Math Evaluation 2005-2006 (PowerPoint)
  - 2005 SBA Math Proficiency (collection of data), Grades 3-8
  - Memo dated April 4, 2006 from "Danise" regarding next steps for our Math Program Evaluation Results (in anticipation of an April 10, 2006 meeting)
  - Preliminary Results: Math Program Evaluation, April 2006
  - Math Evaluation Responses by Division
  - Testing the Significance of Increasing and Decreasing Proficiency Rates (2002-03 to 2004-05)
  - Comments from Elementary Teacher Surveys about Math Curriculum Information for the K-8 math Curriculum Review Survey
  - SurveyMonkey Curriculum Review Survey

  - Calendar of math support teachers assisting schools by facilitating the administration of the electronic survey
  - Secondary Teacher Survey for math program Evaluation
- STEM PD Plan: Synthesis of Boston Public School PD for ASD
- http://www.eed.state.ak.us/tls/assessment/Accountability/AKAYPWkBk_120710.pdf, State Accountability Workbook, page 37.
- EM Site-Based Leader, Updated: 10/12/10
- STEM School Requests for 2010-2011
- Rabbit Creek STEM Support Questionnaire
- Science Technology Engineering Math: Focused Topic Sessions Interest Survey for Rabbit Creek
- Math Contact Teachers and STEM Site Based leaders' Seminar (flyer), November 15, 2010
- Short-term Tasks for Math Contact Teachers for Completion by Winter Break
- STEM Math: Fall Seminar 2010/2011 (Disc)
  - 2010 Mid-Year Benchmark (6 result files, Benchmark FAQs, Sample 2010-11 Benchmark Spreadsheet)
  - Common Core Checklists (Grade 1 CC Checklist (2), Kindergarten Common Core Checklist PDF)
  - EDM Support (1st AK GLE to Assessment Assistant Disk, 2nd AD GLE to Assessment Assistant Disk, 3rd AK GLE to Assessment Assistant Disk,4th AK GLE to Assessment Assistant Disk,, 5th AK GLE to Assessment Assistant Disk,6th AK GLE to Assessment Assistant Disk (unopenable), EDM Assess Asst Instructions)
  - Contact Teacher Support (EDM Assessment Assistant, EDM Assessment Assistant Table of Contents and Instructions, Everyday Math Games on Line (sic), iTLG-Interactive Teacher Lesson Guide, Tasks for Contact Teachers)
- Algebra Back-Mapping (First Grade EDM Support for Focus Strand: Functions and Relationships, Gr1_F&R GLEs 1-3 task pages, 5 item banks)
  - Contact Teacher Support
- Training for Indian Education Tutors
- New-to-District or New-to-Grade-Level Trainings
- Additional EDM Trainings: New-to-Combination Class Teachers
- Special Education EDM Training
- Schools Below the District Average (79)
- Helping to Support Math Achievement: Moving from Data to the Curriculum, Part II (PowerPoint)
- Current Courses (printout)
- EDM, 3rd Edition Title I Principal Meeting, April 21, 2009 (PowerPoint)
- Middle School Math Cohort professional development PowerPoint
- Core Class: Where is Measurement? (PowerPoint)
- MS Math cohort, Round 1: October 2009
- 5 Dimensions of Teaching and Learning, University of Washington, Center for Educational Leadership, 2009
- Warmups Eighth Grade

- Training materials from grades 7 and 8 in-services
- *MathScape* Year One Implementation
- Making Mathematical Arguments: Assessment Checklist, Pre-Assessment, Vocabulary Knowledge Rating Process, Vocabulary Strategies
- Vocabulary Development: M-9 Word Sort (McREL)
- Seventh Grade *MathScape* Pacing Guide, GLE Alignment, Anchorage School District Grade Level Expectations.
- Algebra I Pacing Guide, August 2009
- Anchorage School District High School Math Performance Standards, May 31, 2010
- Algebra I Quarter 1 Assessment (Chapters 1-3)
- 2010-2011 EDM Third Grade 120 Lessons 51 Free Days
- Third Grade Alaska GLE Checklist
- Anchorage School District Performance Standards Check Sheet: Third Grade Math
- Second and Third Grade Alaska GLEs for use with Combination Classes, 8/2010
- Assessing with *Everyday Math*, 10/11/10
- Third Grade EDM Support for Focus Strand: Numeration, Measurement, Estimation and Computation, Functions and Relationships, Geometry, and Statistics and Probability (8/31/09)
- Introducing a New Game to the Class
- EDM Critical Building Blocks and Resources for Struggling Learners
- 4. Mental Math, Algorithm Resources 11/13/08
- Math: Instruction Planning Reference, 3/25/10 (lists EDM materials for reference: teacher lesson guide, differentiation handbook, ELL handbook, games, 5-Minute Math, EDM Online)
- Instructional Planning Form
- Differentiating Instruction Using EDM, created by Mary Hoppas, summer 2009 Math Talk Questions and Sentence Starters
- About *Everyday Mathematics*: A Parent Resource Manual, Anchorage School District, 1999
- Questioning Stems
- Home Link, Unit 5: Family Letter
- 2010 – 11 Grade 3, Mid-Year Benchmark Answers and Alaska Grade Level Expectations
- 2010 – 11 Grade 3 Mid-Year Benchmark
- Math Text Use in Elementary and Middle Schools
- Title I Schools with or without SuccessMaker
- Asdmsmath Wiki printout
- Alaska English Language Proficiency Assessment, District Summary Report by Subgroup, Alaska Department of Education and Early Development, spring 2010
- Alaska English Language Proficiency Assessment, Summary Report by Proficiency Level Alaska Department Of Education and Early Development, spring 2010
- Alaska English Language Proficiency Assessment, District Report by School, Alaska Department Of Education and Early Development, spring 2010

- Alaska English Language Proficiency Assessment, District Summary Report by Subgroup, Grades K through 12, Alaska Department of Education and Early Development, spring 2010
- Anchorage School District, Christine Garbe Presentation, undated
- Administrative Certified Employee Evaluation Document, Anchorage School District, APA Bargaining Unit, revised August 2006
- Certificated Employee Evaluation Document, Anchorage School District, AEA Bargaining Unit, revised September 2010
- List of Schools with Reform Models
- 2009 – 2010 School Improvement Plan Submission Packet for Title I Schools at Level 2 or above: Chinook Elementary School, Clark Middle School, Ptarmigan Elementary
- Restructuring/Alternative Governance Plan for Level 5 Schools: Identified as Level 5, Year 1, for 2009 – 2010: Fairview Elementary, Williwaw Elementary
- Restructuring Report Whaley Center, 2006-2007
- 2009 – 2010 Accountability Status, Anchorage School District
- List of ASD schools that performed higher than or lower than expected based on 2009 SBA mathematics scores
- Collaborative Autism Resources and Education Evaluation Report, March 15-22, 2010
- Special Education Student Perceptions Survey, Anchorage School District 2009-2010, P. David Tarcy, Ph.D., Alaska Research and Evaluation Services, May 2010
- Special Education Parent Satisfaction Survey, Anchorage School District 2009-2010, P. David Tarcy, Ph.D., Alaska Research and Evaluation Services, May 2010
- Predictive Analysis of the Relationship between 2006-2007 SBA Scores and TerraNova Scores
- Agenda, Regular Meeting of the School Board, Monday, October 25, 2010
- Agenda, Regular Meeting of the School Board, Monday, October 11, 2010
- Agenda, Regular Meeting of the School Board, Monday, September 27, 2010
- Standards Based Math Rubrics for scoring
- 2009-2010 Adequate Yearly Progress, printed 08/27/10
- Alaska Comprehensive System of Student Assessment, http://hecr.aksenate.org/wp-content/uploads/2010/11/assessment-matrix-final.pdf
- Alaska Consolidated State Application Accountability Workbook, December 7, 2010
- Memorandum #83, Profile of Student Performance 2009-2010 to the School Board from the Office of the Superintendent
- Anchorage 2010 Profile of Performance 2009-10
- AKDEED Form #05-09-042, Appendix G 4 AAC 06.739 assessment proficiency scores, revised 05/07/09

APPENDIX C.
ADDITIONAL COHORT DATA ON STUDENTS ENROLLED IN ANCHORAGE SCHOOL DISTRICT FOR THREE CONSECUTIVE YEARS

APPENDIX C. ADDITIONAL COHORT DATA

Grade 3 in 2008 and in Grade 5 in 2010

American Indian, Alaska Native

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

	07-08		09-10		Delta	
Performance	Student		Student		Student	
Level	Count	Percent	Count	Percent	Count	Percent
Advanced	59	21.5	84	30.7	25	9.1
Proficient	119	43.4	85	31.0	(34)	(12.4)
Below Proficient	44	16.1	69	25.2	25	9.1
Far Below Proficient	52	19.0	36	13.1	(16)	(5.8)
Total Students	274	100.0	274	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ *to*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	79.7	20.3	0.0	0.0
Proficient	31.1	42.9	22.7	3.4
Below Proficient	0.0	34.1	50.0	15.9
Far Below Proficient	0.0	13.5	38.5	48.1

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	18.2		16.8	1.5	0.0
%No Change	52.9	52.9			
%Progressed	28.8		26.3	2.6	0.0
Total	100.0				

net weighted impact metric	
positive	11.7

Alaska Natives

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

	07-08		09-10		Delta	
Performance	Student		Student		Student	
Level	Count	Percent	Count	Percent	Count	Percent
Advanced	51	19.9	75	29.3	24	9.4
Proficient	114	44.5	81	31.6	(33)	(12.9)
Below Proficient	42	16.4	65	25.4	23	9.0
Far Below Proficient	49	19.1	35	13.7	(14)	(5.5)
Total Students	256	100.0	256	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ *to*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	80.4	19.6	0.0	0.0
Proficient	29.8	44.7	21.9	3.5
Below Proficient	0.0	33.3	52.4	14.3
Far Below Proficient	0.0	12.2	36.7	51.0

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	17.6		16.0	1.6	0.0
%No Change	54.3	54.3			
%Progressed	28.1		25.8	2.3	0.0
Total	100.0				

net weighted impact metric	
positive	11.3

American Indian

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	8	44.4	9	50.0	1	5.6
Proficient	5	27.8	4	22.2	(1)	(5.6)
Below Proficient	2	11.1	4	22.2	2	11.1
Far Below Proficient	3	16.7	1	5.6	(2)	(11.1)
Total Students	18	100.0	18	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	75.0	25.0	0.0	0.0
Proficient	60.0	0.0	40.0	0.0
Below Proficient	0.0	50.0	0.0	50.0
Far Below Proficient	0.0	33.3	66.7	0.0

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	27.8		27.8	0.0	0.0
%No Change	33.3	33.3			
%Progressed	38.9		33.3	5.6	0.0
Total	100.0				

net weighted impact metric	
positive	16.7

African American/Black

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	27	17.2	52	33.1	25	15.9
Proficient	73	46.5	42	26.8	(31)	(19.7)
Below Proficient	24	15.3	39	24.8	15	9.6
Far Below Proficient	33	21.0	24	15.3	(9)	(5.7)
Total Students	157	100.0	157	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	92.6	7.4	0.0	0.0
Proficient	37.0	37.0	23.3	2.7
Below Proficient	0.0	25.0	50.0	25.0
Far Below Proficient	0.0	21.2	30.3	48.5

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	17.2		15.9	1.3	0.0
%No Change	51.0	51.0			
%Progressed	31.8		27.4	4.5	0.0
Total	100.0				

net weighted impact metric	
positive	17.8

Hispanic

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	89	27.1	138	41.9	49	14.9
Proficient	142	43.2	98	29.8	(44)	(13.4)
Below Proficient	41	12.5	57	17.3	16	4.9
Far Below Proficient	57	17.3	36	10.9	(21)	(6.4)
Total Students	329	100.0	329	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	82.0	16.9	1.1	0.0
Proficient	43.0	43.7	10.6	2.8
Below Proficient	7.3	34.1	39.0	19.5
Far Below Proficient	1.8	12.3	43.9	42.1

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	13.1		11.6	1.5	0.0
%No Change	53.2	53.2			
%Progressed	33.7		30.4	3.0	0.3
Total	100.0				

net weighted impact metric	
positive	22.8

White/Caucasian

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	625	49.4	766	60.6	141	11.2
Proficient	504	39.9	341	27.0	(163)	(12.9)
Below Proficient	55	4.4	100	7.9	45	3.6
Far Below Proficient	80	6.3	57	4.5	(23)	(1.8)
Total Students	1264	100.0	1264	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	88.6	10.2	1.0	0.2
Proficient	40.7	48.2	9.7	1.4
Below Proficient	5.5	36.4	43.6	14.5
Far Below Proficient	5.0	17.5	26.3	51.3

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	10.7		9.6	1.0	0.1
%No Change	68.2	68.2			
%Progressed	21.1		19.5	1.3	0.3
Total	100.0				

net weighted impact metric	
positive	11.2

English Language Learners

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	1	0.6	8	4.9	7	4.3
Proficient	38	23.2	47	28.7	9	5.5
Below Proficient	39	23.8	62	37.8	23	14.0
Far Below Proficient	86	52.4	47	28.7	(39)	(23.8)
Total Students	164	100.0	164	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=1)	100.0	0.0	0.0	0.0
Proficient (N=38)	13.2	63.2	23.7	0.0
Below Proficient (N=39)	2.6	38.5	46.2	12.8
Far Below Proficient (N=86)	1.2	9.3	40.7	48.8

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	8.5		8.5	0.0	0.0
%No Change	51.8	51.8			
%Progressed	39.6		33.5	5.5	0.6
Total	100.0				

net weighted impact metric	
positive	37.8

Non-English Language Learners

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	1000	39.8	1303	51.9	303	12.1
Proficient	1096	43.7	744	29.6	(352)	(14.0)
Below Proficient	189	7.5	297	11.8	108	4.3
Far Below Proficient	225	9.0	166	6.6	(59)	(2.4)
Total Students	2510	100.0	2510	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=1000)	86.7	12.1	1.0	0.2
Proficient (N=1096)	38.7	47.4	12.1	1.7
Below Proficient (N=189)	3.7	35.4	42.9	18.0
Far Below Proficient (N=225)	2.2	16.0	32.4	49.3

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	12.7		11.5	1.2	0.1
%No Change	62.9	62.9			
%Progressed	24.4		22.5	1.7	0.2
Total	100.0				

net weighted impact metric	
positive	12.5

FRPL

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	197	20.6	301	31.5	104	10.9
Proficient	453	47.4	335	35.0	(118)	(12.3)
Below Proficient	117	12.2	190	19.9	73	7.6
Far Below Proficient	189	19.8	130	13.6	(59)	(6.2)
Total Students	956	100.0	956	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	82.2	16.8	1.0	0.0
Proficient	30.0	53.0	14.3	2.6
Below Proficient	1.7	34.2	45.3	18.8
Far Below Proficient	0.5	11.6	37.0	50.8

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	14.0		12.6	1.5	0.0
%No Change	57.6	57.6			
%Progressed	28.3		25.7	2.5	0.1
Total	100.0				

net weighted impact metric	
positive	15.6

Non-FRPL

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	731	48.9	923	61.7	192	12.8
Proficient	605	40.4	389	26.0	(216)	(14.4)
Below Proficient	78	5.2	123	8.2	45	3.0
Far Below Proficient	82	5.5	61	4.1	(21)	(1.4)
Total Students	1496	100.0	1496	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	88.9	9.8	1.0	0.3
Proficient	43.8	45.0	9.9	1.3
Below Proficient	7.7	39.7	35.9	16.7
Far Below Proficient	2.4	17.1	34.1	46.3

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	10.8		9.7	1.0	0.1
%No Change	66.0	66.0			
%Progressed	23.1		21.7	1.3	0.1
Total	100.0				

net weighted impact metric	
positive	12.6

Students with Disability

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	30	7.8	48	12.5	18	4.7
Proficient	122	31.8	95	24.7	(27)	(7.0)
Below Proficient	76	19.8	118	30.7	42	10.9
Far Below Proficient	156	40.6	123	32.0	(33)	(8.6)
Total Students	384	100.0	384	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	70.0	23.3	6.7	0.0
Proficient	20.5	47.5	27.9	4.1
Below Proficient	1.3	21.1	52.6	25.0
Far Below Proficient	0.6	9.0	26.9	63.5

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	17.4		15.6	1.8	0.0
%No Change	56.8	56.8			
%Progressed	25.8		21.6	3.9	0.3
Total	100.0				

net weighted impact metric	
positive	10.9

Gifted

Grade 3 to Grade 5 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	176	88.9	181	91.4	5	2.5
Proficient	22	11.1	15	7.6	(7)	(3.5)
Below Proficient	0	0.0	2	1.0	2	1.0
Far Below Proficient	0	0.0	0	0.0	0	0.0
Total Students	198	100.0	198	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	94.3	4.5	1.1	0.0
Proficient	68.2	31.8	0.0	0.0
Below Proficient	0.0	0.0	NA	0.0
Far Below Proficient	0.0	0.0	0.0	NA

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	5.1		4.0	1.0	0.0
%No Change	87.4	87.4			
%Progressed	7.6		7.6	0.0	0.0
Total	100.0				

net weighted impact metric	
positive	1.5

Cohort Grade 4 in 2008 to Grade 6 in 2010

All Elementary

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	1020	38.7	1102	41.8	82	3.1
Proficient	1039	39.4	980	37.2	(59)	(2.2)
Below Proficient	310	11.8	336	12.8	26	1.0
Far Below Proficient	266	10.1	217	8.2	(49)	(1.9)
Total Students	2635	100.0	2635	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from 2008 \ to 2010	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=1020)	80.7	18.2	1.0	0.1
Proficient (N=1039)	25.6	60.2	11.7	2.5
Below Proficient (N=320)	3.5	42.3	38.7	15.5
Far Below Proficient (N=266)	0.8	14.3	31.6	53.4

Summary	Value Add
%Regressed	14.9
%No Change	64.9
%Progressed	20.2
Total	100.0

%No Change	%One Level	%Two Levels	%Three Levels
	13.5	1.4	0.0
64.9			
	18.3	1.9	0.1

net weighted impact metric	
positive	5.8

American Indian and Alaska Native

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	50	20.6	57	23.5	7	2.9
Proficient	106	43.6	91	37.4	(15)	(6.2)
Below Proficient	52	21.4	57	23.5	5	2.1
Far Below Proficient	35	14.4	38	15.6	3	1.2
Total Students	243	100.0	243	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=50)	72.0	22.0	4.0	2.0
Proficient (N=106)	18.9	56.6	21.7	2.8
Below Proficient (N=52)	1.9	32.7	42.3	23.1
Far Below Proficient (N=35)	0.0	8.6	28.6	62.9

Summary	Value Add
%Regressed	21.4
%No Change	57.6
%Progressed	21.0
Total	100.0

%No Change	%One Level	%Two Levels	%Three Levels
	18.9	2.1	0.4
57.6			
	19.3	1.6	0.0

net weighted impact metric	
negative	(1.6)

African American/Black

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	25	17.9	24	17.1	(1)	(0.7)
Proficient	59	42.1	56	40.0	(3)	(2.1)
Below Proficient	26	18.6	32	22.9	6	4.3
Far Below Proficient	30	21.4	28	20.0	(2)	(1.4)
Total Students	140	100.0	140	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=25)	72.0	20.0	8.0	0.0
Proficient (N=59)	8.5	64.4	18.6	8.5
Below Proficient (N=26)	3.8	38.5	30.8	26.9
Far Below Proficient (N=30)	0.0	10.0	36.7	53.3

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	21.4		16.4	5.0	0.0
%No Change	57.1	57.1			
%Progressed	21.4		18.6	2.9	0.0
Total	100.0				

net weighted impact metric	
negative	(2.1)

Hispanic

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	87	31.1	80	28.6	(7)	(2.5)
Proficient	116	41.4	131	46.8	15	5.4
Below Proficient	35	12.5	33	11.8	(2)	(0.7)
Far Below Proficient	42	15.0	36	12.9	(6)	(2.1)
Total Students	280	100.0	280	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=87)	65.5	33.3	1.1	0.0
Proficient (N=116)	18.1	67.2	12.1	2.6
Below Proficient (N=35)	5.7	54.3	28.6	11.4
Far Below Proficient (N=42)	0.0	11.9	19.0	69.0

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	18.2		16.8	1.4	0.0
%No Change	62.1	62.1			
%Progressed	19.6		17.1	2.5	0.0
Total	100.0				

net weighted impact metric	
positive	2.5

White/Caucasian

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	637	50.0	695	54.5	58	4.5
Proficient	466	36.5	423	33.2	(43)	(3.4)
Below Proficient	98	7.7	108	8.5	10	0.8
Far Below Proficient	74	5.8	49	3.8	(25)	(2.0)
Total Students	1275	100.0	1275	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=637)	85.7	14.0	0.3	0.0
Proficient (N=466)	30.7	58.6	8.8	1.9
Below Proficient (N=98)	4.1	49.0	39.8	7.1
Far Below Proficient (N=74)	2.7	17.6	35.1	44.6

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	11.6		10.7	0.9	0.0
%No Change	69.9	69.9			
%Progressed	18.5		17.0	1.3	0.2
Total	100.0				

net weighted impact metric	
positive	7.7

English Language Learners (ELL)

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	3	1.9	12	7.7	9	5.8
Proficient	37	23.7	43	27.6	6	3.8
Below Proficient	49	31.4	49	31.4	0	0.0
Far Below Proficient	67	42.9	52	33.3	(15)	(9.6)
Total Students	156	100.0	156	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=3)	100.0	0.0	0.0	0.0
Proficient (N=37)	18.9	56.8	21.6	2.7
Below Proficient (N=49)	4.1	32.7	40.8	22.4
Far Below Proficient (N=67)	0.0	9.0	31.3	59.7

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	12.8		12.2	0.6	0.0
%No Change	53.8	53.8			
%Progressed	33.3		28.2	5.1	0.0
Total	100.0				

net weighted impact metric	
positive	25.0

Non-ELL

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	995	42.5	1067	45.6	72	3.1
Proficient	928	39.6	863	36.8	(65)	(2.8)
Below Proficient	240	10.2	258	11.0	18	0.8
Far Below Proficient	179	7.6	154	6.6	(25)	(1.1)
Total Students	2342	100.0	2342	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=995)	80.9	18.0	1.0	0.1
Proficient (N=928)	27.0	59.4	11.2	2.4
Below Proficient (N=240)	3.8	44.6	37.1	14.6
Far Below Proficient (179)	1.1	14.5	30.7	53.6

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	15.0		13.6	1.4	0.0
%No Change	65.8	65.8			
%Progressed	19.2		17.6	1.5	0.1
Total	100.0				

net weighted impact metric	
positive	4.4

FRPL

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	176	22.1	186	23.4	10	1.3
Proficient	349	43.9	335	42.1	(14)	(1.8)
Below Proficient	142	17.9	160	20.1	18	2.3
Far Below Proficient	128	16.1	114	14.3	(14)	(1.8)
Total Students	795	100.0	795	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	67.6	31.3	0.6	0.6
Proficient	17.8	60.7	17.8	3.7
Below Proficient	2.8	38.0	38.7	20.4
Far Below Proficient	0.8	10.9	32.8	55.5

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	20.3		18.4	1.8	0.1
%No Change	57.5	57.5			
%Progressed	22.3		19.9	2.3	0.1
Total	100.0				

net weighted impact metric	
positive	2.5

Non-FRPL

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	759	51.5	818	55.5	59	4.0
Proficient	524	35.5	485	32.9	(39)	(2.6)
Below Proficient	115	7.8	118	8.0	3	0.2
Far Below Proficient	76	5.2	53	3.6	(23)	(1.6)
Total Students	1474	100.0	1474	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	85.2	13.8	0.9	0.0
Proficient	31.5	58.4	8.0	2.1
Below Proficient	4.3	51.3	37.4	7.0
Far Below Proficient	1.3	19.7	34.2	44.7

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	11.7		10.5	1.2	0.0
%No Change	69.9	69.9			
%Progressed	18.4		17.0	1.4	0.1
Total	100.0				

net weighted impact metric	
positive	6.9

Students with Disabilities

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	17	5.4	32	10.2	15	4.8
Proficient	97	31.0	75	24.0	(22)	(7.0)
Below Proficient	65	20.8	93	29.7	28	8.9
Far Below Proficient	134	42.8	113	36.1	(21)	(6.7)
Total Students	313	100.0	313	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=17)	76.5	17.6	5.9	0.0
Proficient (N=97)	18.6	47.4	23.7	10.3
Below Proficient (N=65)	1.5	27.7	44.6	26.2
Far Below Proficient (N=134)	0.0	6.0	29.9	64.2

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	17.3		13.7	3.5	0.0
%No Change	55.6	55.6			
%Progressed	27.2		24.3	2.9	0.0
Total	100.0				

net weighted impact metric	
positive	9.3

Gifted

Grade 4 to Grade 6 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	222	85.7	225	86.9	3	1.2
Proficient	37	14.3	31	12.0	(6)	(2.3)
Below Proficient	0	0.0	3	1.2	3	1.2
Far Below Proficient	0	0.0	0	0.0	0	0.0
Total Students	259	100.0	259	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=222)	92.8	6.8	0.5	0.0
Proficient (N=37)	51.4	43.2	5.4	0.0
Below Proficient (N=0)	0.0	0.0	NA	0.0
Far Below Proficient (N=0)	0.0	0.0	0.0	NA

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	6.9		6.6	0.4	0.0
%No Change	85.7	85.7			
%Progressed	7.3		7.3	0.0	0.0
Total	100.0				

net weighted impact metric	
positive	0.0

Cohort of All Students

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	1104	42.6	851	32.8	(253)	(9.8)
Proficient	943	36.4	1011	39.0	68	2.6
Below Proficient	335	12.9	386	14.9	51	2.0
Far Below Proficient	209	8.1	343	13.2	134	5.2
Total Students	2591	100.0	2591	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=1104)	67.5	30.4	1.6	0.5
Proficient (N=943)	11.1	61.8	20.8	6.3
Below Proficient (335)	0.3	24.2	40.6	34.9
Far Below Proficient (N=209)	0.0	5.3	17.2	77.5

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	28.2		25.0	3.0	0.2
%No Change	62.8	62.8			
%Progressed	9.0		8.6	0.5	0.0
Total	100.0				

net weighted impact metric	
negative	(22.1)

Cohort Grade 5 in 2008 to Grade 7 in 2010

All Elementary

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

	07-08		09-10		Delta	
Performance	Student		Student		Student	
Level	Count	Percent	Count	Percent	Count	Percent
Advanced	1247	48.0	939	36.1	(308)	(11.9)
Proficient	796	30.6	915	35.2	119	4.6
Below Proficient	367	14.1	491	18.9	124	4.8
Far Below Proficient	188	7.2	253	9.7	65	2.5
Total Students	2598	100.0	2598	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ *to*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=1247)	68.2	29.1	2.2	0.5
Proficient (N=796)	10.3	56.8	27.0	5.9
Below Proficient (N=367)	1.4	24.5	49.9	24.3
Far Below Proficient (N=188)	0.5	5.3	35.1	59.0

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	28.8		25.7	2.8	0.2
%No Change	61.5	61.5			
%Progressed	9.8		9.2	0.6	0.0
Total	100.0				

net weighted impact metric	
negative	(21.6)

American Indian/Alaska Native

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

	07-08		09-10		Delta	
Performance	Student		Student		Student	
Level	Count	Percent	Count	Percent	Count	Percent
Advanced	65	31.1	35	16.7	(30)	(14.4)
Proficient	70	33.5	74	35.4	4	1.9
Below Proficient	47	22.5	70	33.5	23	11.0
Far Below Proficient	27	12.9	30	14.4	3	1.4
Total Students	209	100.0	209	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ *to*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=65)	47.7	44.6	6.2	1.5
Proficient (N=70)	5.7	45.7	41.4	7.1
Below Proficient (N=47)	0.0	25.5	51.1	23.4
Far Below Proficient (27)	0.0	3.7	48.1	48.1

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	37.8		33.0	4.3	0.5
%No Change	47.8	47.8			
%Progressed	14.4		13.9	0.5	0.0
Total	100.0				

net weighted impact metric	
negative	(28.2)

African American/Black

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

	07-08		09-10		Delta	
Performance	Student		Student		Student	
Level	Count	Percent	Count	Percent	Count	Percent
Advanced	25	17.9	24	17.1	(1)	(0.7)
Proficient	59	42.1	56	40.0	(3)	(2.1)
Below Proficient	26	18.6	32	22.9	6	4.3
Far Below Proficient	30	21.4	28	20.0	(2)	(1.4)
Total Students	140	100.0	140	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ *to*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=25)	72.0	20.0	8.0	0.0
Proficient (N=59)	8.5	64.4	18.6	8.5
Below Proficient (N=26)	3.8	38.5	30.8	26.9
Far Below Proficient (N=30)	0.0	10.0	36.7	53.3

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	21.4		16.4	5.0	0.0
%No Change	57.1	57.1			
%Progressed	21.4		18.6	2.9	0.0
Total	100.0				

net weighted impact metric	
negative	(2.1)

Hispanic

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

	07-08		09-10		Delta	
Performance	Student		Student		Student	
Level	Count	Percent	Count	Percent	Count	Percent
Advanced	87	31.1	80	28.6	(7)	(2.5)
Proficient	116	41.4	131	46.8	15	5.4
Below Proficient	35	12.5	33	11.8	(2)	(0.7)
Far Below Proficient	42	15.0	36	12.9	(6)	(2.1)
Total Students	280	100.0	280	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ *to*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=87)	65.5	33.3	1.1	0.0
Proficient (N=116)	18.1	67.2	12.1	2.6
Below Proficient (N=35)	5.7	54.3	28.6	11.4
Far Below Proficient (N=42)	0.0	11.9	19.0	69.0

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	18.2		16.8	1.4	0.0
%No Change	62.1	62.1			
%Progressed	19.6		17.1	2.5	0.0
Total	100.0				

net weighted impact metric	
positive	2.5

White/Caucasian

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

	07-08		09-10		Delta	
Performance	Student		Student		Student	
Level	Count	Percent	Count	Percent	Count	Percent
Advanced	637	50.0	695	54.5	58	4.5
Proficient	466	36.5	423	33.2	(43)	(3.4)
Below Proficient	98	7.7	108	8.5	10	0.8
Far Below Proficient	74	5.8	49	3.8	(25)	(2.0)
Total Students	1275	100.0	1275	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ *to*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=637)	85.7	14.0	0.3	0.0
Proficient (N=466)	30.7	58.6	8.8	1.9
Below Proficient (N=98)	4.1	49.0	39.8	7.1
Far Below Proficient (N=74)	2.7	17.6	35.1	44.6

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	11.6		10.7	0.9	0.0
%No Change	69.9	69.9			
%Progressed	18.5		17.0	1.3	0.2
Total	100.0				

net weighted impact metric	
positive	7.7

English Language Learners

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

	07-08		09-10		Delta	
Performance	Student		Student		Student	
Level	Count	Percent	Count	Percent	Count	Percent
Advanced	7	4.9	8	5.6	1	0.7
Proficient	40	28.2	32	22.5	(8)	(5.6)
Below Proficient	49	34.5	50	35.2	1	0.7
Far Below Proficient	46	32.4	52	36.6	6	4.2
Total Students	142	100.0	142	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ *to*	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	71.4	28.6	0.0	0.0
Proficient	5.0	42.5	35.0	17.5
Below Proficient	2.0	20.4	51.0	26.5
Far Below Proficient	0.0	6.5	23.9	69.6

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	25.4		20.4	4.9	0.0
%No Change	55.6	55.6			
%Progressed	19.0		16.2	2.8	0.0
Total	100.0				

net weighted impact metric	
negative	(8.5)

Non ELL

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	995	42.5	1067	45.6	72	3.1
Proficient	928	39.6	863	36.8	(65)	(2.8)
Below Proficient	240	10.2	258	11.0	18	0.8
Far Below Proficient	179	7.6	154	6.6	(25)	(1.1)
Total Students	2342	100.0	2342	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=995)	80.9	18.0	1.0	0.1
Proficient (N=928)	27.0	59.4	11.2	2.4
Below Proficient (N=240)	3.8	44.6	37.1	14.6
Far Below Proficient (N=179)	1.1	14.5	30.7	53.6

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	15.0		13.6	1.4	0.0
%No Change	65.8	65.8			
%Progressed	19.2		17.6	1.5	0.1
Total	100.0				

net weighted impact metric	
positive	4.4

FRPL

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	217	29.2	132	17.8	(85)	(11.5)
Proficient	264	35.6	268	36.1	4	0.5
Below Proficient	159	21.4	216	29.1	57	7.7
Far Below Proficient	102	13.7	126	17.0	24	3.2
Total Students	742	100.0	742	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	51.2	42.9	5.1	0.9
Proficient	8.0	52.7	32.6	6.8
Below Proficient	0.0	20.1	52.2	27.7
Far Below Proficient	0.0	3.9	35.3	60.8

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	34.2		30.1	3.9	0.3
%No Change	53.2	53.2			
%Progressed	12.5		12.0	0.5	0.0
Total	100.0				

net weighted impact metric	
negative	(25.6)

Non-FRPL

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	910	60.6	725	48.3	(185)	(12.3)
Proficient	400	26.6	512	34.1	112	7.5
Below Proficient	144	9.6	196	13.0	52	3.5
Far Below Proficient	48	3.2	69	4.6	21	1.4
Total Students	1502	100.0	1502	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	73.5	24.7	1.3	0.4
Proficient	13.0	60.0	23.3	3.8
Below Proficient	2.1	29.9	50.0	18.1
Far Below Proficient	2.1	8.3	39.6	50.0

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	25.0		22.9	1.8	0.3
%No Change	66.9	66.9			
%Progressed	8.1		7.6	0.5	0.1
Total	100.0				

net weighted impact metric	
negative	(18.6)

Students with Disabilities

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	17	5.4	32	10.2	15	4.8
Proficient	97	31.0	75	24.0	(22)	(7.0)
Below Proficient	65	20.8	93	29.7	28	8.9
Far Below Proficient	134	42.8	113	36.1	(21)	(6.7)
Total Students	313	100.0	313	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=17)	76.5	17.6	5.9	0.0
Proficient (N=97)	18.6	47.4	23.7	10.3
Below Proficient (N=65)	1.5	27.7	44.6	26.2
Far Below Proficient (N=134)	0.0	6.0	29.9	64.2

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	17.3		13.7	3.5	0.0
%No Change	55.6	55.6			
%Progressed	27.2		24.3	2.9	0.0
Total	100.0				

net weighted impact metric	
positive	9.3

Gifted

Grade 5 to Grade 7 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	271	90.0	248	82.4	(23)	(7.6)
Proficient	30	10.0	49	16.3	19	6.3
Below Proficient	0	0.0	4	1.3	4	1.3
Far Below Proficient	0	0.0	0	0.0	0	0.0
Total Students	301	100.0	301	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=271)	86.0	13.3	0.7	0.0
Proficient (N-30)	50.0	43.3	6.7	0.0
Below Proficient	0.0	0.0	NA	0.0
Far Below Proficient	0.0	0.0	0.0	NA

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	13.3		12.6	0.7	0.0
%No Change	81.7	81.7			
%Progressed	5.0		5.0	0.0	0.0
Total	100.0				

net weighted impact metric	
negative	(9.0)

Cohort from Grade 6 in 2008 to Grade 8 in 2010

All Students

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	1104	42.6	851	32.8	(253)	(9.8)
Proficient	943	36.4	1011	39.0	68	2.6
Below Proficient	335	12.9	386	14.9	51	2.0
Far Below Proficient	209	8.1	343	13.2	134	5.2
Total Students	2591	100.0	2591	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=1104)	67.5	30.4	1.6	0.5
Proficient (N=943)	11.1	61.8	20.8	6.3
Below Proficient (335)	0.3	24.2	40.6	34.9
Far Below Proficient (N=209)	0.0	5.3	17.2	77.5

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	28.2		25.0	3.0	0.2
%No Change	62.8	62.8			
%Progressed	9.0		8.6	0.5	0.0
Total	100.0				

net weighted impact metric	
negative	(22.1)

American Indian/Alaska Native

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	68	33.7	54	26.7	(14)	(6.9)
Proficient	71	35.1	64	31.7	(7)	(3.5)
Below Proficient	35	17.3	42	20.8	7	3.5
Far Below Proficient	28	13.9	42	20.8	14	6.9
Total Students	202	100.0	202	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=68)	67.6	27.9	2.9	1.5
Proficient (N=71)	11.3	52.1	32.4	4.2
Below Proficient (N=35)	0.0	22.9	40.0	37.1
Far Below Proficient (N=28)	0.0	0.0	10.7	89.3

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	30.2		27.2	2.5	0.5
%No Change	60.4	60.4			
%Progressed	9.4		9.4	0.0	0.0
Total	100.0				

net weighted impact metric	
negative	(24.3)

African American/Black

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	25	17.9	24	17.1	(1)	(0.7)
Proficient	59	42.1	56	40.0	(3)	(2.1)
Below Proficient	26	18.6	32	22.9	6	4.3
Far Below Proficient	30	21.4	28	20.0	(2)	(1.4)
Total Students	140	100.0	140	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=25)	72.0	20.0	8.0	0.0
Proficient (N=59)	8.5	64.4	18.6	8.5
Below Proficient (N=26)	3.8	38.5	30.8	26.9
Far Below Proficient (N=30)	0.0	10.0	36.7	53.3

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	21.4		16.4	5.0	0.0
%No Change	57.1	57.1			
%Progressed	21.4		18.6	2.9	0.0
Total	100.0				

net weighted impact metric	
negative	(2.1)

Hispanic

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	87	31.1	80	28.6	(7)	(2.5)
Proficient	116	41.4	131	46.8	15	5.4
Below Proficient	35	12.5	33	11.8	(2)	(0.7)
Far Below Proficient	42	15.0	36	12.9	(6)	(2.1)
Total Students	280	100.0	280	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=87)	65.5	33.3	1.1	0.0
Proficient (N=116)	18.1	67.2	12.1	2.6
Below Proficient (N=35)	5.7	54.3	28.6	11.4
Far Below Proficient (N=42)	0.0	11.9	19.0	69.0

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	18.2		16.8	1.4	0.0
%No Change	62.1	62.1			
%Progressed	19.6		17.1	2.5	0.0
Total	100.0				

net weighted impact metric	
positive	2.5

White/Caucasian

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	637	50.0	695	54.5	58	4.5
Proficient	466	36.5	423	33.2	(43)	(3.4)
Below Proficient	98	7.7	108	8.5	10	0.8
Far Below Proficient	74	5.8	49	3.8	(25)	(2.0)
Total Students	1275	100.0	1275	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced (N=637)	85.7	14.0	0.3	0.0
Proficient (N=466)	30.7	58.6	8.8	1.9
Below Proficient (N=98)	4.1	49.0	39.8	7.1
Far Below Proficient (N=74)	2.7	17.6	35.1	44.6

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	11.6		10.7	0.9	0.0
%No Change	69.9	69.9			
%Progressed	18.5		17.0	1.3	0.2
Total	100.0				

net weighted impact metric	
positive	7.7

English Language Learners

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	2	1.3	7	4.5	5	3.2
Proficient	54	34.6	36	23.1	(18)	(11.5)
Below Proficient	47	30.1	43	27.6	(4)	(2.6)
Far Below Proficient	53	34.0	70	44.9	17	10.9
Total Students	156	100.0	156	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	0.0	0.0	50.0	50.0
Proficient	13.0	42.6	24.1	20.4
Below Proficient	0.0	21.3	40.4	38.3
Far Below Proficient	0.0	5.7	18.9	75.5

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	28.2		19.9	7.7	0.6
%No Change	52.6	52.6			
%Progressed	19.2		17.3	1.9	0.0
Total	100.0				

net weighted impact metric	
negative	(16.0)

Non ELL

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	995	42.5	1067	45.6	72	3.1
Proficient	928	39.6	863	36.8	(65)	(2.8)
Below Proficient	240	10.2	258	11.0	18	0.8
Far Below Proficient	179	7.6	154	6.6	(25)	(1.1)
Total Students	2342	100.0	2342	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	80.9	18.0	1.0	0.1
Proficient	27.0	59.4	11.2	2.4
Below Proficient	3.8	44.6	37.1	14.6
Far Below Proficient	1.1	14.5	30.7	53.6

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	15.0		13.6	1.4	0.0
%No Change	65.8	65.8			
%Progressed	19.2		17.6	1.5	0.1
Total	100.0				

net weighted impact metric	
positive	4.4

FRPL

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Percent	09-10 Student Count	09-10 Percent	Delta Student Count	Delta Percent
Advanced	160	25.6	111	17.8	(49)	(7.8)
Proficient	252	40.3	238	38.1	(14)	(2.2)
Below Proficient	134	21.4	142	22.7	8	1.3
Far Below Proficient	79	12.6	134	21.4	55	8.8
Total Students	625	100.0	625	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	55.6	38.8	4.4	1.3
Proficient	8.7	59.9	23.4	7.9
Below Proficient	0.0	17.9	47.0	35.1
Far Below Proficient	0.0	1.3	16.5	82.3

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	31.5		26.9	4.3	0.3
%No Change	58.9	58.9			
%Progressed	9.6		9.4	0.2	0.0
Total	100.0				

net weighted impact metric	
negative	(26.7)

Non-FRPL

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Percent	09-10 Student Count	09-10 Percent	Delta Student Count	Delta Percent
Advanced	839	52.9	675	42.5	(164)	(10.3)
Proficient	545	34.3	622	39.2	77	4.9
Below Proficient	138	8.7	173	10.9	35	2.2
Far Below Proficient	65	4.1	117	7.4	52	3.3
Total Students	1587	100.0	1587	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	71.6	27.1	1.0	0.4
Proficient	13.4	63.9	18.7	4.0
Below Proficient	0.7	30.4	37.0	31.9
Far Below Proficient	0.0	7.7	18.5	73.8

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	25.6		23.5	1.9	0.2
%No Change	66.0	66.0			
%Progressed	8.4		8.0	0.4	0.0
Total	100.0				

net weighted impact metric	
negative	(19.1)

Students with Disability

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	17	5.4	32	10.2	15	4.8
Proficient	97	31.0	75	24.0	(22)	(7.0)
Below Proficient	65	20.8	93	29.7	28	8.9
Far Below Proficient	134	42.8	113	36.1	(21)	(6.7)
Total Students	313	100.0	313	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	76.5	17.6	5.9	0.0
Proficient	18.6	47.4	23.7	10.3
Below Proficient	1.5	27.7	44.6	26.2
Far Below Proficient	0.0	6.0	29.9	64.2

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	17.3		13.7	3.5	0.0
%No Change	55.6	55.6			
%Progressed	27.2		24.3	2.9	0.0
Total	100.0				

net weighted impact metric	
positive	9.3

Gifted

Grade 6 to Grade 8 Standards Based Assessment Mathematics Performance

Performance Level	07-08 Student Count	07-08 Student Percent	09-10 Student Count	09-10 Student Percent	Delta Student Count	Delta Student Percent
Advanced	283	89.3	250	78.9	(33)	(10.4)
Proficient	34	10.7	63	19.9	29	9.1
Below Proficient	0	0.0	4	1.3	4	1.3
Far Below Proficient	0	0.0	0	0.0	0	0.0
Total Students	317	100.0	317	100.0		

Mathematics Achievement Three-Year Cohort Value-Add Percentage
2007 - 2008 to 2009 - 2010

from \ to	Advanced	Proficient	Below Proficient	Far Below Proficient
Advanced	84.8	14.8	0.4	0.0
Proficient	29.4	61.8	8.8	0.0
Below Proficient	0.0	0.0	100.0	0.0
Far Below Proficient	0.0	0.0	0.0	100.0

Summary	Value Add	%No Change	%One Level	%Two Levels	%Three Levels
%Regressed	14.5		14.2	0.3	0.0
%No Change	82.3	82.3			
%Progressed	3.2		3.2	0.0	0.0
Total	100.0				

net weighted impact metric	
negative	(11.7)

APPENDIX D. PREDICTED MATH PERFORMANCE BY SCHOOL, POVERTY RATE, AND PROGRAM

APPENDIX D. PREDICTED MATH PERFORMANCE BY SCHOOL, POVERTY RATE, AND PROGRAM

Schools ranked based on how far their percentages of proficient or advanced scores on the math SBA by students eligible for free or reduced-price lunch outperformed or underperformed trend-line predictions. 2009-10*

School	% Proficient or Advanced	% on Free or Reduced Lunch	Math Book	Metric
Northwood Elementary School	81.0	75.5	EDM	14
Williwaw Elementary School	77.2	82.0	EDM	13
Russian Jack Elementary School	73.3	89.0	EDM	12
Creekside Park Elementary School	80.1	73.3	EDM	12
Baxter Elementary School	88.2	55.2	EDM	12
Wonder Park Elementary School	74.3	84.7	EDM	12
Aurora Elementary School	87.9	53.4	EDM	11
Tyson Elementary School	68.4	88.6	EDM	8
Klatt Elementary School	81.4	60.1	EDM	7
Mountain View Elementary School	67.9	86.3	EDM	6
Ursa Major Elementary School	81.7	54.9	EDM	6
Chester Valley Elementary School	74.7	68.4	EDM	5
Lake Hood Elementary School	83.3	49.5	EDM	5
Ursa Minor Elementary School	76.8	62.4	EDM	4
Taku Elementary School	71.3	74.2	EDM	4
Northern Lights ABC School	95.9	21.2	Saxon Math	4
Orion Elementary School	88.5	36.4	EDM	4
Lake Otis Elementary School	70.0	72.8	EDM	3
Chinook Elementary School	71.1	70.4	EDM	3
College Gate Elementary School	77.0	56.1	EDM	2
Fairview Elementary School	63.8	82.1	EDM	1
Government Hill Elementary School	75.6	56.7	EDM	1
Mount Spurr Elementary School	87.4	31.6	EDM	1
Tudor Elementary School	77.1	53.2	EDM	1
Gladys Wood Elementary School	76.8	53.7	EDM	1
Susitna Elementary School	74.9	57.6	EDM	1
Trailside Elementary School	90.8	23.2	EDM	0
Eagle River Elementary School	81.0	42.9	EDM	0
Willow Crest Elementary School	62.4	81.7	EDM	-1
Ptarmigan Elementary School	61.4	81.8	EDM	-1

Ravenwood Elementary School	94.5	10.1	EDM	-2
Nunaka Valley Elementary School	67.0	68.9	EDM	-2
Ocean View Elementary School	83.8	32.9	EDM	-2
Campbell Elementary School	78.4	43.7	EDM	-2
Kasuun Elementary School	80.6	37.9	EDM	-3
Turnagain Elementary School	81.7	34.9	EDM	-3
Huffman Elementary School	91.4	14.1	EDM	-3
Spring Hill Elementary School	71.6	56.1	EDM	-3
Chugach Optional Elementary School	95.9	4.1	**Investigations**	-3
Birchwood ABC Elementary School	92.1	12.1	**Saxon Math**	-3
Bayshore Elementary School	89.9	17.0	EDM	-3
Homestead Elementary School	89.1	18.6	EDM	-3
Denali Montessori School	79.7	38.6	**Montessori Math**	-3
Fire Lake Elementary School	79.6	38.2	EDM	-3
Muldoon Elementary School	60.0	79.4	EDM	-4
Scenic Park Elementary School	72.9	50.6	EDM	-4
Abbott Loop Elementary School	71.9	52.0	EDM	-4
Kincaid Elementary School	86.6	20.2	EDM	-5
AK Native Charter	57.1	83.3	EDM	-5
Alpenglow Elementary School	90.6	11.5	EDM	-5
Bear Valley Elementary School	91.8	8.2	EDM	-5
Chugiak Elementary School	83.2	23.9	EDM	-6
Airport Heights Elementary School	56.8	80.2	EDM	-6
North Star Elementary School	61.3	69.3	EDM	-7
Polaris K-6 School	85.5	17.2	**Investigations**	-7
Rogers Park Elementary School	81.0	26.2	EDM	-7
O'Malley Elementary School	87.0	12.4	EDM	-8
Sand Lake Elementary School	81.7	23.0	EDM	-8
Rabbit Creek Elementary School	85.4	13.8	EDM	-8
Inlet View Elementary School	77.1	31.2	EDM	-9
Bowman Elementary School	74.6	27.0	EDM	-13

*Data source: Pseudo ID database furnished by ASD to the team. Grade 3-6 students who took the math SBA in 2009-10 data used for both FRPL and test performance

APPENDIX E. SAMPLE ALIGNMENT OF *EVERYDAY MATHEMATICS* WITH STATE GLES

APPENDIX E. SAMPLE ALIGNMENT OF EVERYDAY MATHEMATICS WITH STATE GLES

The team examined the Grade 5 *Everyday Mathematics* materials on the Anchorage Website. The district has posted Grade 5 EDM (2007 edition) alignment to the Alaska Grade Level Expectations (GLEs). The team did not check the quality of the alignment listed in the district document, nor did it check to see if every aspect mentioned in a given GLE having multiple components was indeed covered in the textbook.

Exhibit 22, however, displays the state GLE by number and abbreviated description, and indicates whether it is eligible for assessment on the SBA. In addition, it shows the percentage of the SBA devoted to each strand according the Alaska Standards Based Assessment Mathematics Test Blueprint.

The results show that four state GLEs were not addressed in the fifth grade EDM textbook. Three of those were eligible for SBA assessment. The two fifth-grade math strands that will receive greatest emphasis on the SBA math test, according to the state blueprint, are numeration (10 GLEs) and estimation and computation (four GLEs). These two strands comprise between 35 to 48 percent of the test.

Three of the 10 GLEs in the numeration strand (N-1, N-8, and N-9) appear only between two and seven times in the textbook. Three more (N-3, N-7, and N-6) only have between 11 and 12 appearances. The computation GLE E&C-3 deals with adding or subtracting four-digit whole numbers, fractions with like denominators to 12, or decimals involving money. Only 17 activities in the textbook align to that GLE, while others in the strand are well represented.

GLEs for measurement are very sparsely addressed in the textbook, but that strand makes up 12 to 16 percent of the SBA. The geometry strand, which accounts for another 12 to 16 percent of the SBA, has uneven coverage. Among the four GLEs eligible for testing, G-4 (congruent, similar, or symmetrical figures) appears only five times, while G-1, G-2, and G-6 appear between 12 and 15 times.

Statistics and probability GLEs are well represented. While there are fewer activities for S&P 3, it is a GLE that has appeared in earlier grade levels. In fifth grade, it only adds median to the concepts of mode or range of up to 10 pieces of data with a value of 10 or less each.

Exhibit 22. Alaska GLE Frequency of Alignment with Grade 5 *Everyday Mathematics* Textbook (2007 Edition) in Relation to Alaska's Standards Based Assessment Mathematics Test Blueprint*

Distribution of Emphasis on the SBA	Strand	Area of Emphasis	GLE	Assessable on SBA	Total Alignment References in EDM
22-20%	Numeration	Understanding Numbers	N-1	Yes	6
			N-2	Yes	21
			N-3	Yes	12
			N-4	Yes	30
			N-5	Yes	32
		Understanding Meaning of Operations	N-6	Yes	12
			N-7	Yes	11
			N-8	Yes	7
		Number Theory	N-9	Yes	2
			N-10	Yes	36
					EDM # Above Grade Level 101
12-16%	Measurement	Measurable Attributes	M-1	No	2
			M-2	No	3
			M-3	Yes	8
		Measurement Techniques	M-4	No	2
			M-5	Yes	--
			M-6	Yes	--
			M-7	No	--
			M-8	Yes	9
					EDM # Above Grade Level 5
18-22%	Estimation and Computation	Estimation	E&C-1	Yes	30
			E&C-2	No	34
		Computation	E&C-3	Yes	17
			E&C-4	Yes	29
					EDM # Above Grade Level 27
12-16%	Functions & Relationships	Describing Patterns and Functions	F&R-1	Yes	8
			F&R-2	Yes	8
			F&R-3	Yes	--
			F&R-4	No	8
		Modeling and Solving Equations and	F&R-5	Yes	16

		Inequalities			
					EDM # Above Grade Level 7
12-16%	Geometry	Geometric Relationships	G-1	Yes	15
			G-2	Yes	12
		Similarity, Congruency, Symmetry, and Transformation of Shapes	G-3	Yes	3
			G-4	Yes	5
			G-5	No	5
		Perimeter, Area, Volume, and Surface Area	G-6	Yes	12
			G-7	No	11
		Position and Direction	G-8	No	9
		Construction	G-9	No	4
					EDM # Above Grade Level 48
12-16%	Statistics/ Probability	Data Display	S&P-1	Yes	38
		Analysis and Central Tendency	S&P-2	Yes	27
			S&P-3	Yes	10
		Probability	S&P-4	Yes	15
			S&P-5	Yes	EDM Gr 3
					EDM # Above Grade Level 13
	Process Skills	Problem Solving	PS-1		8
			PS-2		5
		Communication	PS-3		37
		Reasoning	PS-4		9
		Connections	PS-5		45

*Data sources: Anchorage School District textbook alignment from the Anchorage School District Website; Alaska Standards Based Assessment Mathematics Test Blueprint and Math Performance Standards (Grade Level Expectations) from the Alaska Department of Education Website.

APPENDIX F. COMPARISON OF ANCHORAGE AND STATE MATH STANDARDS IN GRADES 3 AND 5

APPENDIX F. COMPARISON OF ANCHORAGE AND STATE MATH STANDARDS IN GRADES 3 AND 5

Site Visit Team Comparison of Anchorage and State Standards, Grade 3, 2010-2011[41]

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
Estimation	**Estimation**
.1 Estimate numbers in increments of 10, 100, and 1000. .2 Estimate order of magnitude - number of digits in a product, more or less than a day, hour, etc. .3 Estimate length, area, volume, and weight using metric and standard units.	**The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by** **[3] E&C-1** finding "how many" or "how much" to 50 (M3.1.1) **[3] E&C-2** estimating the results of simple addition and subtraction problems up to 1,000 (M3.1.1) Team Note: The Anchorage standards may appear to be about estimation, but the first standard seems to be more about rounding. The second ASD standard is oddly phrased to be about the number of digits in a product, and this is odder still given the Alaska focus on addition and subtraction at this grade level. The third ASD standard appears to actually be about measurement and the measurement of length portion of this standard is addressed in that section of the Alaska standards but students are not expected to be able to estimate area, volume, and weight at this grade level. (They *are* expected to order and compare objects using those measurement attributes, but deciding which object is heavier is not as complex as estimating its weight.)
Number Sense	**Understanding Numbers**
.1 Skip count by numbers through 10, by 100, and 1000, forward or backward from any number. .2 Read and write numbers to 999,999. .3 Compare and order numbers to 999,999. .4 Compare and order fractions that have the same numerators or the same denominators. .5 Demonstrate commutative, and identity properties -	**The student demonstrates conceptual understanding** •of whole numbers to one thousand by **[3] N-1** reading, writing, ordering, or [counting L] (M1.1.1)

[41] Team notes address yellow highlighted Alaska standards compared to Anchorage standards.
Anchorage standards from Anchorage School District Mathematics Department website.
Alaska standards from Alaska Department of Education website. The state underlines differences between grade levels.

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
add 0 or multiply by 1. .6 Use base ten blocks to represent numbers over 1000. .7 Identify place value in a six digit number. .8 Use decimal notation for monetary values. .9 Identify decimal place value less than 1 by coloring tenths and hundredths on a hundredths chart. .10 Identify, represent, and explain place value concepts using models, pictures and words. .11 Identify multiples of whole numbers using models, pictures, and symbols. .12 Model fractions and decimals using real world examples. .13 Count assorted bills and coins to $100. .14 Make change by counting up from the amount of purchase to $10. .15 Identify and describe different representations for the same number.	Team Note: Alaska expects students to understand the magnitude of numbers up to 1,000 while the Anchorage standards go way beyond this to 999,999. However, it may be a stretch for students at this grade level to have a solid conceptual understanding of such large numbers. **[3] N-2** modeling (base ten blocks) or identifying place value positions to thousands (M1.1.2) Team Note: The Anchorage standards focus on the modeling of numbers over 1,000 rather than up through thousands. It is important for students to model numbers under 1,000 as well as over 1,000. The Anchorage standards also call for the modeling of multiples of whole numbers although students are not yet expected to be working on the ideas of multiplication according to the state. **[3] N-3** using appropriate representations of ordinal or cardinal numbers (M1.1.4) Team Note: Anchorage standards do not appear to reference ordinal and cardinal numbers. • of simple fractions with denominators 2, 3, 4 or 10 by **[3] N-4** identifying, describing with explanations, or illustrating equal parts of a whole, a region, or a set (using models) (M1.1.5) **[3] N-5** identifying, describing with explanations, or illustrating equivalent representation of fractions (using models) (M1.1.5) Team Note: Anchorage standards call for comparing fractions with the same numerator or denominator and modeling fractions using real world examples. However, they do not attend carefully to the representations described in state standards. Furthermore, ASD standards do

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	not specify the kinds of fractions that make conceptual sense to students at this grade level (e.g., fractions having denominators of 2, 3, 4, and 10).
3:3 Concepts of Number Operations	**Understanding Meaning of Operations**
.1 Use manipulatives to invent and model different procedures for finding differences, sums, products and quotients of whole numbers. .2 Use a rectangular array to model multiplication and division stories. .3 Demonstrate equal sharing of 100 items. .4 Model, record, and explain addition and subtraction with regrouping, to a sum of 1000. .5 Select and use appropriate number operations to solve problems. .6 Demonstrate that " - " can mean take away, or difference.	**The student demonstrates conceptual understanding of mathematical operations by** **[3] N-6** [using models, explanations, number lines, or real-life situations L] describing or illustrating the processes of addition and subtraction of whole numbers and their relationships (M1.1.3) Team Note: The Alaska standards focus specifically on addition and subtraction and the relationship between these operations. The Anchorage standards seem to take a "key word" approach to these operations which the research shows does *not* build conceptual understanding. This suggests that there is "an appropriate operation" to use to solve problems when in most cases there are multiple operations that can be used (e.g., addition or subtraction can be used to solve subtraction problems which is how students develop important understandings of the relationships between these operations). Furthermore, the Anchorage standards get into the ideas of multiplication and division that are left to later grade levels by the state.
3:4 Computation	**Number Theory**
.1 Add and subtract with regrouping, to a sum of 1000. .2 Use an alternate number operation to check solutions. .3 Memorize multiplication and division facts to product of 50. .4 Write fact families for products to 50. .5 Tell or write and solve number stories for products to 50 and sums to 100. .6 Add and subtract fractions with like denominators. .7 Use mental math when appropriate. .8 Use a calculator when appropriate.	**The student demonstrates conceptual understanding of number theory by** **[3] N-7** describing or illustrating identity property of addition (L) (M1.1.7) **[3] N-8** modeling (with manipulative) and explaining commutative property of addition (L) (M1.1.7) Team Note: The Anchorage standards address this content under number sense but provide a much more procedural focus to this content (Demonstrate commutative, and identity properties - add 0 or multiply

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	by 1.). The probable intent of this Alaska standard is for students to use these properties within their computational strategies as a way to explore how and why these properties work. **[3] N-9** identifying or using patterns in the number system (skip count by 2's, 5's, or 10's; add or subtract by 10; even or odd numbers) (M1.1.6) Team Note: This Alaska standard is designed to lay the groundwork for multiplication, but the way it is described in the Anchorage standards, it is just about skip counting by 10s, 100's, and 1,000's. Skip counting seems less connected to the idea of multiplication, especially since the Anchorage standard includes skip counting from any number which undoes the multiplicative focus (e.g., skip counting by 10's starting with 3 gives one the series 3, 13, 23, … which clearly is not about multiplication.) **Computation** **The student accurately solves problems (including real-world situations) by** **[3] E&C-3** recalling basic addition and subtraction facts, sums to 20, and corresponding subtraction facts efficiently (L) (M3.1.2) **[3] E&C-4** adding or subtracting two-digit whole numbers (M3.1.3) **[3] E&C-5** using repeated addition to model multiplication with whole numbers with products to 25 (M3.1.4) **[3] E&C-6** using grouping or "sharing equally" to model division with whole numbers to 25 (M3.1.4) Team Note: The Anchorage standards call for the use of a specific strategy for adding and subtracting that involves regrouping, and suggests the use of standard algorithms. However, research suggests that using a range of alternative algorithms is important for building an understanding of our base ten system. The Anchorage standards also

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	call for the use of alternative operation only to check the solution (e.g., using addition to check a subtraction problem, using subtraction to check an addition problem), which is also very different from the idea of using a range of strategies to find a solution. Finally, the Anchorage standards call for memorizing multiplication and division facts when the Alaska standards reference the use of skip counting to build a conceptual understanding of multiplication and "sharing" as a way to build an understanding of division. In the Alaska standards, students are not expected to know multiplication and division facts in third grade.
3:5 Geometry	**Measurable Attributes**
.1 Draw and name points, segments, rays and lines, identifying midpoints and intersections. .2 circles, basic polygons and solids. .3 Identify right angles and compare other angles to them. .4 Show an understanding of symmetry by cutting or folding patterns along at least two lines of symmetry. .5 Use manipulatives to construct 2-D and 3-D shapes. .6 Identify and describe properties of congruent shapes.	**The student demonstrates understanding of measurable attributes by** **[3] MEA-1** estimating length to the nearest inch or foot (L) (M2.1.3) **[3] MEA-2** comparing and ordering objects according to measurable attribute (calendar, length, [temperature, weight, area, or volume L]) (M2.1.1) **[3] MEA-3** identifying or describing objects that are greater than, less than, or equal to a unit of measure (standard or non-standard) (M2.1.2) **[3] MEA-4** selecting an appropriate unit of English, metric, or non-standard measurement to estimate the length, time, weight, or temperature (M2.1.3) Team Note: The above Alaska standards having to do with comparing measures or selecting appropriate units for measures are not addressed in the Anchorage standards. **[3] MEA-5** identifying coins, their value, or the value of a set of coins (M2.1.5) Geometric Relationships **The student demonstrates an understanding of geometric relationships by** **[3] G-1** using the number or length of sides to identify, describe, [model L], or compare triangles or rectangles (including squares) (M5.1.1)

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	[3] G-2 using the attributes and properties of plane figures to [model L], identify, compare, or describe plane figures (circles, rectangles, squares, and triangles)[and solid figures (cubes, cylinders, or spheres) L] (M5.1.1 & M5.1.2) Team Note: Anchorage standards do not explicitly address attributes of figures. **Similarity, Congruence, Symmetry, and Transformation of Shapes** **The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by** **[3] G-3** identifying, creating, or drawing lines of symmetry for real-world objects (e.g., block letters, flags, insects) (M5.1.3) **[3] G-4** comparing or describing shapes (circles, triangles, or rectangles) as "larger than," "smaller than," or "congruent to," a given shape (M5.1.3) Team Note: Anchorage standards address naming shapes but not comparing or describing shapes (except for "comparing triangles and quadrilaterals according to their sides and/or angles" under measurement). **[3] G-5** illustrating or identifying the results of transformations (slides) of polygons (M5.1.5) Team Note: Anchorage standards do not address transformations. **Perimeter, Area, Volume, and Surface Area** **The student solves problems using perimeter or area by** ***[3] G-6*** *estimating or determining area or perimeter of rectangular or square shapes on grids (M5.1.4)* Construction **The student demonstrates a conceptual understanding of geometric drawings or constructions by** **[3] G-8** drawing real-world objects that consist of geometric shapes (squares, rectangles, triangles, or

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	circles) (L) (M5.1.7) Team Note: Anchorage standards include building geometric shapes with manipulatives but not constructing them by drawing.
3:6 Measurement	**Measurement Techniques**
.1 Measure to the nearest inch, foot, yard, centimeter and meter. .2 Measure to the nearest pound or kilogram. .3 Compute area and perimeter of given squares and rectangles using manipulatives or grids. .4 Use manipulatives to find the perimeter of irregularly shaped figures. .5 Compare various triangles and quadrilaterals according to their sides and/or angles. .6 Read temperature in Fahrenheit and Celsius. .7 Convert between days, weeks, and months. .8 Tell time to the minute, using an analog clock and identifying A.M. and P.M. .9 Find elapsed time to the hour.	***B.*** ***The student demonstrates ability to use measurement techniques using pictorial representations [or manipulatives L] in real-world contexts by*** *C.* ***[3] MEA-6*** *measuring length to the nearest half-inch (M2.1.3)* ***[3] MEA-7*** *telling time to the nearest ¼ hour using an analog clock or [distinguishing morning, afternoon, or evening L] (M2.1.4)* Team Note: Anchorage standards call for telling time to the nearest minute. ***[3] MEA-8*** *determining elapsed time using a calendar (M2.2.5)* ***[3] MEA-9*** *[counting back change from $1.00 L] (M2.2.6)* *K.* *L.* *Team Note: Anchorage standards do not include reference to time on a calendar nor do they include making change by counting back, only by counting up.*
3:7 Statistics	**Data Display**
.1 Classify and reclassify data by a variety of attributes. .2 Collect and organize data in a chart, table, or graph, and identify the median and the mode. .3 Describe and explain data from tables, charts and graphs; use the data to make predictions.	**The student demonstrates an ability to classify and organize data by** **[3] S&P-1** [designing an investigation and collecting, recording L], organizing, displaying, or explaining the classification of data in real-world problems (e.g., literature, self, or family), using bar graphs, and [Venn diagrams L] (M6.1.1, M6.1.2, & M6.1.5) **Analysis and Central Tendency** **The student demonstrates an ability to analyze data (comparing, explaining, interpreting, or justifying conclusions) by** **[3] S&P-2** using information from a variety of displays (tallies, tables, pictographs, bar graphs, or [Venn diagrams L] (M6.1.2) **[3] S&P-3** using the terms "maximum" or "minimum"

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	(M6.1.3)
3:8 Probability	**Probability**
.1 Correctly use "50-50 chance", "likely", "unlikely". .2 Tell why a game is unfair if players use dice that are marked differently. .3 After sampling, predict the most likely outcome from combining the results of 2 spinners or dice. .4 Create simple probability story problems about chance occurrences.	**The student demonstrates a conceptual understanding of probability by** **[3] S&P-4** explaining the differences between chance and certainty or recognizing events that may be certain or chance events (L) (M6.1.4) **[3] S&P-5** [Finding and recording L] and making predictions about the likelihood of outcomes of a simple probability experiment (e.g., spinner, tossing a coin) (M6.1.4)
3:9 Patterns	**Describing Patterns and Functions**
.1 Continue number patterns to 1000. .2 Find, recognize, describe, and extend patterns. .3 Identify and describe fact table patterns.	**The student demonstrates conceptual understanding of functions by** **[3] F&R-1** identifying a missing element in a pattern up to the next three terms (identifying a number using addition or subtraction or objects); or explaining how missing elements could be found (M4.1.1) **F&R-2** expressing a generalization of a pattern using words (L) (M4.1.1 & M4.1.2) **[3] F&R-3** using manipulatives, including a calculator, as tools when describing, extending, or representing patterns (L) (M4.1.1 & M4.13) Team Note: Anchorage standards do not explicitly address the use of manipulatives to describe, extend, or represent patterns.
3:10 Algebra	**Modeling and Solving Equations and Inequalities**
.1 Find the rule, the input, or the output to input/output scenarios to a sum or product of 100. .2 Write number sentences using letters or shapes to represent missing numerals. .3 Use manipulatives to solve problems containing an unknown. .4 Find missing factors to product of 50. .5 Write and solve word problems that use equations containing a variable.	**The student demonstrates algebraic thinking by** **[3] F&R-4** using an open number sentence (addition or subtraction) to solve for an unknown represented by a box or circle (e.g., 5+□16, □7=4, 5+2=○) (M4.1.4) **[3] F&R-5 using appropriate vocabulary or symbols for greater than, less than, or equal to (M4.1.4)** Team Note: Anchorage standards do not explicitly address this symbol notation at Grade 3.
3:11 Problem Solving	**Problem Solving: Understand and be able to select and use a variety of problem-solving strategies**
1. Use mathematical terms and symbols to summarize a problem.	**The student demonstrates an ability to problem solve by** **[3] PS-1** selecting and applying an appropriate strategy (e.g., guess and check; draw a picture; make a

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	model, extend a pattern) to solve a variety of problems (M7.1.2)
3:12 Communication	**Communication: Form and use appropriate methods to define and explain mathematical relationships**
.1 Communicate strategies and solutions by writing explanations. .2 Listen and observe to obtain mathematical information from the real world. .3 Use concrete, pictorial, and symbolic methods to represent mathematical and real life situations.	**The student communicates his or her mathematical thinking by** **[3] PS-2** representing mathematical problems using manipulatives, models, pictures, and/or everyday language; or using everyday language to explain thinking about the problem-solving strategies and solutions to problems (M8.1.1, M8.1.2, & M8.1.3) **Position and Direction** **The student demonstrates understanding of position and direction by** **[3] G-7** using directional terms (inside, outside, right, left, horizontal, vertical) to describe relative location of objects in a picture (L) (M5.1.6)
3:13 Reasoning	**Reasoning: Use logic and reason to solve mathematical problems**
.1 Given a rule or generalization, determine whether or not the example fits.	**The student demonstrates an ability to use logic and reason by** **[3] PS-3** drawing conclusions about mathematical problems; or finding examples that support or refute mathematical statements (M9.1.1 & M9.1.2) **[3] PS-4** explaining whether or not a prediction, estimation, or solution is reasonable (M9.1.3)
3:14 Connections	**Connections: Apply mathematical concepts and processes to situations within and outside of school.**
.1 Translate between various representations of equivalent numbers (e.g., percents of a dollar to cents, fractional forms of 1 to a whole .2 Apply mathematical skills and processes to everyday life (e.g., map reading)	**The student understands and applies mathematical skills and processes across the content strands by** **[3] PS-5** using real-world contexts such as literature, self, and family (M10.1.1. & M10.1.2)

Site Visit Team Comparison of Anchorage and State Standards, Grade 5, 2010-2011[42]

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
5:2 Number Sense	**Understanding Numbers**
.1 Order, read, and write numbers from thousandths to billions. .2 Round large and small numbers to a given place. .3 Convert between mixed numbers and their equivalent fractions. .4 Compare and order fractions using models, pictures, symbols and ? words. .5 Compare and order decimals from 0.001 to 1, using models pictures, symbols and words. .6 Identify and describe factors and multiples, including factors and multiples common to a pair or set of numbers (GCF and LCM). .7 Identify and explain prime and composite numbers using models, pictures, symbols and/or words. .8 Convert between simple fractions, decimals, and percents. .9 Model and explain the process of multiplication and division. .10 Identify and describe a variety of uses for a fractional representation. .11 Compare and order positive and negative numbers.	**The student demonstrates conceptual understanding** **• of whole numbers to <u>millions</u> by** **[5] N-1** reading, writing, ordering, or [counting L] (M1.2.1) **[5] N-2** identifying place value positions from <u>tenths to millions</u> (M1.2.2) **[5] N-3** converting between whole numbers written in expanded notation and standard form (M1.2.4) Team Note: Anchorage standards go beyond these to billions and thousandths. This might be conceptually difficult for Grade 5 students in a meaningful way. **• of positive fractions with denominators 1 through 12 and 100 with proper and mixed numbers and benchmark percents (10%, 25%, 50%, 75%, 100%) by** **[5] N-4** modeling, identifying, describing with explanations, or illustrating equal parts of a whole, a region, or a set (M1.2.4) **[5] N-5** modeling, identifying, describing with explanations, or illustrating equivalent fractions or mixed numbers (M1.2.4 & M3.2.5)
5:4 Computation	**Understanding Meaning of Operations**
.1 Memorize multiplication and division facts to product of at least 100. .2 Model and explain addition and subtraction of fractions with like and unlike denominators. .3 Find the factors of a number. .4 Find the product of multi-digit numbers and of decimal numbers. .5 Solve problems using multiplication and division of whole numbers and money. .6 Solve word problems involving addition and subtraction of fractions and decimals. .7 Use mental math when appropriate. .8 Use a calculator when appropriate.	**The student demonstrates conceptual understanding of mathematical operations by** **[5] N-6** [using models, explanations, number lines, or real-life situations L] describing or illustrating the process of <u>division</u> and its relationship to <u>subtraction or to multiplication</u> (M1.2.3) Team Note: The state focus is on the relationship among these operations. The Anchorage standards focus on explaining and understanding each operation without a focus on these relationships. **[5] N-7** [using models, explanations, number lines, or real-life situations L] describing or illustrating the process

[42] Team notes address yellow highlighted Alaska standards compared to Anchorage standards.
Anchorage standards from Anchorage School District Mathematics Department website.
Alaska standards from Alaska Department of Education website. The state underlines differences between grade levels.

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	of adding and subtracting proper fractions or mixed numbers (like denominators) (M1.2.5) **[5] N-8** [using models, explanations, number lines, or real-life situations L] describing or illustrating the process of adding or subtracting decimals that represent money (M1.2.5)
5:3 Concepts of Number Operations	**Number Theory**
.1 Write and solve word problems involving each operation. .2 Use manipulatives to find sums and differences of simple fractions and decimals. .3 Write and solve problems involving fractions and decimals. .4 Demonstrate the commutative and identity properties of multiplication. .5 Demonstrate that " ÷ " can mean subtraction of equal parts or equal sharing.	**The student demonstrates understanding of number theory by** **[5] N-9** describing or illustrating commutative or identity properties of addition or multiplication using models or explanations (M1.2.7) Team Note: The Alaska standards focus on building an understanding of these properties while the Anchorage standards focus only on demonstrating these properties. **[5] N-10** identifying or listing factors and multiples common to a pair or set of numbers (M1.2.6) Team Note: The Anchorage standards focus on multiples and factors, but this state standard specifically lays the foundation for the ideas of least common multiple and greatest common factor.
5:6 Measurement	**Measurable Attributes**
.1 Explain how to find a formula for the area of a triangle, rectangle, and parallelogram. .2 Estimate the circumference of a circle. .3 Estimate the area of a circle. .4 Use a protractor to draw and measure angles. .5 Measure line segments to the nearest eighth of an inch, or millimeter. .6 Measure and find distance on a map, given its scale. .7 Make a scale drawing. .8 Find possible perimeters for a rectangle of a given area. .9 Find possible areas for rectangles of a given perimeter. .10 Find the surface area of a cube and rectangular prism. .11 Given a rate for multiple units, find the rate per unit. .12 Solve word problems using rates.	**The student demonstrates understanding of measurable attributes by** **[5] MEA-1** estimating length to the nearest one-fourth inch or centimeter (L) (M2.2.1) **[5] MEA-2** estimating temperature (degree Celsius or Fahrenheit, plus or minus 5 degrees) or weight (half - pounds or kilograms) to the nearest unit (L) (M2.2.1) **[5] MEA-3** identifying or using equivalent measures for weight/mass (16 oz. = 1 pound or 1000 grams = 1 kilogram), length (1000 millimeters Team Note: The Anchorage standards do not appear to specifically address temperature or unit conversions.
	Measurement Techniques ***M.*** ***The student demonstrates ability to use measurement techniques by*** *N.* ***[5] MEA-4*** *[measuring temperature or weight using*

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	appropriate tools L] (M2.2.1 & M2.2.3) ***[5] MEA-5** telling time using analog clocks to the nearest minute and using AM or PM (M2.2.5)* ***[5] MEA-6** determining possible combinations of coins and bills to given amounts (M2.2.6)* ***[5] MEA-7** simulating multiple purchases and calculating the amount of change from given bills up to $100.00 (L) (M2.2.6)* *V.* Team Note: The Anchorage standards do not appear to address these measurements, although telling time to the minute was addressed in the Grade 3 Anchorage standards. Similarly, Anchorage standards do not appear to specifically address combinations of coins and bills or making change from $100. **[5] MEA-8** measuring length to the nearest ¼ inch or centimeter (M2.2.1)
Estimation 1 Decide to what place it is reasonable to round given data. .2 Estimate the measure of angles. .3 Estimate large distances, time, population, or objects based on small samples. .4 Round numbers to estimate answers to algorithms and word problems.	**Estimation** **The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by** **[5] E&C-1** identifying or using [a variety of L] strategies (e.g., rounding to appropriate place value, multiplying by powers of ten, using front-end estimation to estimate the results of addition or subtraction computations from tenths to 100,000, including money, or simple multiplication or division) (M3.2.1) Team Note: The Anchorage standards do not appear to address the range of strategies that might be used to solve these kinds of computational problems. These strategies are important because they often build an understanding of properties of number and lay the foundation for algebra**.**
	Computation **The student accurately solves problems (including real-world situations) involving** **[5] E&C-2** recalling basic multiplication facts, products to 144**,** and corresponding division facts efficiently (L) (M3.2.2) **[5] E&C-3** adding or subtracting four-digit whole

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	numbers, fractions with like denominators to 12, or decimals involving money (M3.2.3) **[5] E&C-4** multiplying two-digit whole numbers by two-digit numbers or dividing three-digit whole numbers by single-digit numbers (M3.2.4) Team Note: The Anchorage standards are not as specific as the Alaska standards regarding magnitude of number.
5:9 Patterns .1 Describe patterns found in nature. .2 Use manipulatives to show how changes in perimeter effect area. .3 Find a pattern, explain its rule and extend the pattern. .4 Explain the patterns found in tables, graphs, rules and formulas. .5 Explain how to use patterns as a strategy for problem solving. .6 Use a calculator to find a missing item in a number sequence.	**Describing Patterns and Functions** **The student demonstrates conceptual understanding of functions, patterns, or sequences by** **[5] F&R-1** extending patterns that use addition, subtraction, multiplication, division or symbols, up to 10 terms, represented by models (function machines), tables, sequences, or in problem situations (M4.2.1) Team Note: These standards are much more specific than the Anchorage standards about the kinds of patterns it is important to examine. **[5] F&R-2** using rules to express the generalization of a pattern using words, lists, or tables (M4.2.4) **[5] F&R-3** identifying or applying addition or subtraction patterns to find missing values in a function (M4.1.2) **[5] F&R-4** using manipulatives, including a calculator, as tools when describing, extending, or representing a number sequence **(**L) (M4.2.1 & M4.2.3)
5:10 Algebra .1 Write and solve simple number sentences that contain a variable. .2 Graph a table of values on a coordinate grid. .3 Analyze graphs and tables, and make predictions. .4 Substitute values for variables in a formula, and evaluate it.	**Modeling and Solving Equations and Inequalities** **The student demonstrate algebraic thinking by** **[5] F&R-5** using an open number sentence (addition, subtraction, multiplication, or division) to solve for an unknown represented by a box or circle (e.g., 256 ÷ ÷8=56, 36÷3=) (M4.2.5)
5:5 Geometry	**Geometric Relationships**
.1 Name and classify and 2- and 3- dimensional geometric shapes. .2 Compare properties of polygons and polyhedrons. .3 Plot ordered pairs on a rectangular coordinate grid and connect the points. .4 Identify geometric shapes found in nature. .5 Show translations and rotations of 2-D figures.	**The student demonstrates an understanding of geometric relationships by** **[5] G-1** using the attributes and properties of angles and the number, length, and orientation of sides to identify or compare triangles (scalene, isosceles, or equilateral) or quadrilaterals (parallelograms, trapezoids, rhombi) (M5.2.1) **[5] G-2** using the attributes and properties of solid figures (edges, vertices, number of faces) to [model

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	L], identify, compare, or describe (cubes, cylinders, cones, spheres, pyramids, or rectangular prisms) (e.g., ,boxes, buildings, packages) (M5.2.2) Team Note: These Alaska standards specifically reference the importance of attributes and properties, while the Anchorage standards are not as specific.
	Similarity, Congruence, Symmetry, and Transformation of Shapes **The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by** **[5] G- 3** illustrating or identifying the results of transformation (slides, turns, or flips of polygons) (e.g., pictures of cultural art, fabric designs, architecture, logos) (M5.2.5) **[5] G-4** identifying, creating, or drawing geometric figures that are congruent, similar, or symmetrical (M5.2.3) **[5] G-5** modeling designs (e.g., tessellations) that contain a series Team Note: The Anchorage standards do not reference creating or drawing figures that have certain characteristics (e.g., congruency, similarity, symmetry), nor do they address geometric series.
	Perimeter, Area, Volume, and Surface Area **The student solves problems (including real-world situations) using perimeter or area by** **[5] G-6** estimating or determining area or perimeter of rectangles using a key, ruler, or given measures (M5.2.4) **[5] G-7** estimating or determining the area and circumference of a circle using a grid or manipulatives (L) (M5.2.4 & M5.3.4)
	Position and Direction

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	The student demonstrates understanding of position and direction by **[5] G-8** locating points of given coordinates on a grid or identifying coordinates for a given point (e.g., items on a treasure map) (L) (M5.2.6)
	Construction **The student demonstrates a conceptual understanding of geometric drawings or constructions by** **[5] G-9** identifying or drawing perpendicular line segments or midpoints (L) (M5.2.7) Team Note: The Anchorage standards do not address this kind of construction.
5:7 Statistics	**Data Display**
.1 Find the mean, mode, median, and range of a set of data. .2 Collect and organize data; use it to construct a chart, table, or graph. .3 Describe and explain data from tables, charts and graphs; and use the data to predict an outcome. .4 Evaluate data to determine validity, propaganda, and prejudice or bias. .5 Justify the choice of data representation (type of graph).	**The student demonstrates an ability to classify and organize data by** **[5] S&P-1** [designing an investigation and collecting L], organizing, or displaying, using appropriate scale, data in real-world problems (e.g., social studies, friends, or school), using bar graphs, tables, charts, diagrams, or line graphs with whole numbers up to 50 (M6.2.1 & M6.2.2)
	Analysis and Central Tendency **The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; or drawing or justifying conclusions) by** **[5] S&P**-2 using information from a variety of displays (tables, bar graphs, line graphs , or Venn diagrams) (M6.2.2) **[5] S&P-3** using mode, median, or range with up to 10 pieces of data with a value of 10 or less each (M6.2.3)
5:8 Probability	**Probability**
.1 Present probability data using fractions or percents. .2 In an experiment using given criteria, make predictions, record the results, and compare the predicted outcome with the actual results. .3 Create probability problems about chance occurrences expressed as simple fractions and percents. .4 Make a data set, given the median and maximum values and the range.	**The student demonstrates a conceptual understanding of probability and counting techniques by** **[5] S&P-4** predicting or explaining the probability of all possible outcomes in an experiment using ratios or fractions to describe the probability (M6.2.4) **[5] S&P-5** solving or identifying solutions to problems involving money combinations (e.g., how many ways can you make 25 cents using nickels, dimes, or quarters?) (M6.2.5)

Anchorage Standards	Alaska Performance Standards Grade Level Expectations
	Team Note: This standard is about combinatorics (i.e., how many possible outcomes might there be?) which is an important concept in probability, but is addressed in the Anchorage standards.
5:11 Problem Solving	**Problem Solving:** Understand and be able to select and use a variety of problem-solving strategies
.1 Solve a problem and verify solutions applying results of previous problem solving experiences.	**The student demonstrates an ability to problem solve by** **[5] PS-1** selecting and applying an appropriate strategy (e.g., tables, charts, lists, or graphs; guess and check; extended patterns; making a model) to solve a variety of problems and verify the results (M7.2.2) **[5] PS-2** explaining and verifying results of an original problem and applying what was learned to new situations (M7.2.3)
5:12 Communication	**Communication:** Form and use appropriate methods to define and explain mathematical relationships
.1 Explain strategies used to solve problems. .2 Use the mathematical vocabulary appropriate to the content being studied.	
5:13 Reasoning .1 Draw logical conclusions about mathematical situations using informal inductive and deductive reasoning.	**Reasoning:** Use logic and reason to solve mathematical problems **The student demonstrates an ability to use logic and reason by** **[5] PS-4** drawing logical conclusions about mathematical situations (given a rule or generalization, determine whether the example fits); or justifying answers and mathematical strategies as reasonable (M9.2.1, M9.2.2, & M9.2.3)
5:14 Connections .1 Apply mathematical processes to other disciplines such as sports events timing. .2 Use longitude and latitude readings to locate positions on a map.	**Connections:** Apply mathematical concepts and processes to situations within and outside of school **The student understands and applies mathematical skills and processes across the content strands by** **[5] PS-5** using real-world contexts such as social studies, friends, and school (M10.2.1 & M10.2.2)

Alaska Math Performance Standards are organized into 10 content strands and are coded as follows:
N=Numeration
MEA=Measurement
E&C=Estimation and Computation

F&R=Functions and Relationships
G=Geometry
S&P=Statistics and Probability
PS=Process Skills (The Process Skills include Problem-Solving, Communication, Reasoning, and Connections.)

APPENDIX G. STRATEGIC SUPPORT TEAM MEMBERS

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Maria Crenshaw

Maria F. Crenshaw is the director of instruction for Richmond Public Schools. For nearly seven years, she was a Title I mathematics instructional specialist for the district. She has been instrumental in the district's dramatic improvement in elementary and middle school math achievement scores. In that capacity, she provided leadership and management to the elementary and middle school math program by monitoring and supervising teachers and activities. She collaborated in developing lesson plans and instructional activities aligned to district and state standards using the adopted textbooks and supplement materials. Her responsibilities also included developing quarterly benchmark tests, analyzing the data from the benchmarks, assisting teachers and administrators with effective strategies for teacher and student improvement, and conducting professional development for teachers and administrators. Mrs. Crenshaw is a national presenter, presenting at National Staff Development Council (NSDC), National Council of Supervisors of Mathematics (NCSM), and National Council of Teachers of Mathematics (NCTM). Maria F. Crenshaw earned her undergraduate degree in early childhood and elementary education from Radford (College) University and her master's degree in educational administration and supervision from Virginia State University. Mrs. Crenshaw has also taken extensive graduate training in the area of mathematics from Virginia Commonwealth and Virginia State universities.

Linda Ruiz Davenport

Linda Ruiz Davenport has been the senior program director of elementary mathematics for the Boston Public Schools since September of 2000. She oversees the elementary math plan, which includes the adoption of a standards-based mathematics curriculum, a cohesive program of professional development for teachers and principals, school-based support from math coaches, and a system of formative assessments. During her tenure, the district has seen strong gains on state assessments as well as on the National Assessment of Educational Progress (NAEP). Prior to 2000, she directed several projects at the Education Development Center, was an assistant professor of mathematics education at Portland State University in Portland, Oregon, and was a junior high and high school math teacher in Austin, Texas. Currently, she is a member of the Urban Math Leadership Network, serves on the Massachusetts Department of Education Math/Science Advisory Council, chairs the National Council of Teachers of Mathematics Emerging Issues Committee, and edits the *Journal of Mathematics Education Leade*rship published by the National Council of Supervisors of Mathematics. She received a B.A. degree in the Plan II Liberal Arts program from the University of Texas and M.Ed. and Ph.D. degrees in curriculum and instruction with a focus on mathematics education and bilingual education from the University of Washington. Her dissertation examined the mathematics learning of ELL students in a high school Algebra I class.

Tom Genné

Mr. Tom Genné serves as director of research, deployment and accountability (RDA) for Albuquerque Public Schools. Within the department, a research group provides compliance reporting for grants and entitlements, as well as original research to support senior leadership's need for high quality information to support decision making and policy development. RDA contains the operations for local short-cycle assessment development; management of local, state, and federal testing; and back-end data interpretation for school and instructional support by the accountability group. Deployment involves a three-tiered RtI model for student intervention and support, as well as section 504 and other initiatives from the state. The district's two million volume, 140-branch library system is also located within the department. Tom comes to Albuquerque as a second career. His first was in the state of Alaska, where he joined that state's education system in 1976. Alaska had just begun to implement the educational reforms called for in the Molly Hootch Settlement. This civil rights case sparked dramatic educational reform for Alaska's far-flung communities and precipitated significant societal and quality-of-life changes associated with an increase in local educational opportunity. Tom holds an M.Ed. in public school administration from the University of Alaska.

Norma Jost

Norma Jost is the K-12 academic supervisor for mathematics in the Austin Independent School District. She has supervised the mathematics program in Austin Texas since 1999 and, before that, was a K-12 mathematics specialist from 1996. She taught high school mathematics including AP calculus for six years. For the last two years, Ms. Jost has worked towards reforming education to integrate standards-based mathematics and 21st century teaching and learning to truly engage and motivate digital natives. She is affiliated with a number of professional organization and has served on program committees and presented at National Council of Supervisors of Mathematics (NCSM), National Council of Teachers of Mathematics (NCTM), CAMT, Texas ASCD, and CGCS. Ms. Jost also worked in the high technology field (Motorola Semiconductors) for 11 years. She earned her B.S. in electrical engineering and a mathematics teaching certification from the University of Texas at Austin and an M. Ed. in educational leadership from Texas State University.

Ricki Price-Baugh

Ricki Price-Baugh retired from her position as the assistant superintendent for curriculum in the Houston Independent School District. In this position, she was responsible for strategic planning and the design, implementation, and evaluation of the district's curriculum and instructional initiatives for eight departments: English/language arts, fine arts, early childhood education, foreign language, health/physical education, mathematics, science, and social studies. Since beginning her work with the Houston schools 30 years ago, Dr. Price-Baugh has served as a teacher, department chair, resource coordinator, project manager, and director of curriculum services. Her major accomplishments included a districtwide effort to align curriculum, textbook, and

assessment systems, and a substantial increase in student achievement scores in the district. Dr. Price-Baugh is currently the director of academic achievement for the Council of the Great City Schools. She is a certified curriculum auditor for Phi Delta Kappa and is a member of Phi Beta Kappa. Dr. Price-Baugh has a doctoral degree from Baylor University, a master's degree in Spanish literature from the University of Maryland, and a B. A. (magna cum laude) degree from Tulane University.

Gabriela Uro

Gabriela Uro is the manager for English language learner policy and research and formerly was the manager of intergovernmental relations for the Council of the Great City Schools. As part of the legislative team, she works on legislative matters relevant to ELLs, both on Capitol Hill and with the Administration. She also works with the research and the strategic support teams on projects pertaining to ELL issues. Prior to joining the Council, Ms. Uro served as the policy advisor to the Assistant Secretary of Elementary and Secondary Education and the Director of the Office of Bilingual Education (now English Acquisition) in the U.S. Department of Education. She brought 13 years of education policy and budget experience to the U.S. Department of Education and was part of the Department's Team for the 1994 ESEA Reauthorization and the subsequent implementation teams for Title VII, Title I, and the Regional Assistance Centers. Ms. Uro received her M.P.A. from Columbia University with a specialization in education policy and her B.A. degree from the University of California, Irvine (magna cum laude, Phi Beta Kappa).

APPENDIX H. ABOUT THE COUNCIL

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Council of the Great City Schools

The Council of the Great City Schools is a coalition of 65 of the nation's largest urban public school systems. Its Board of Directors is composed of the Superintendent of Schools and one School Board member from each member city. An Executive Committee of 24 individuals, equally divided in number between Superintendents and School Board members, provides regular oversight of the 501(c)(3) organization. The mission of the Council is to advocate for urban public education and assist its members in the improvement of leadership and instruction. The Council provides services to its members in the areas of legislation, research, communications, curriculum and instruction, and management. The group convenes two major conferences each year; conducts studies on urban school conditions and trends; and operates ongoing networks of senior school district managers with responsibilities in areas such as federal programs, operations, finance, personnel, communications, research, and technology. The Council was founded in 1956 and incorporated in 1961, and has its headquarters in Washington, D.C.

History of Strategic Support Teams Conducted by the Council of the Great City Schools

City	Area	Year
Albuquerque		
	Facilities and Roofing	2003
	Human Resources	2003
	Information Technology	2003
	Special Education	2005
	Legal Services	2005
	Safety and Security	2007
Anchorage		
	Finance	2004
	Communications	2008
	Math Instruction	2010
Atlanta		
	Facilities	2009
	Transportation	2010
Austin		
	Special Education	2010
Birmingham		
	Organizational Structure	2007
	Operations	2008
	Facilities	2010
Boston		
	Special Education	2009
Broward County (FL)		
	Information Technology	2000
	Food Services	2009
	Transportation	2009
Buffalo		
	Superintendent Support	2000
	Organizational Structure	2000
	Curriculum and Instruction	2000
	Personnel	2000
	Facilities and Operations	2000
	Communications	2000
	Finance	2000
	Finance II	2003
	Bilingual Education	2009
Caddo Parish (LA)		
	Facilities	2004
Charleston		
	Special Education	2005
Charlotte-Mecklenburg		
	Human Resources	2007
Cincinnati		

	Curriculum and Instruction	2004
	Curriculum and Instruction	2009
Chicago		
	Warehouse Operations	2010
Christina (DE)		
	Curriculum and Instruction	2007
Cleveland		
	Student Assignments	1999, 2000
	Transportation	2000
	Safety and Security	2000
	Facilities Financing	2000
	Facilities Operations	2000
	Transportation	2004
	Curriculum and Instruction	2005
	Safety and Security	2007
	Safety and Security	2008
	Theme Schools	2009
Columbus		
	Superintendent Support	2001
	Human Resources	2001
	Facilities Financing	2002
	Finance and Treasury	2003
	Budget	2003
	Curriculum and Instruction	2005
	Information Technology	2007
	Food Services	2007
	Transportation	2009
Dallas		
	Procurement	2007
	Staffing Levels	2009
Dayton		
	Superintendent Support	2001
	Curriculum and Instruction	2001
	Finance	2001
	Communications	2002
	Curriculum and Instruction	2005
	Budget	2005
	Curriculum and Instruction	2008
Denver		
	Superintendent Support	2001
	Personnel	2001
	Curriculum and Instruction	2005
	Bilingual Education	2006
	Curriculum and Instruction	2008
Des Moines		
	Budget and Finance	2003
Detroit		
	Curriculum and Instruction	2002

	Assessment	2002
	Communications	2002
	Curriculum and Assessment	2003
	Communications	2003
	Textbook Procurement	2004
	Food Services	2007
	Curriculum and Instruction	2008
	Facilities	2008
	Finance and Budget	2008
	Information Technology	2008
	Stimulus planning	2009
Greensboro		
	Bilingual Education	2002
	Information Technology	2003
	Special Education	2003
	Facilities	2004
	Human Resources	2007
Hillsborough County (FLA)		
	Transportation	2005
	Procurement	2005
Houston		
	Facilities Operations	2010
	Capitol Program	2010
	Information Technology	2011
Indianapolis		
	Transportation	2007
	Information Technology	2010
Jackson (MS)		
	Bond Referendum	2006
	Communications	2009
Jacksonville		
	Organization and Management	2002
	Operations	2002
	Human Resources	2002
	Finance	2002
	Information Technology	2002
	Finance	2006
Kansas City		
	Human Resources	2005
	Information Technology	2005
	Finance	2005
	Operations	2005
	Purchasing	2006
	Curriculum and Instruction	2006
	Program Implementation	2007
	Stimulus Planning	2009
Little Rock		
	Curriculum and Instruction	2010

Los Angeles		
	Budget and Finance	2002
	Organizational Structure	2005
	Finance	2005
	Information Technology	2005
	Human Resources	2005
	Business Services	2005
Louisville		
	Management Information	2005
	Staffing study	2009
Memphis		
	Information Technology	2007
Miami-Dade County		
	Construction Management	2003
	Food Services	2009
	Transportation	2009
	Maintenance & Operations	2009
	Capital Projects	2009
Milwaukee		
	Research and Testing	1999
	Safety and Security	2000
	School Board Support	1999
	Curriculum and Instruction	2006
	Alternative Education	2007
	Human Resources	2009
Minneapolis		
	Curriculum and Instruction	2004
	Finance	2004
	Federal Programs	2004
Newark		
	Curriculum and Instruction	2007
	Food Service	2008
New Orleans		
	Personnel	2001
	Transportation	2002
	Information Technology	2003
	Hurricane Damage Assessment	2005
	Curriculum and Instruction	2006
New York City		
	Special Education	2008
Norfolk		
	Testing and Assessment	2003
Orange County		
	Information Technology	2010
Philadelphia		
	Curriculum and Instruction	2003
	Federal Programs	2003
	Food Service	2003

	Facilities	2003
	Transportation	2003
	Human Resources	2004
	Budget	2008
	Human Resource	2009
	Special Education	2009
Pittsburgh		
	Curriculum and Instruction	2005
	Technology	2006
	Finance	2006
	Special Education	2009
Portland		
	Finance and Budget	2010
	Procurement	2010
	Operations	2010
Providence		
	Business Operations	2001
	MIS and Technology	2001
	Personnel	2001
	Human Resources	2007
	Bilingual Education	2011
	Special Education	2011
Richmond		
	Transportation	2003
	Curriculum and Instruction	2003
	Federal Programs	2003
	Special Education	2003
Rochester		
	Finance and Technology	2003
	Transportation	2004
	Food Services	2004
	Special Education	2008
San Diego		
	Finance	2006
	Food Service	2006
	Transportation	2007
	Procurement	2007
San Francisco		
	Technology	2001
St. Louis		
	Special Education	2003
	Curriculum and Instruction	2004
	Federal Programs	2004
	Textbook Procurement	2004
	Human Resources	2005
St. Paul		
	Transportation	2011
Seattle		

	Human Resources	2008
	Budget and Finance	2008
	Information Technology	2008
	Bilingual Education	2008
	Transportation	2008
	Capital Projects	2008
	Maintenance and Operations	2008
	Procurement	2008
	Food Services	2008
Toledo		
	Curriculum and Instruction	2005
Washington, D.C.		
	Finance and Procurement	1998
	Personnel	1998
	Communications	1998
	Transportation	1998
	Facilities Management	1998
	Special Education	1998
	Legal and General Counsel	1998
	MIS and Technology	1998
	Curriculum and Instruction	2003
	Budget and Finance	2005
	Transportation	2005
	Curriculum and Instruction	2007
Wichita		
	Transportation	2009