Research Report

EDUCATIONAL TECHNOLOGY FUNDING FOR ARKANSAS DISTRICTS AND SCHOOLS

May 4, 2010

Prepared for
The Joint Adequacy Evaluation Oversight Subcommittee of the House and Senate Interim Committees on Education

BUREAU OF LEGISLATIVE RESEARCH

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INTRODUCTION

This study is presented in partial fulfillment of the requirements of Act 57 of the Second Extraordinary Session of 2003, amended by Act 1204 of 2007. Those acts require the legislature to conduct an adequacy study each biennium to assess needs related to providing an adequate education for all Arkansas K-12 students. This part of that larger study considers educational technology expenditures exclusively.

Arkansas's K-12 education funding formula, referred to as the matrix, is used to determine the per-pupil level of foundation funding disbursed to each school district. The resources included in the matrix were determined originally by a 2003 study and a subsequent refinement in 2006 by Lawrence O. Picus and Associates. The matrix was not intended to reimburse schools for actual expenditures but rather to provide a methodology for determining an adequate level of funding to allow schools to meet minimum accreditation standards and adequately educate Arkansas students.

To complete this report, Bureau of Legislative Research (BLR) staff surveyed all 244 districts and 74 randomly selected schools through web surveys. They also conducted on-site interviews with staff at each surveyed school. Financial data was extracted by the BLR staff from a data warehouse maintained by the Arkansas Public School Computer Network (APSCN) Division of the Arkansas Department of Education (ADE). Foundation expenditures were determined by adjusting expenditures of unrestricted funds by the ratio of foundation funding to unrestricted funding.

Student achievement data are based upon data prepared by the National Office for Research, Measurement and Evaluation Systems (NORMES) of the University of Arkansas and was provided through the ADE. The achievement data are based on 2009 district scores for six tests -- 4th grade literacy and math, 8th grade literacy and math, end of course algebra and 11th grade literacy. A weighted average of these six tests was calculated using the number of students scoring proficient or above for each of the six tests. The scores used were for the "combined population."

This report examines educational technology expenditures and is divided into four main sections:

Adequacy: Adequate funding for technology expenses in the schools is compared to actual per student expenditures. These expenditures are examined for all districts and for subgroups of districts, such as the lowest performing districts. The components of the technology line item of the matrix are reviewed. Finally, the impact of additional sources of funding and their impact on the need for foundation funding expenditures is examined.

State Requirements: ADE technology-related requirements influence the need for technology funding in the schools. There are technology requirements in the Standards for Accreditation and in the curriculum frameworks. The state's Facilities Manual requires certain technology infrastructure as part of school construction. ADE has developed a state technology plan that structures how districts provide technology in schools. ADE rules require individual school districts to develop technology plans.

Selected District and School Technology Uses: Schools' use of technology in the schools is examined to determine how these expenditures contribute to adequacy. This review includes equipment, programs, practices, and infrastructure for educational technology.

National Developments: Several areas of national education policy have the potential for impacting the direction of Arkansas educational practice and the resulting state funding. New strategies for all areas of education, including technology, will be fostered by federal funding programs that reward innovation in states and school districts.

ADEQUACY

Expenditures Compared to Matrix Funding

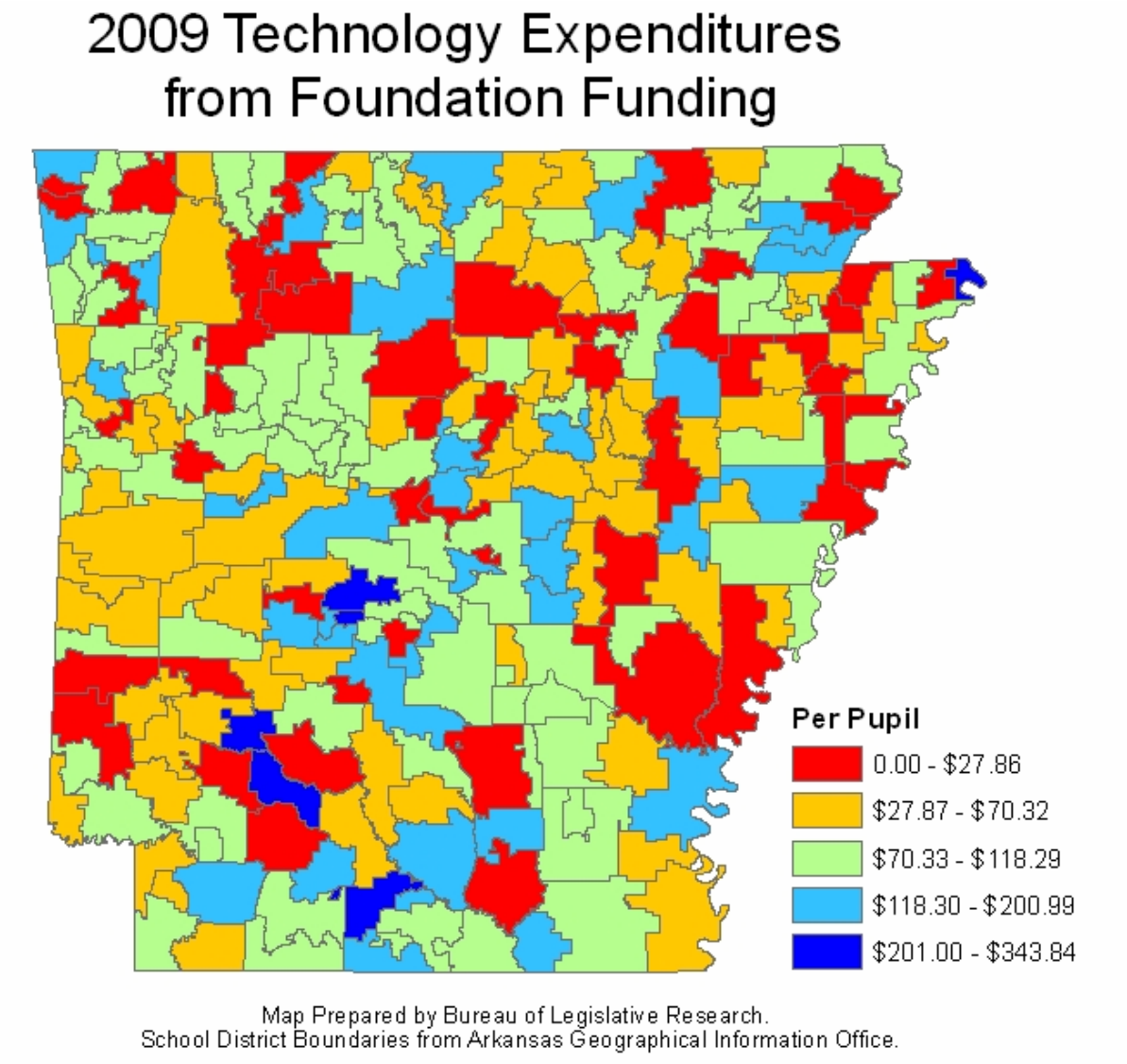
In 2009, districts spent $39.7 million statewide on technology from foundation funding, compared to $26.8 million in 2007. This equates to approximately $86.59 per student in 2008-09, compared with $201 funded in the matrix. The FY08-09 technology line item was a reduction from $220 in FY 2007-08 due to a decline in the price index for that component. The matrix line item amount per student for technology in the current school year, 2009-10, is $205. That continues to increase to $209 in 2010-11. Appendix A provides a district-level technology expenditure report for both foundation funding and all sources of funding combined.

Table 1 provides statewide total foundation expenditures for technology and expenditures per student.

Table 1.

Technology Expenditures			
Total Expenditures			$39,725,897.52
2009 Matrix Allocation Per Student			$201.00
2009 Expenditures Per Student			$86.59
Achievement Status			
Expenditures Per Student in 20 Lowest Performing Districts	$85.02	Expenditures Per Student in 20 Highest Performing Districts	$101.69
District Size			
Expenditures Per Student in Districts of 500 or Less (35)	$68.84	Expenditures Per Student in Districts of 5,000 or More (15)	$84.85
Student Poverty			
Expenditures Per Students in Districts 0f 90% or More NSL (19)	$53.93	Expenditures Per Students in Districts 0f 40% or Less NSL (22)	$108.51

The following map illustrates the amount of per-student technology expenditures for each district. Only six districts have foundation funding expenditures per student above the line item amount ($201) for technology in the matrix. There were 15 districts with no technology expenditures from foundation funding.



Basis for Matrix Estimate

The 2006 Picus report considered the following components in its recommendations for funding levels for technology:

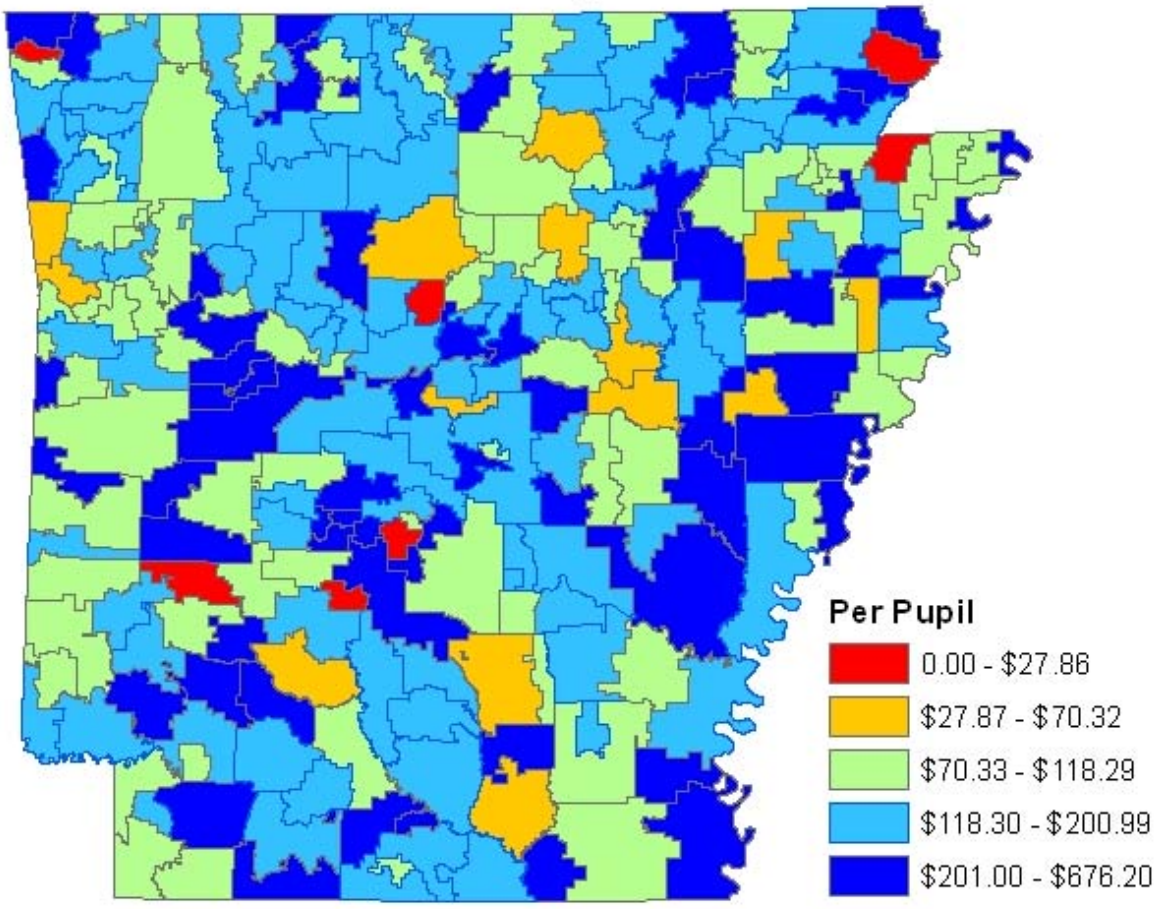
1. computers and a replacement cycle for them;
2. operating system and other non-instructional software;
3. network equipment, printers, copiers, and instructional software; and
4. additional hardware.

The report also recommended one FTE technology coordinator in the central office line item and one-half FTE technology assistant in the instructional facilitator's line item. There is a detailed discussion of the components of each of the categories in the 2006 Picus report.

Other Sources of Funding

Awareness of additional technology funding sources is important in assessing the adequacy of foundation funding for that purpose. Funding from sources other than the matrix may allow districts to spend foundation funding established for technology on other educational needs. Technology expenditures from all sources of funding were $75.742 million, or $165.10 per pupil. That's nearly double the amount of foundation funding expenditures, which were $39.725 million or $86.59. Appendix A provides a district-level technology expenditure report for both foundation funding and all sources of funding combined.

2009 Total Technology Expenditures from All Funding Sources



Map Prepared by Bureau of Legislative Research.
School District Boundaries from Arkansas Geographical Information Office.

According to the "Department of Education Grants Summarized by the Division of Legislative Audit for the year ended June 30, 2009", three school districts collectively received an additional $825,000 in state funding from two public school fund appropriations for distance learning. Cross County School District received $675,000, Little Rock School District received $100,000, and Malvern School District received $50,000.

APSCN financial data indicate that 12 districts have technology expenses from mills dedicated for capital outlay totaling $7.184 million.

Site-visit interviews revealed that schools use two types of poverty funding for technology: state NSLA funding and Title 1 federal funding. About $12.178 million of NSLA funding is used for technology; and $2.022 million of Title1 funding is used for that purpose.

One of the most significant federal sources of educational technology funding is the Enhancing Education Through Technology (E2T2) Program through Title II D of the Elementary and Secondary Education Act (ESEA). School districts received a total of $1,837,562 in federal funding from the E2T2 program in FY2009 according to the "Department of Education Grants Summarized by the Division of Legislative Audit for the year ended June 30, 2009". "The primary goal of E2T2 is to improve student achievement through the use of technology in elementary and secondary schools. Additional goals include helping all students become

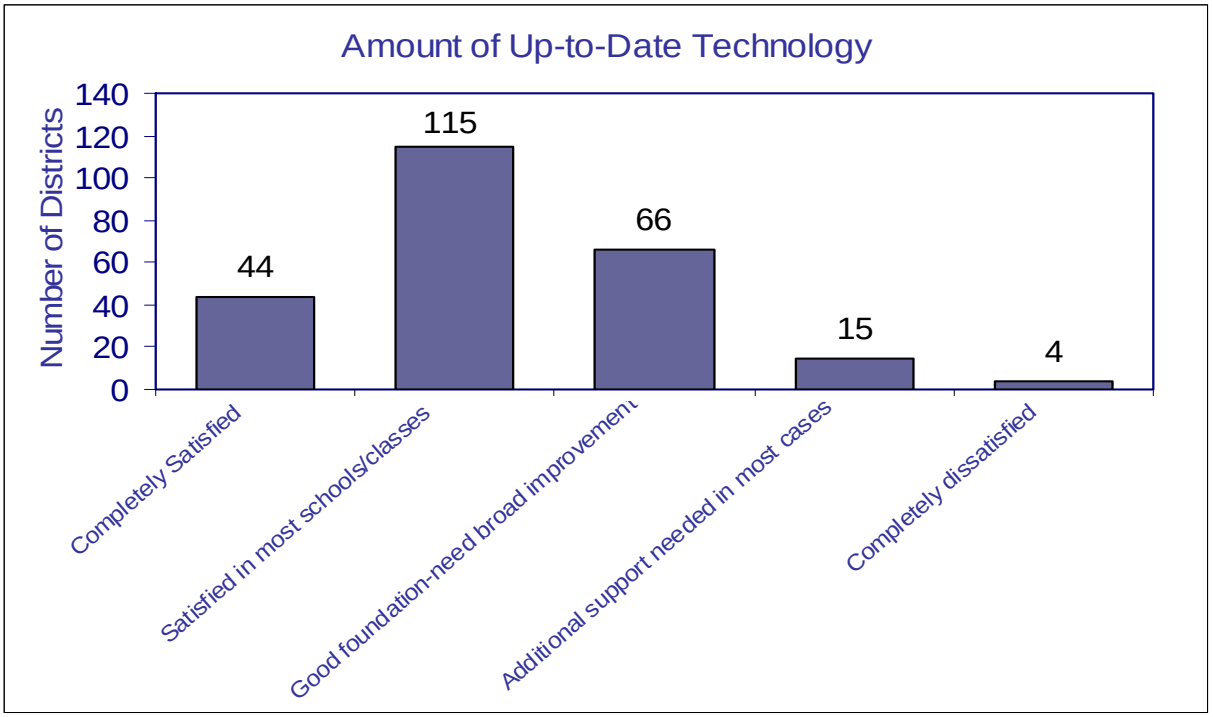
technologically literate by the end of the eighth grade and, through the integration of technology with both teacher training and curriculum development, establishing innovative, research-based instructional methods that can be widely implemented," (CFDA Number: 84.318). Other federal sources of technology funding include Carl Perkins Funds, which provide some assistance for technology in vocational-technical education programs for student training.

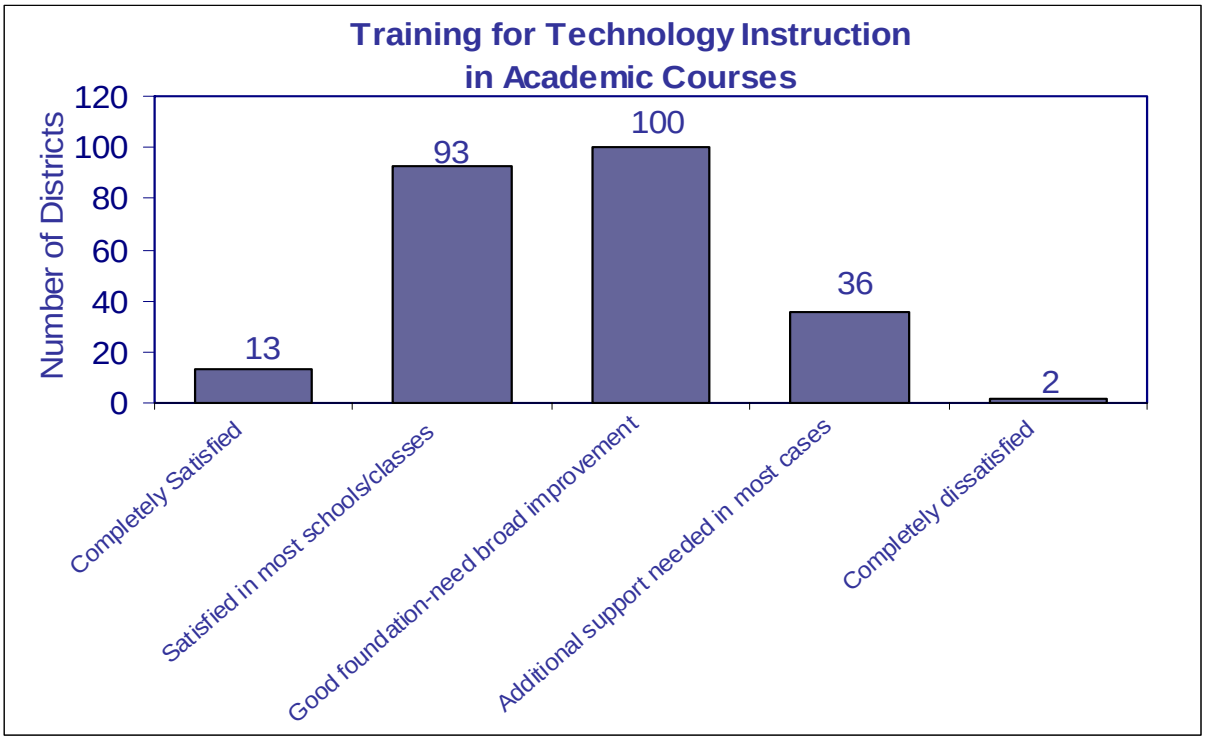
Lastly, the federal E-Rate program has been significant in expanding educational technology infrastructure throughout the state. The E-rate program is federally administered by the Schools and Libraries Division of the Universal Service Administrative Company. It provides eligible schools and libraries with discounts of 20% to 90% for eligible telecommunications services, depending on economic need and location (urban or rural). Rural districts receive a larger discount (http://www2.ed.gov/print/about/offices/list/oii/nonpublic/erate.html March 12, 2010).

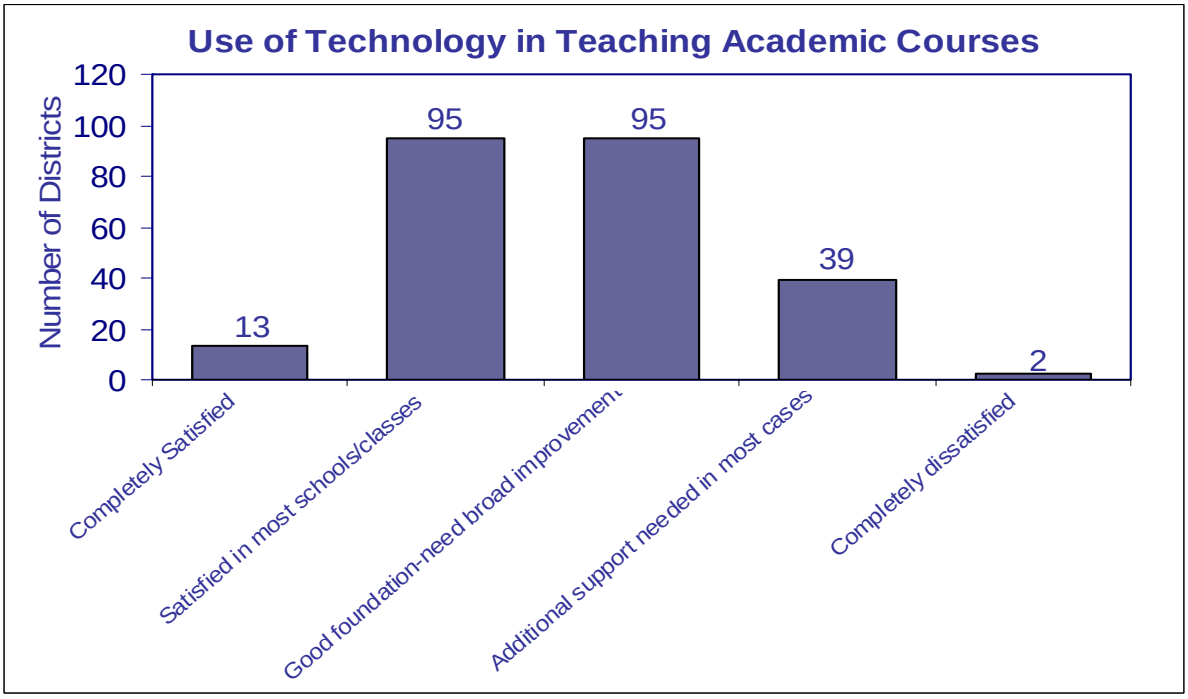
American Recovery and Reinvestment Act (ARRA) funding is a significant source of technology funding for FY2009-10. Final expenditure data for the fiscal year is not available at this time.

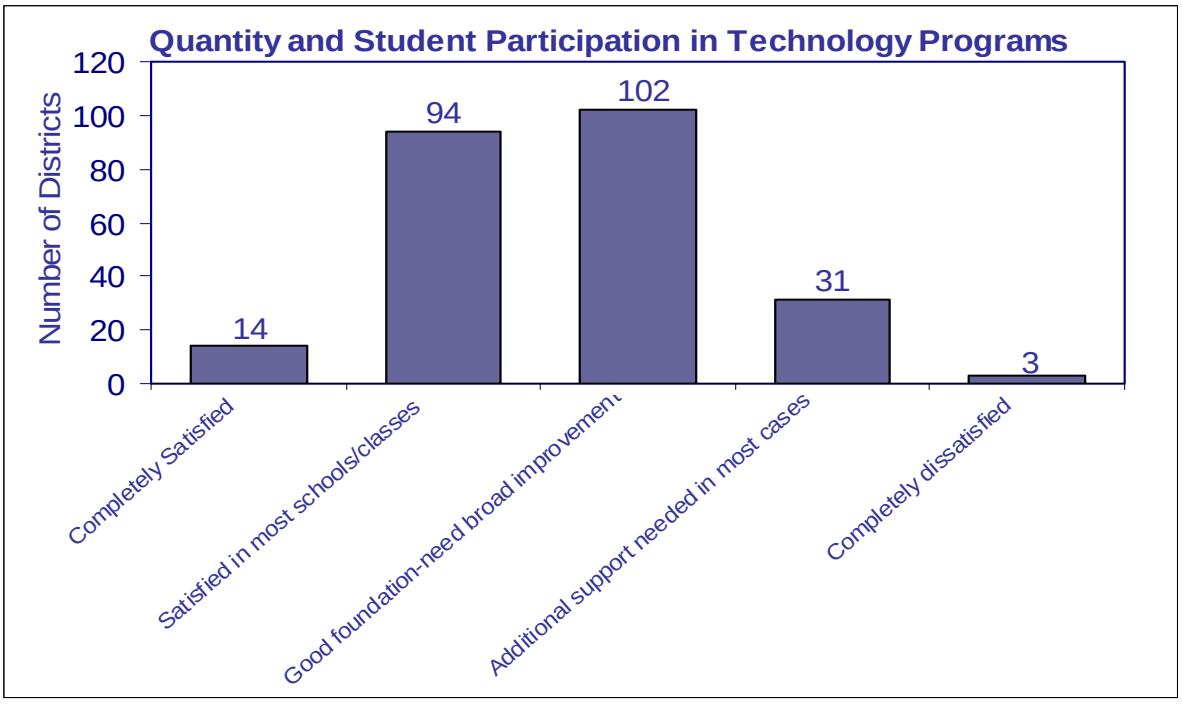
District Survey of Technology Satisfaction

The next four tables demonstrate the degree of satisfaction that districts have with selected technology issues. The data is from the district survey conducted in the fall of 2009. Most districts were satisfied with the amount of up-to-date technology in their district. One hundred districts indicated that they have a good foundation in training for technology instruction in academic courses, but they also have a broad need for improvement. A similar amount of districts described their student participation in technology programs the same way. The majority of districts said they were either largely satisfied with their schools' use of technology in teaching academic courses or they believed their schools have a good foundation in the use of technology, but need some improvement.




Training for Technology Instruction
in Academic Courses
Number of Districts
120
100
80
60
40
20
0
13
93
100
36
2
Completely Satisfied
Satisfied in most schools/classes
Good foundation-need broad improvement
Additional support needed in most cases
Completely dissatisfied


Use of Technology in Teaching Academic Courses
Number of Districts
120
100
80
60
40
20
0
13
95
95
39
2
Completely Satisfied
Satisfied in most schools/classes
Good foundation-need broad improvemen
Additional support needed in most cases
Completely dissatisfied


Quantity and Student Participation in Technology Programs
Number of Districts
120
100
80
60
40
20
0
14
94
102
31
3
Completely Satisfied
Satisfied in most schools/classes
Good foundation-need broad improvemen
Additional support needed in most cases
Completely dissatisfied

STATE REQUIREMENTS

The state has several types of requirements for educational technology. These include accreditation standards, facilities standards, curriculum framework for inclusion of technology, and requirements for both state and district technology plans.

Standards for Accreditation

According to ADE's "Rules Governing Standards for Accreditation of Arkansas Public Schools and School Districts", section 16.02.4,

> The role of the library media center shall support technology as a tool for learning. The school media collection shall consist of a balance of print, nonprint, and electronic media adequate in quality and quantity to meet the needs of the developmentally appropriate curricular program. The minimum book collection, exclusive of textbooks, shall be three thousand (3,000) volumes, or at least eight (8) books per student enrolled, whichever figure is larger. A minimum technology requirement will be one (1) computer per media center with multimedia/networking capacity for administrative purposes only.

Facilities Standards

The "Arkansas School Facility Manual" contains Technology Standards for all new construction. It addresses issues from backbone and network wiring to videoconferencing in classrooms. This excerpt from Section 2 Chapter 7 Section 7500 of the Arkansas School Facility Manual is provided as an example.

Building Wiring Guidelines

1. Student Workstation Wiring

a. Each classroom should have *at least two* student workstation outlets. Consideration should be given to placing at least one student workstation outlet on each wall in every classroom. A duplex power outlet with ground should be in close proximity to the student workstation outlet. Run two cables of category 5e or higher, 4-pair, unshielded twisted pair from the outlet to the wiring patch panel located in the telecommunication room. The cables must be a *continuous run* and not spliced. The maximum cable length must not exceed 295 feet as specified in the EIA/TIA-568 commercial building wiring standard.

Curriculum Frameworks

According to ADE, "technology integration to improve teaching and learning is a major goal in the development of the Arkansas Curriculum Frameworks. One way this goal is accomplished is through referencing national content area standards, including the National Educational Technology Standards (NETS), written by the International Society for Technology in Education, during the development process". ADE has included technology in the curriculum frameworks and identified the technology and equipment that schools will need. Specific information on the inclusion of technology in two example frameworks is provided:

Arkansas English Language Arts Curriculum Framework

K-8 English Language Arts Curriculum Framework
Numerous student learning expectations within three strands, Oral and Visual Communications, Writing, and Inquiring/Researching, indicate that students shall demonstrate mastery of the content through the appropriate use of technology. Within the Writing strand, students will use technology at various stages throughout the writing process, from collecting information to editing and publishing. For example, student learning expectation 4.8.11 states: *"Use available technology to create a product and communicate knowledge."* In Inquiry/Research, student

learning expectation IR.12.2.5, students are to *"Locate information from a variety of print, nonprint, and technological resources."* In Oral and Visual Communication, students are also expected to *"Deliver oral presentation using available technology"* (OV.1.8.7).

High School Courses That Together Form the 9-12 Mathematics Curriculum Framework

All of the high school mathematics courses include the following statement at the beginning of each course document: "*Appropriate technology should be used regularly for instruction and assessment."* In addition, the use of technology in the courses appears at both the content standard and student learning expectation levels. For example, Algebra I Content Standard 2, Solving Equations and Inequalities, states: *"Students will write, with and without appropriate technology, equivalent forms of equations, inequalities and systems of equations and solve with fluency."* Student learning expectations also address the use of technology, such as NLF.4.AI.3: *"Solve quadratic equations using the appropriate method with and without technology,"* which is located within the Non-linear Content Standard 4 of Algebra I.

Examples of Technology for Mathematics
Some examples of technology to assist in the learning of mathematics include calculators, hand-held data-collection devices, computers, and graphing calculators.

ADE Technology Plan: 2008-2012

ADE has produced a state technology plan that makes districts' eligibility for some technology funding contingent on their development of a comprehensive technology plan (ADE, 2008). The required components of those district plans, along with professional development outcomes, are outlined in the state technology plan. Critical issues related to the use of technology for professional development are discussed with specific recommendations.

District Technology Plans

Commissioner's Memo RT-08-006 02/22/2008 states:

> Each local school district, open enrollment charter school, and education service cooperative must have an approved technology plan to qualify for participation in No Child Left Behind programs and as a condition to submit and receive E-Rate federal funding. Each year the Department of Information Systems (DIS) files E-Rate applications on behalf of the entities, which qualifies local districts for discounts on technology and connectivity charges. The Schools and Libraries Division, which manages the federal E-Rate program, requires all applicants to have an approved plan that spans July 1, 2009-June 30, 2012.

Table 2 provides an overview of four of these plans. The table also includes data from the 2008 Arkansas Department of Information Services (DIS) "Education in Arkansas Technology Assessment (eData) Report." As part of that report, a profile was completed for each district.

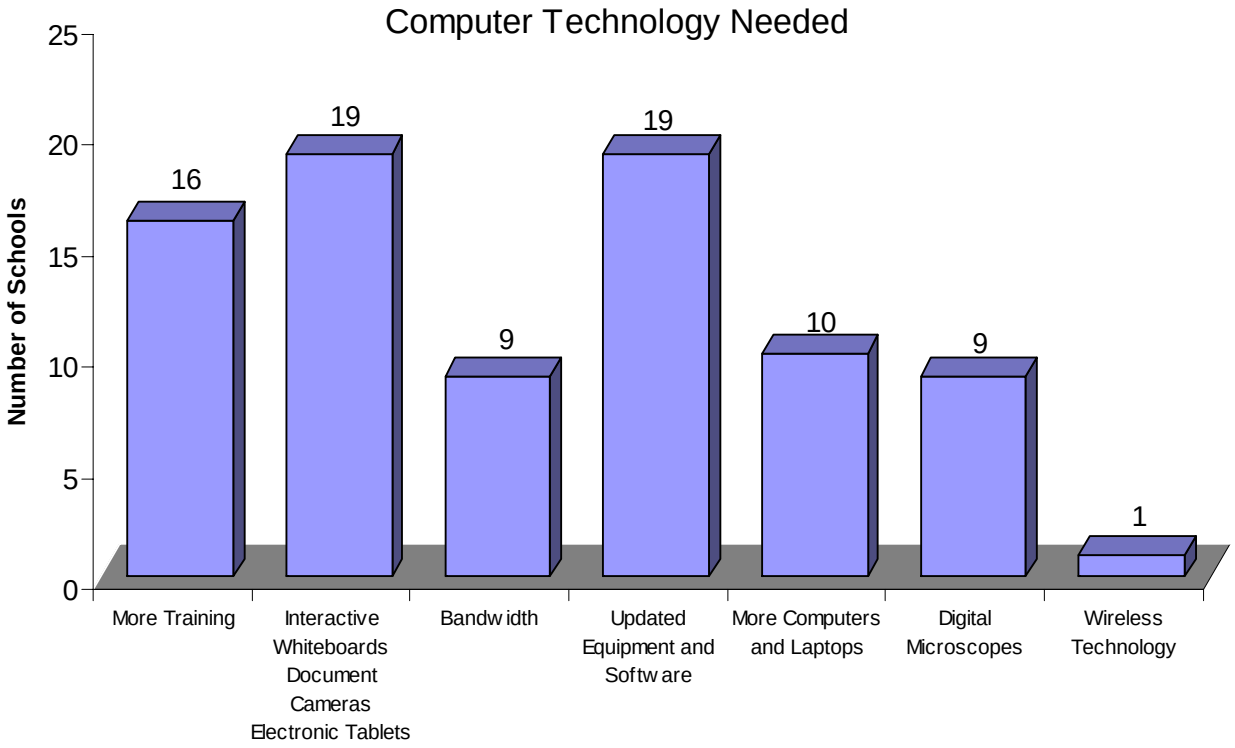
Table 2.

District Demographics	District A	District B	District C	District D
Size	Less than 500	1,000 - 2,000	1,000 - 2,000	Approx. 3,000
# of Schools	2	4	6	7
NSL %	90	76	75	92.6
2009 Matrix Tech $ expended per student	$17.00	$95.78	$3.85	$97.06
District Plan Data				
Internet connected Multimedia Computers	238	368	729	804
Plan Tech Budget for FY2010-All sources	$204,888	$255,950	$177,525	$844,600
Local %	58%	60%	46%	0%
State %	1%	2%	14%	60%
Federal %	41%	38%	40%	40%
Source: 4 District Technology Plans				

DIS Data - 2008	District A	District B	District C	District D
Electronic Grade Books	Yes	Yes	Yes	No
Library Apps	Yes	Yes	Yes	Yes
Cafeteria Apps	No	Yes	Yes	No
Student/Computer				
Elem	4:1	3.4:1	2.8:1	4.4:1
MS	NR	3:1	4.2:1	4.4:1
HS	1.2:1	2:1	1.3:1	3.6:1
Student/CIV lab-all	240:1	1,320:1	272:1	673:1
Student/Interactive White Bds.				
Elem	16:1	300:1	NR	45:1
MS	NR	NR	NR	40:1
HS	10:1	129:1	18.1:1	38:1
Student/LCD or DLP Projectors				
Elem	15:1	50:1	13.1:1	54:1
MS	NR	42:1	29.1:1	30:1
HS	8:1	39:1	9.1:1	38:1
Primary Technical Support	Full-time computer tech shared with other districts	Full-time computer tech shared with other districts	Part-time computer tech shared with other districts	Full-time computer tech shared with other districts
Primary Instructional Technical Support	A certified staff member shared with other districts	A certified staff member shared with other districts	A certified staff member not shared	A classified staff member shared with other districts
Technicians/Students	1:240	1:1,320	1:815	1:449
Instructional Technical Support/Staff	NA	1:137	1:116	1:81
Technical Support Staff	2	1	2	6
Instructional Support Staff	0	1	2	3
NR = No response.				
Source: http://schooledata.dis.arkansas.gov Retrieved 3/15/10				

SELECTED DISTRICT AND SCHOOL TECHNOLOGY USES

During site visits conducted in the fall of 2009, principals indicated the following technology needs in 74 schools. The total is larger than 74 because some schools are represented in more than one category.



New technology that was observed in this biennium's site visits included digital microscopes, simulations, surround sound, wireless equipment, and text readers. Many schools reported having enough interactive whiteboards, document cameras, etc. Most of these schools noted that stimulus funding in the current fiscal year was the funding source for the increased equipment. Ten of the 74 schools reported that they didn't have any technology needs.

Equipment

Interactive Whiteboards

Almost every school visited had at least one interactive whiteboard (IWB) and most had multiples. Some schools said they had all they needed. An IWB is a presentation device that is connected to a computer. Users can display and manipulate computer images through a digital projector to the board itself. The software can be controlled from the computer or directly from the board, using a pen or highlighting tool as a pointer or to add notes. The teacher or student can perform functions including moving images using his/her finger as a mouse. All activities performed on the board can be saved or printed out.

Its appeal lies in the opportunity for use of dynamic, interactive images, animations, video, and text of a size visible to an entire classroom. In order to ensure that the IWBs are used as a tool to support learning, teachers must be properly equipped not only with the technical capability with IWBs but also with a clear understanding of interactivity, active learning strategies, scaffolding of student learning, and engagement facilitated in whole-class and small group instruction. (Lemke, et al., 2009)

Classroom Response Systems

The Classroom Response Systems or "Clickers" technology was a favorite among site visit schools and was frequently mentioned in connection with individualized instruction, which will be discussed in more depth below. Clickers are devices, normally deployed one per student, that

allow teachers to pose questions and electronically collect responses from individual students. The value of this equipment:

- Checking for student understanding of the content being taught in real time
- Diagnosing student misconceptions and misunderstanding
- Displaying the responses of the group to trigger discussion and reflection
- Gathering formative data to guide instruction
- Saving time in the administration and scoring of quizzes (Lemke, et al., 2009).

Digital Microscopes

A digital microscope is a regular microscope with a digital camera built into it. Usually they connect to computers through a USB port. Once the microscope is connected to a computer, the images seen through the microscope can be shown on a computer monitor or projected to a screen. They can also be saved in a file or printed. This allows many students to see a slide at once. The image can be used again later if students need to review the slide or perform additional work related to the slide.

Simulations

A few schools reported the use of simulations for science laboratory experiments, such as virtual frog dissections. According to Lemke, "Simulations are interactive models that emulate real-world phenomenon through pre-defined rules of operation, behavior of objects, and interaction among the objects they encompass"(Lemke, et al., 2009).

Text Readers

Several versions of text reader devices are now available, but the first and possibly best known is the Kindle from Amazon. Some Arkansas schools already have these and others are purchasing them with stimulus funding. A November 2009 EdWeek article described the potential for this equipment:

The stage is set for a radical change in education: going electronic to replace the dozens of textbooks students use in school. The availability of these portable readers, as well as the use by some schools of easily assembled and updated digitally based hard-copy readings for students, gives us a glimpse of the classroom of the future (Miles, Michael L. and Cooper, Bruce S., 2009).

Classroom Audio Enhancement

"One emerging technology is classroom audio enhancement, which evenly distributes the teacher’s voice above background noise in the classroom, making the sound more intelligible to students. According to the Consortium of School Networking , research shows that all students, and especially those with attention deficit problems and those for whom listening is an effective learning style, benefit from this technology (Grinager, Heather, 2006).

Wireless Equipment

An increased use of wireless technology equipment was noted during site visits. Many schools had laptop carts in multiple classrooms. These carts may be either wireless or hard-wired. More teachers had wireless laptops for their instruction than had them during last biennium's study. This enables them to move about the classroom observing student's work while projecting images to other equipment and interacting with students using clickers.

Programs

EAST

The Environmental and Spatial Technology Initiative (EAST) is one of the most prevalent technology programs for student training in the state. The EAST program is offered in 179 K-12 public schools in the state. The program is even offered in some elementary schools. EAST is one of the state initiatives listed in the U.S. Department of Education's (DOE) 2004 National Education Technology Plan. The DOE plan states that "the EAST philosophy includes: An educational environment that includes state of the art, real-world tools and reflects a work-like setting." According to the EAST program, "The non-profit EAST initiative originated in a single Arkansas school in 1995 expanding to programs in eight states since that time."

EAST offers the following technical courses to assist students with their service learning projects:

- Microsoft Operating Systems/Windows Server Management
- GIS/GPS (Geographic Information Systems/Global Positioning System) with Trimble, ESRI, and Intergraph products
- Introductory GIS/GPS
- Geospatial Projects
- Advanced Vector Analysis and Visualization
- Advanced Cartography
- Advanced Image Processing and Visualization
- 3D Animation with Softimage XSI (introductory and advanced)
- Architectural Design with Bentley's MicroStation
- PC Upgrade and Repair
- Microsoft Visual Basic and Visual Studio (introductory and advanced)
- Website Design with Macromedia (Dreamweaver, Flash, and Fireworks)
- Digital Video Editing with Macrosystem's Casablanca system
- Virtual Reality Development Lab with Digital Tech Frontier
- 3D Modeling and Engineering with Solid Edge from EDS

http://www.eastinitiative.org/howeastworks/technicaltraining.aspx retrieved March 4, 2010

Web 2.0 Applications

Educators in the state are turning to Web 2.0 applications because they facilitate interactive information sharing and collaboration on the World Wide Web. At a site visit in the mountains of North Central Arkansas we observed a class being taught through a teacher's previously prepared podcast. The increased use of these applications have resulted in need for increased bandwidth to support Web 2.0 applications.

Practices

Data-driven Individualized Instruction

According to the National Dropout Prevention Center:
Differentiated Instruction is an instructional concept that maximizes learning for ALL students—regardless of skill level or background. It's based on the fact that in a typical classroom, students vary in their academic abilities, learning styles, personalities, interests, background knowledge and experiences, and levels of motivation for learning. When a teacher differentiates instruction, he or she uses the best teaching practices and strategies to create different pathways that respond to the needs of diverse learners.
http://www.dropoutprevention.org/effstrat/individualized_instruction/overview.htm.
Technology and data systems capable of sophisticated student data analyses enable teachers to identify specific needs for individual students. The systems are readily accessible throughout the state. In fact, according to several national sources such as the Data Quality Campaign, Arkansas ranks ahead of many states in this area.

Site visit discussions brought to light a continuum in the way schools use those existing information systems efficiently. Some schools shared formative assessment data in teaching teams or Professional Learning Communities (PLCs) while others created school-wide data reports or profiles for every student including an array of student testing records. For the most part, teachers don't seem to be accessing the student data on-line. Some of the school-wide achievement data systems, as demonstrated during site visits, were on sticky-notes on a board in a teacher planning area or in massive three-ring binders. The data didn't seem to be used in connection with other student records, such as attendance, grades, or assignments, which are in separate data systems. One school requested a data analyst at the building level to sort through and organize test data so that teachers could use data without having to invest time organizing the data into a format that could be used to identify individual student needs.

In site visits schools were asked if they implemented differentiated or individualized instruction. Approximately 90% said yes, but the practices described varied greatly. Many of the responses indicated that a variety of computer software is used to allow students to do additional work at their own pace and to assess students in a way that will facilitate individualized instruction. Two commonly mentioned examples of this software are JEDI and PLATO.

Improving Assessment and Evaluation

Individualized instruction is made possible to a large degree by digital assessments. Schools reported using a variety of providers for assessment services, including many of the Education Services Cooperatives, The Learning Institute, individual school districts, and purchased software and services. Clickers, discussed previously, may be used as a more informal and more direct method of student assessment.

Teachers see the results for each student individually on a computer, gaining immediate insight into “knowing what the students know,” allowing them to adjust classroom time to meet the needs of the students (Grinager, 2010).

Professional Development

The need for teacher professional development in technology was expressed by several schools visited. Like other types of professional development, principals and teachers indicated a need for embedded training for an extended period of time to ensure that skills newly learned outside the classroom setting were properly re-enforced as teachers put them into practice back in the classroom. Comments received from the site visit participants seemed to stress that follow-up support was more important in the area of classroom technology than in other areas where teachers are more familiar with the subject matter.

Distance Learning

Data from the district survey concerning distance learning shows that 1,079 sections of district learning were provided to 9,688 students. According to the survey, distance learning is not used by 49 districts. Those not offering distance learning include some of the larger districts in the state as well as some of the smallest. Fifteen districts with fewer than 1,200 students do not use distance learning; and conversely, fifteen districts with 3,000 students or more also do not use distance learning. The average number of sections of distance learning offered in districts with distance learning is six, with one district offering 33 units. This use of technology may reduce the need for certified teaching staff. Distance learning students may be supervised by an adult facilitator who is not necessarily a certified teacher.

The following are excerpts from the "Arkansas Department of Education Rules Governing Distance Learning," July 11, 2005.
3.01 "Adult Facilitator" is the person responsible for supervising and assisting the students at the receiving site. The adult facilitator must be an adult approved by the school district.

4.03 All distance-learning courses shall have an adult facilitator to supervise any instructional activity where students meet as a group.
4.05 An adult facilitator must be present when student achievement assessments used to determine a student's final grade are administered in a distance-learning course. The student achievement assessments shall be designed to assess the degree to which the students have mastered existing Arkansas Course Content Standards.
6.02 Class size for synchronous distance-learning courses shall be the same as for courses not taught by distance learning as specified in the Arkansas Standards for Accreditation. Class size requirements do not apply to asynchronous distance-learning instruction.
6.03 Student interaction with the primary instructor or an appropriately licensed teacher(s) shall be available at a ratio of no more than 30 students per class and 150 students each day for both synchronous and asynchronous courses.
7.00 ADULT SUPERVISION
These rules provide minimum distance-learning educational supervision requirements only and are not designed to replace legal or other student supervision responsibilities schools have to properly protect and supervise students.

Parent Communication

Technology is increasingly serving as the primary vehicle for supporting parent involvement, which many researchers indicate is a critical strategy for reducing the achievement gap. Dr. Jay Barth and Dr. Keith Nitta, in their study on the achievement gap, reported: "Finally, programs that engage parents to become knowledgeable and engaged in their children's education … have been proven to close the achievement gap."

According to the "Arkansas Comprehensive School Improvement Plan (ACSIP) Handbook": Parental involvement means the participation of parents in regular, two-way, and meaningful communication involving student academic learning and other school activities, including ensuring—

1. that parents play an integral role in assisting their child's learning;
2. that parents are encouraged to be actively involved in their child's education at school;
3. that parents are full partners in their child's education and are included, as appropriate, in decision-making and on advisory committees to assist in the education of their child; and
4. the carrying out of other activities, such as those described in section 1118 of the ESEA**.**

In the site visits, schools reported several online tools for communicating with parents. All districts have websites where notices to parents can be posted along with district information required by law to be posted. Schools reported communicating with parents by email when information is specific to certain students. Software packages such as Edline, Parent Link, and Grade Quick are being used to varying degrees to post grades and homework assignments. The limitation of these tools for communication is that many students' homes do not have computers or internet access.

Infrastructure

School-level Technology Support

In our site visit interviews, some schools indicated a need for building or school-level technology support. The greatly increased use of technology in the classroom has made real-time support essential. District technology support personnel, who often serve multiple schools within a district and perhaps more than one district, were deemed inadequate to support student learning in the current education model. The increased dependence of teachers on technological equipment, such as interactive whiteboards, results in lost instructional time if the equipment malfunctions and tech support has to be scheduled through the district office.

Bandwidth / E-Rate

A significant component of educational technology infrastructure that will need to be re-structured as technology permeates the educational environment is bandwidth for the schools. One school leader indicated that bandwidth for one district campus was restricted based on a determination of the number of schools on that campus without regard to the number of buildings and different programs provided on that campus. In an effort to resolve bandwidth limitations, one district has gone so far as to purchase its own fiber to its facilities, selling excess bandwidth to commercial entities along the line. In contrast, there are still areas of the state with no broadband service other than that provided through DIS/ADE. The State Educational Technology Directors Association (SETDA) established recommendations in 2008 for external bandwidth of 10 Mbps per 1,000 students. Arkansas is typically 3 Mbps per district at this time.

All schools have at least one T-1 (1.54 Mbps) line provided through the Arkansas Public School Computer Network (APSCN). ADE also provides each district using distance learning with a line for Compressed Interactive Video (CIV) for distance learning. The E-Rate applications for the APSCN system and distance learning networks are filed and processed by DIS for all E-rate eligible services provided through the state network. DIS adds a charge for line of service, but it is not a provider. Historically the E-Rate funds are received at the end of a year's service by a provider. With the automation of some of the E-Rate processes the funds may be received during the last quarter of the funding year and the first quarter of the following year. Timing of the receipt of funds is dependent on federal approval processes.

The statewide E-Rate discount is about 70%, but if the application and processing were handled by individual districts some districts might receive 90% discounts and others possibly 50% discounts due to inequities in the number of free and reduced lunch (FRL) recipients. Districts with fewer FRLs would receive the lower discounts. Districts do apply for their own E-Rate discount for telephone services, web hosting, and other services that are billed by the provider directly to the district. The funds flow from the E-rate program through the providers to the applicant. A district may receive a discount on invoices or file a request for reimbursement from its provider.

NATIONAL DEVELOPMENTS

Three national proposals are suggesting new directions in educational technology. Brief descriptions of each are provided below.

A Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act

The Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act proposes an increased emphasis on technology as an educational resource. Two of five strategies for building capacity to support education are technology related. They are: 1) supporting the more effective use of data to identify local needs and improve student outcomes; and 2) improving capacity at the state and district levels to support the effective use of technology to improve instruction.

The Blueprint also calls for stronger instruction in literacy and in STEM, aligned with improved standards that build toward college- and career-readiness. This focus on STEM education will be carried out by "providing substantial support to high-need districts in implementing high-quality instruction in at least mathematics or science and may also include technology or engineering."

"Priority may also be given to states that use technology to address student learning challenges, which may include the principles of universal design for learning; cooperate with outside

partners with STEM expertise; or propose to prepare more students, including students from underrepresented groups, for advanced study and careers in STEM."

National Educational Technology Plan 2010

The draft "National Educational Technology Plan 2010" released March 10, 2010 urges an increased and more imaginative use of educational technology. The plan calls for leveraging "the power of technology to provide personalized learning instead of a one-size-fits-all curriculum". The plan outlines strategies to ensure that all types of learners are able to benefit from technology. "Despite significant gains, learners from low-income communities and underserved minority groups still are less likely to have computers and Internet access and have fewer people in their social circles with the skills to support technology-based learning at home."

National Broadband Plan

The National Broadband Plan contains recommendations to help improve online learning opportunities, both inside and outside the classroom; recommends ways to gather and provide information that fosters innovation; and recommends changes to the E-rate program. One of the educational focuses of the plan is the improvement of access to online instruction. The plan states,

> Every day, teachers across America help students strive to reach their full potential. Many students learn best when instruction is personalized to meet their individual learning needs, and online learning can help teachers provide this. Both students and teachers will benefit from high quality online learning solutions. Innovation in online learning will require research and development of online learning systems, the creation of new online course material and standardized ways of sharing it, and lowering barriers to sharing courses and materials across state lines.

SUMMARY

As a part of the larger adequacy study, this report has addressed educational technology expenditures exclusively.

Adequacy: In 2009, districts spent $39.7 million statewide on technology from foundation funding, compared to $26.8 million in 2007. This equates to approximately $86.59 per student in 2008-09, compared with $201 funded in the matrix. Low performing districts, districts with less than 500 students, and districts with a high percentage of students in poverty spend significantly less of their foundation funding for technology than other districts. Technology expenditures from all sources of funding were $75.742 million or $165.10 per pupil, nearly double the amount of foundation funding expenditures which were $39.725 million or $86.59. Non-foundation funding for technology includes other state-funded technology programs such as distance learning and portions of NSLA categorical funding. A few districts have a dedicated mill for technology. Federal sources and support include Title I, Title IID, and the E-Rate Program. In FY2010 the American Recovery and Reinvestment Act funding is being used extensively for educational technology.

State Requirements: ADE technology-related requirements influence the need for technology funding in the schools. There are limited technology requirements in the Standards for Accreditation and in the curriculum frameworks. The state's Facilities Manual requires certain technology infrastructure as part of school construction. ADE develops a state technology plan that structures how districts provide technology in schools. Individual school districts are also required to develop technology plans. These plans provide E-Rate documentation, also.

Selected District and School Technology Uses: New technology that was observed in this biennium's site visits included digital microscopes, simulations, surround sound, wireless equipment, and text readers. Many schools reported having enough interactive whiteboards, document cameras, etc. Most of these schools noted that stimulus funding in the current fiscal year was the source of the increased equipment. Ten of the 74 schools reported that they didn't have any technology needs. One technology-based program observed throughout the state was the Environmental and Spatial Technology Initiative (EAST) program. The EAST program is offered in 179 K-12 public schools in the state. An increasing use of Web 2.0 applications was noted.

Site visits pointed out variation for schools in the use of information systems efficiently for individualizing student instruction. They ranged from sharing formative assessment data in teaching teams or Professional Learning Communities (PLCs) to school-wide data reports or profiles for every student including an array of student testing records. The need for teacher professional development in technology was expressed by several schools visited. Like other types of professional development, principals and teachers indicated a need for embedded training for an extended period of time to ensure that skills newly learned outside the classroom setting were properly re-enforced as teachers put them into practice back in the classroom.

Data from the district survey concerning distance learning shows that 1,079 sections of district learning were provided to 9,688 students. According to the survey, distance learning is not used by 49 districts. Those not offering distance learning include some of the larger districts in the state as well as some of the smallest.

Technology is increasingly serving as the primary vehicle for supporting parent involvement which many researchers indicate is a critical resource for reducing the achievement gap. In the site visits, schools reported several online tools for communicating with parents. All districts have websites where notices to parents can be posted along with district information required by law to be posted. Schools report communicating with parents by email when information is specific to certain students. Software packages such as Edline, Parent Link, and Grade Quick are being used to varying degrees to post grades and homework assignments.

In our site visit interviews, many schools indicated a need for building or school-level technology support. The greatly increased use of technology in the classroom made real-time support essential.

A significant component of educational technology infrastructure that will need to be re-structured as technology permeates the educational environment is bandwidth for the schools. All districts have at least one T-1 (1.54 Mbps) line provided through the Arkansas Public School Computer Network (APSCN). ADE also provides a line for Compressed Interactive Video (CIV) for distance learning. The State Educational Technology Directors Association (SETDA) established recommendations in 2008 for external bandwidth of 10 Mbps per 1,000 students [Arkansas is typically 3 Mbps per district at this time].

National Developments: Several areas of national education policy have the potential for impacting the direction of Arkansas educational practice and the resulting state funding. New strategies for all areas of education, including technology, will be necessitated by federal funding programs that reward innovation in states and school districts.

The Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act proposes an increased emphasis on technology as an educational resource. The Blueprint also calls for stronger instruction in literacy and in science, technology, engineering, and mathematics (STEM), aligned with improved standards that build toward college- and career-readiness.

The draft "National Educational Technology Plan 2010" released March 10, 2010 urges an increased and more imaginative use of educational technology. The plan calls for leveraging "the power of technology to provide personalized learning instead of a one-size-fits-all curriculum".

The National Broadband Plan contains recommendations to help improve online learning opportunities, both inside and outside the classroom; recommends ways to gather and provide information that fosters innovation; and recommends changes to the E-rate program.

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APPENDIX A – 2009 Total Technology Expenditures

LEA	DISTRICT	2009 Total Technology Expenditures From Unrestricted Funds Allocated to Matrix Funding	2009 Total Technology Expenditures From Unrestricted Funds Allocated to Matrix Funding Per Pupil	2009 Total Technology Expenditures from All Funding Sources	2009 Total Technology Expenditures Per Pupil
0101000	DEWITT SD	$37,068.48	$25.90	$326,619.00	$228.21
0104000	STUTTGART SD	$152,230.49	$84.36	$224,727.70	$124.54
0201000	CROSSETT SD	$312,830.57	$162.85	$394,774.19	$205.50
0203000	HAMBURG SD	$139,482.02	$72.00	$214,517.12	$110.73
0302000	COTTER SD	$43,687.85	$67.68	$83,324.62	$129.08
0303000	MOUNTAIN HOME SD	$661,137.52	$166.73	$793,357.33	$200.08
0304000	NORFORK SD	$48,044.35	$113.46	$85,354.12	$201.57
0401000	BENTONVILLE SD	$1,281,217.04	$102.21	$3,190,405.81	$254.53
0402000	DECATUR SD	$5,549.15	$10.86	$7,271.08	$14.23
0403000	GENTRY SD	$15,755.26	$11.08	$149,619.84	$105.24
0404000	GRAVETTE SD	$244,626.48	$140.60	$457,622.32	$263.02
0405000	ROGERS SD	$103,953.38	$7.67	$2,415,041.25	$178.11
0406000	SILOAM SPRINGS SD	$477,922.06	$127.68	$590,410.23	$157.73
0407000	PEA RIDGE SD	$119,669.20	$77.07	$123,393.21	$79.47
0501000	ALPENA SD	$14,728.98	$25.42	$77,544.59	$133.84
0502000	BERGMAN SD	$77,363.20	$73.10	$92,763.40	$87.65
0503000	HARRISON SD	$539,348.44	$191.85	$616,706.58	$219.37
0504000	OMAHA SD	$4,284.46	$10.09	$85,517.66	$201.30
0505000	VALLEY SPRINGS SD	$80,854.68	$84.60	$86,266.25	$90.26
0506000	LEAD HILL SD	$12,290.15	$34.12	$53,833.06	$149.45
0601000	HERMITAGE SD	$11,951.64	$24.18	$23,731.38	$48.01
0602000	WARREN SD	$240,263.59	$161.19	$331,284.45	$222.25
0701000	HAMPTON SD	$76,580.94	$121.74	$85,705.47	$136.24
0801000	BERRYVILLE SD	$143,729.12	$77.96	$313,001.64	$169.78
0802000	EUREKA SPRINGS SD	$38,450.44	$58.81	$49,697.10	$76.01
0803000	GREEN FOREST SD	$86,146.56	$71.35	$141,012.36	$116.79
0901000	DERMOTT SD	$17,655.62	$37.29	$203,190.96	$429.18
0903000	LAKESIDE SD	$59,767.77	$47.79	$500,491.13	$400.18
1002000	ARKADELPHIA SD	$171,663.29	$86.16	$263,516.88	$132.27
1003000	GURDON SD	$0.00	$0.00	$30,525.81	$39.24
1101000	CORNING SD	$86,124.90	$80.36	$206,267.53	$192.47
1104000	PIGGOTT SD	$103,671.55	$104.13	$226,242.74	$227.24
1106000	RECTOR SD	$0.00	$0.00	$0.00	$0.00
1201000	CONCORD SD	$26,320.88	$54.50	$30,897.04	$63.98
1202000	HEBER SPRINGS SD	$66,740.17	$38.77	$187,507.98	$108.91
1203000	QUITMAN SD	$13,950.60	$22.61	$108,433.17	$175.77
1204000	WEST SIDE SD	$38,821.46	$78.09	$49,585.85	$99.74
1304000	WOODLAWN SD	$47,945.17	$85.23	$53,567.26	$95.22
1305000	CLEVELAND COUNTY SD	$23,174.59	$27.31	$35,068.99	$41.33
1402000	MAGNOLIA SD	$287,156.01	$98.51	$400,042.14	$137.23
1408000	EMERSON-TAYLOR SD	$47,148.08	$73.15	$145,001.07	$224.96
1503000	NEMO VISTA SD	$7,046.98	$14.01	$9,246.15	$18.38
1505000	WONDERVIEW SD	$14,724.54	$36.28	$48,766.45	$120.16
1507000	SO. CONWAY CO. SD	$216,145.51	$93.88	$282,966.45	$122.90

LEA	DISTRICT	2009 Total Technology Expenditures From Unrestricted Funds Allocated to Matrix Funding	2009 Total Technology Expenditures From Unrestricted Funds Allocated to Matrix Funding Per Pupil	2009 Total Technology Expenditures from All Funding Sources	2009 Total Technology Expenditures Per Pupil
1601000	BAY SD	$40,620.54	$74.42	$131,481.55	$240.88
1602000	WESTSIDE CONS. SD	$138,073.37	$85.55	$161,256.69	$99.91
1603000	BROOKLAND SD	$48,378.22	$32.44	$114,183.09	$76.57
1605000	BUFFALO IS. CENTRAL SD	$0.00	$0.00	$0.00	$0.00
1608000	JONESBORO SD	$420,347.20	$82.02	$525,702.24	$102.57
1611000	NETTLETON SD	$212,391.23	$68.10	$304,940.74	$97.77
1612000	VALLEY VIEW SD	$222,107.96	$102.79	$255,743.59	$118.36
1613000	RIVERSIDE SD	$11,912.25	$15.09	$130,636.43	$165.46
1701000	ALMA SD	$461,175.78	$136.96	$487,804.92	$144.87
1702000	CEDARVILLE SD	$51,497.13	$54.98	$57,775.32	$61.68
1703000	MOUNTAINBURG SD	$50,409.60	$71.33	$59,271.59	$83.87
1704000	MULBERRY SD	$41,635.51	$100.32	$72,173.26	$173.89
1705000	VAN BUREN SD	$329,776.94	$56.47	$391,357.53	$67.02
1802000	EARLE SD	$0.00	$0.00	$43,819.81	$56.29
1803000	WEST MEMPHIS SD	$64,607.47	$10.94	$491,090.01	$83.16
1804000	MARION SD	$449,331.75	$115.13	$514,105.87	$131.73
1805000	TURRELL SD	$0.00	$0.00	$85,064.97	$250.98
1901000	CROSS COUNTY SD	$22,165.32	$36.64	$409,060.05	$676.20
1905000	WYNNE SD	$250,456.12	$86.13	$334,870.61	$115.15
2002000	FORDYCE SD	$117,912.19	$116.88	$166,181.52	$164.72
2104000	DUMAS SD	$62,155.90	$39.32	$173,655.29	$109.84
2105000	MCGEHEE SD	$170,021.04	$146.01	$223,691.63	$192.10
2202000	DREW CENTRAL SD	$75,053.25	$77.36	$89,757.96	$92.51
2203000	MONTICELLO SD	$236,786.60	$112.26	$373,221.75	$176.95
2301000	CONWAY SD	$1,134,148.40	$124.86	$1,483,807.32	$163.36
2303000	GREENBRIER SD	$476,767.02	$161.20	$661,022.70	$223.50
2304000	GUY-PERKINS SD	$49,837.43	$110.06	$57,755.73	$127.55
2305000	MAYFLOWER SD	$776.00	$0.75	$45,286.64	$44.03
2306000	MT. VERNON/ENOLA SD	$34,284.59	$68.41	$106,653.71	$212.80
2307000	VILONIA SD	$160,036.79	$54.01	$369,728.10	$124.77
2402000	CHARLESTON SD	$31,873.48	$35.57	$69,653.31	$77.74
2403000	COUNTY LINE SD	$36,144.63	$67.99	$41,948.34	$78.91
2404000	OZARK SD	$144,976.76	$78.50	$173,099.64	$93.73
2501000	MAMMOTH SPRING SD	$33,342.72	$80.26	$37,945.62	$91.34
2502000	SALEM SD	$44,661.14	$61.06	$113,478.21	$155.14
2503000	VIOLA SD	$16,146.94	$40.82	$38,555.17	$97.47
2601000	CUTTER-MORNING STAR SD	$137,670.38	$203.85	$197,071.52	$291.81
2602000	FOUNTAIN LAKE SD	$406,139.81	$338.22	$688,004.14	$572.95
2603000	HOT SPRINGS SD	$616,488.84	$169.12	$917,858.41	$251.79
2604000	JESSIEVILLE SD	$57,277.71	$64.61	$84,461.41	$95.27
2605000	LAKE HAMILTON SD	$513,348.60	$130.52	$578,485.77	$147.09
2606000	LAKESIDE SD	$548,634.82	$187.34	$936,917.03	$319.93
2607000	MOUNTAIN PINE SD	$234.32	$0.39	$105,892.04	$178.23
2703000	POYEN SD	$99,705.85	$176.76	$151,615.41	$268.79
2705000	SHERIDAN SD	$379,737.26	$91.84	$418,112.14	$101.12

LEA	DISTRICT	2009 Total Technology Expenditures From Unrestricted Funds Allocated to Matrix Funding	2009 Total Technology Expenditures From Unrestricted Funds Allocated to Matrix Funding Per Pupil	2009 Total Technology Expenditures from All Funding Sources	2009 Total Technology Expenditures Per Pupil
2803000	MARMADUKE SD	$20,159.50	$27.74	$188,084.17	$258.77
2807000	GREENE CO. TECH SD	$500,117.51	$151.48	$541,979.11	$164.16
2808000	PARAGOULD SD	$388,122.06	$136.92	$633,602.66	$223.51
2901000	BLEVINS SD	$12,650.86	$19.74	$165,375.45	$258.00
2903000	HOPE SD	$256,179.92	$100.96	$336,106.71	$132.46
2906000	SPRING HILL SD	$49,435.67	$102.59	$53,433.55	$110.89
3001000	BISMARCK SD	$48,572.48	$51.98	$88,967.34	$95.21
3002000	GLEN ROSE SD	$23,491.56	$23.76	$25,932.73	$26.23
3003000	MAGNET COVE SD	$67,053.74	$90.99	$151,764.25	$205.95
3004000	MALVERN SD	$253,900.70	$122.81	$606,760.10	$293.50
3005000	OUACHITA SD	$0.00	$0.00		$0.00
3102000	DIERKS SD	$22,828.81	$44.47	$63,908.01	$124.50
3104000	MINERAL SPRINGS SD	$24,149.02	$47.06	$104,539.82	$203.73
3105000	NASHVILLE SD	$131,619.70	$69.74	$284,581.40	$150.80
3201000	BATESVILLE SD	$38,210.65	$14.41	$332,250.35	$125.33
3203000	CUSHMAN SD	$7,971.25	$33.74	$23,329.75	$98.74
3209000	SOUTHSIDE SD	$102,507.36	$71.60	$122,115.41	$85.30
3211000	MIDLAND SD	$0.00	$0.00	$47,692.61	$92.36
3212000	CEDAR RIDGE SD	$63,398.40	$79.03	$164,975.12	$205.65
3301000	CALICO ROCK SD	$25,201.10	$59.08	$49,758.57	$116.65
3302000	MELBOURNE SD	$48,031.00	$54.95	$54,482.36	$62.33
3306000	IZARD CO. CONS. SD	$37,201.23	$73.26	$82,516.10	$162.50
3403000	NEWPORT SD	$192,578.81	$130.90	$332,877.39	$226.27
3405000	JACKSON CO. SD	$21,729.49	$27.76	$88,279.84	$112.78
3502000	DOLLARWAY SD	$181,422.74	$104.49	$265,805.72	$153.09
3505000	PINE BLUFF SD	$558,614.12	$113.78	$708,931.09	$144.40
3509000	WATSON CHAPEL SD	$232,485.88	$75.17	$350,857.37	$113.45
3510000	WHITE HALL SD	$164,982.66	$53.51	$599,034.21	$194.29
3601000	CLARKSVILLE SD	$289,603.95	$113.47	$311,384.84	$122.01
3604000	LAMAR SD	$123,040.70	$110.51	$140,374.42	$126.08
3606000	WESTSIDE SD	$5,841.25	$9.65	$143,771.30	$237.58
3610000	LAWRENCE COUNTY SD	$115,038.05	$107.07	$146,149.41	$136.02
3701000	BRADLEY SD	$11,661.54	$31.16	$26,831.21	$71.69
3704000	LAFAYETTE COUNTY SD	$152,364.37	$196.84	$173,959.70	$224.74
3804000	HOXIE SD	$0.00	$0.00	$184,731.94	$185.73
3806000	SLOAN-HENDRIX SD	$61,851.78	$118.29	$106,228.17	$203.16
3809000	HILLCREST SD	$16,651.58	$37.96	$82,052.83	$187.04
3904000	LEE COUNTY SD	$97,562.49	$86.01	$338,455.32	$298.39
4003000	STAR CITY SD	$122,937.47	$72.40	$250,443.39	$147.50
4101000	ASHDOWN SD	$157,443.13	$102.34	$200,643.13	$130.41
4102000	FOREMAN SD	$23,827.44	$47.30	$75,593.72	$150.05
4201000	BOONEVILLE SD	$148,439.57	$102.98	$171,197.72	$118.77
4202000	MAGAZINE SD	$1,318.45	$2.39	$51,925.89	$94.15
4203000	PARIS SD	$96,133.52	$85.32	$294,867.29	$261.71
4204000	SCRANTON SD	$34,935.91	$87.92	$43,009.11	$108.24

LEA	DISTRICT	2009 Total Technology Expenditures From Unrestricted Funds Allocated to Matrix Funding	2009 Total Technology Expenditures From Unrestricted Funds Allocated to Matrix Funding Per Pupil	2009 Total Technology Expenditures from All Funding Sources	2009 Total Technology Expenditures Per Pupil
4301000	LONOKE SD	$254,014.85	$136.27	$270,998.58	$145.38
4302000	ENGLAND SD	$108,853.30	$137.37	$236,266.55	$298.16
4303000	CARLISLE SD	$23,675.22	$33.09	$56,658.13	$79.19
4304000	CABOT SD	$1,430,490.20	$149.95	$2,454,003.62	$257.24
4401000	HUNTSVILLE SD	$129,241.06	$54.03	$232,227.65	$97.08
4501000	FLIPPIN SD	$37,011.18	$42.41	$68,133.60	$78.07
4502000	YELLVILLE-SUMMIT SD	$72,367.95	$84.18	$146,115.66	$169.97
4602000	GENOA CENTRAL SD	$64,859.11	$68.82	$160,489.21	$170.28
4603000	FOUKE SD	$74,081.16	$71.96	$89,531.03	$86.97
4605000	TEXARKANA SD	$287,340.51	$66.34	$385,749.30	$89.06
4701000	ARMOREL SD	$154,984.87	$343.84	$251,164.60	$557.21
4702000	BLYTHEVILLE SD	$62,628.62	$20.41	$277,804.24	$90.52
4706000	SO. MISS. COUNTY SD	$98,123.73	$77.07	$125,987.48	$98.95
4708000	GOSNELL SD	$119,025.10	$83.57	$127,096.11	$89.23
4712000	MANILA SD	$63,336.15	$61.81	$82,619.00	$80.63
4713000	OSCEOLA SD	$67,378.74	$43.23	$908,882.59	$583.13
4801000	BRINKLEY SD	$116,533.68	$158.61	$335,661.88	$456.85
4802000	CLARENDON SD	$38,528.80	$64.13	$171,086.77	$284.76
4901000	CADDO HILLS SD	$55,781.31	$105.64	$127,368.52	$241.21
4902000	MOUNT IDA SD	$20,525.64	$36.39	$42,029.53	$74.52
5006000	PRESCOTT SD	$302,033.01	$295.33	$460,864.94	$450.64
5008000	NEVADA SD	$0.00	$0.00	$80,249.62	$192.61
5102000	JASPER SD	$9,954.24	$11.30	$113,853.44	$129.19
5106000	DEER/MT. JUDEA SD	$221.96	$0.59	$51,581.78	$136.17
5201000	BEARDEN SD	$22,260.03	$36.60	$97,229.61	$159.89
5204000	CAMDEN FAIRVIEW SD	$136,143.29	$54.92	$175,276.61	$70.71
5205000	HARMONY GROVE SD	$64,840.29	$62.50	$142,035.70	$136.91
5206000	STEPHENS SD	$59,975.52	$160.15	$68,646.15	$183.30
5301000	EAST END SD	$18,118.65	$27.86	$140,597.20	$216.18
5303000	PERRYVILLE SD	$136,803.08	$130.53	$151,414.54	$144.47
5401000	BARTON-LEXA SD	$36,033.56	$46.86	$77,520.88	$100.81
5403000	HELENA/ W.HELENA SD	$250,360.37	$97.06	$806,069.02	$312.50
5404000	MARVELL SD	$0.00	$0.00	$100,703.88	$161.87
5501000	DELIGHT SD	$100,204.30	$303.79	$121,410.70	$368.08
5502000	CENTERPOINT SD	$41,325.28	$39.62	$122,904.23	$117.82
5503000	KIRBY SD	$0.00	$0.00	$651.92	$1.47
5504000	MURFREESBORO SD	$20,250.22	$40.07	$54,907.73	$108.66
5602000	HARRISBURG SD	$72,560.01	$63.38	$198,904.18	$173.75
5604000	MARKED TREE SD	$0.00	$0.00	$140,881.55	$230.38
5605000	TRUMANN SD	$2,568.10	$1.61	$122,071.54	$76.63
5607000	WEINER SD	$864.35	$2.53	$13,060.16	$38.18
5608000	EAST POINSETT CO. SD	$24,152.46	$31.73	$126,501.03	$166.20
5703000	MENA SD	$117,428.69	$60.02	$231,070.40	$118.11
5704000	VAN COVE SD	$49,966.55	$117.87	$67,958.35	$160.31
5705000	WICKES SD	$4,763.41	$6.82	$77,531.62	$111.03

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5706000	OUACHITA RIVER SD	$37,833.30	$53.85	$149,272.41	$212.48
5801000	ATKINS SD	$72,482.38	$71.56	$120,071.79	$118.55
5802000	DOVER SD	$141,015.24	$102.69	$171,832.36	$125.13
5803000	HECTOR SD	$62,772.56	$102.23	$173,732.91	$282.95
5804000	POTTSVILLE SD	$157,419.06	$98.91	$255,531.34	$160.56
5805000	RUSSELLVILLE SD	$499,636.92	$97.96	$974,900.70	$191.15
5901000	DES ARC SD	$37,215.96	$60.74	$42,491.30	$69.35
5903000	HAZEN SD	$0.00	$0.00	$59,108.20	$91.30
6001000	LITTLE ROCK SD	$2,984,693.06	$129.34	$7,305,233.51	$316.56
6002000	N. LITTLE ROCK SD	$0.00	$0.00	$1,017,134.37	$108.99
6003000	PULASKI CO. SPEC. SD	$1,771,788.88	$98.09	$2,660,036.47	$147.27
6102000	MAYNARD SD	$34,399.44	$69.29	$37,625.39	$75.79
6103000	POCAHONTAS SD	$142,378.83	$77.87	$186,430.11	$101.96
6201000	FORREST CITY SD	$432,973.59	$126.58	$776,049.64	$226.88
6202000	HUGHES SD	$7,650.98	$17.00	$40,770.67	$90.60
6205000	PALESTINE-WHEATLEY SD	$21,654.95	$35.08	$23,591.91	$38.22
6301000	BAUXITE SD	$225,817.12	$163.06	$280,254.42	$202.37
6302000	BENTON SD	$387,634.47	$86.34	$862,079.77	$192.02
6303000	BRYANT SD	$581,864.07	$79.36	$963,534.32	$131.42
6304000	HARMONY GROVE SD	$68,953.10	$71.12	$76,704.60	$79.12
6401000	WALDRON SD	$92,361.68	$56.42	$126,178.73	$77.08
6502000	SEARCY COUNTY SD	$114,257.53	$122.00	$139,657.76	$149.12
6505000	OZARK MOUNTAIN SD	$53,452.92	$76.97	$92,519.00	$133.22
6601000	FORT SMITH SD	$1,042,538.14	$76.17	$1,483,041.02	$108.36
6602000	GREENWOOD SD	$394,182.56	$112.61	$454,781.64	$129.92
6603000	HACKETT SD	$28,340.53	$45.21	$66,558.40	$106.17
6604000	HARTFORD SD	$36,742.91	$97.23	$146,700.41	$388.22
6605000	LAVACA SD	$3,958.19	$4.51	$93,604.34	$106.54
6606000	MANSFIELD SD	$64,908.32	$65.72	$100,170.74	$101.43
6701000	DEQUEEN SD	$43,194.98	$17.37	$293,533.39	$118.03
6703000	HORATIO SD	$70,402.24	$80.68	$77,689.00	$89.04
6802000	CAVE CITY SD	$128,202.05	$95.78	$197,655.41	$147.67
6804000	HIGHLAND SD	$218,414.98	$139.02	$301,119.87	$191.67
6806000	TWIN RIVERS SD	$7,126.50	$20.35	$80,376.95	$229.54
6901000	MOUNTAIN VIEW SD	$6,346.23	$3.85	$191,582.66	$116.10
7001000	EL DORADO SD	$414,555.20	$89.98	$637,802.32	$138.44
7003000	JUNCTION CITY SD	$70,234.02	$120.19	$84,696.64	$144.94
7006000	NORPHLET SD	$75,614.94	$171.50	$113,912.44	$258.36
7007000	PARKERS CHAPEL SD	$61,506.73	$89.54	$68,557.98	$99.80
7008000	SMACKOVER SD	$204,633.26	$237.51	$267,444.08	$310.41
7009000	STRONG-HUTTIG SD	$43,908.96	$79.03	$109,255.58	$196.64
7102000	CLINTON SD	$7,862.68	$6.05	$56,974.31	$43.80
7104000	SHIRLEY SD	$24,452.61	$48.34	$49,542.48	$97.94
7105000	SOUTH SIDE SD	$23,481.50	$45.89	$48,052.70	$93.90
7201000	ELKINS SD	$161,758.18	$141.37	$222,569.19	$194.51

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7202000	FARMINGTON SD	$275,625.71	$130.21	$341,908.52	$161.53
7203000	FAYETTEVILLE SD	$777,977.63	$91.82	$1,582,985.33	$186.83
7204000	GREENLAND SD	$11,781.30	$14.64	$59,563.06	$74.00
7205000	LINCOLN SD	$139,736.67	$112.66	$614,882.81	$495.74
7206000	PRAIRIE GROVE SD	$166,961.16	$98.20	$289,344.37	$170.18
7207000	SPRINGDALE SD	$1,492,236.16	$86.03	$2,472,894.77	$142.57
7208000	WEST FORK SD	$126,545.58	$100.61	$158,097.98	$125.69
7301000	BALD KNOB SD	$41,478.64	$31.71	$156,987.35	$120.02
7302000	BEEBE SD	$204,637.34	$65.65	$226,563.71	$72.68
7303000	BRADFORD SD	$35,228.16	$70.32	$38,963.24	$77.77
7304000	WHITE CO. CENTRAL SD	$44,532.87	$64.94	$49,003.91	$71.46
7307000	RIVERVIEW SD	$75,563.13	$59.77	$83,768.78	$66.26
7309000	PANGBURN SD	$70,154.95	$93.52	$120,911.86	$161.18
7310000	ROSE BUD SD	$54,217.14	$67.20	$110,027.96	$136.38
7311000	SEARCY SD	$466,920.47	$120.22	$557,041.09	$143.43
7401000	AUGUSTA SD	$0.00	$0.00	$61,016.81	$124.80
7403000	MCCRORY SD	$19,433.26	$31.23	$82,618.58	$132.79
7503000	DANVILLE SD	$117,743.62	$131.29	$211,059.00	$235.34
7504000	DARDANELLE SD	$188,675.44	$97.13	$219,186.08	$112.84
7509000	WESTERN YELL CO. SD	$19,891.91	$42.53	$153,923.91	$329.12
7510000	TWO RIVERS SD	$58,786.64	$62.55	$298,781.89	$317.91