



LAKELAND CENTRAL SCHOOL DISTRICT

LONG-RANGE TECHNOLOGY PLAN

Revised August 2015

Prepared by Dwayne Hoffmann, Director of Technology
and
Linda Brandon, Manager of Instructional Technology

Mission Statement

The Lakeland Central School District accepts the challenge of preparing students for a rapidly changing world, and provides the opportunity for all students to learn and succeed.

We encourage, promote and develop lifelong learning and educational excellence in a safe, secure, student-centered environment.

Our practices and policies are shaped by mutual respect, open and honest communication, ethical behavior, and personal responsibility.

Vision Statement and Summary

Our vision and goals for instructional technology align with our district mission statement. We aim to provide opportunities for our students to learn and succeed in a secure and safe student-centered environment to prepare them for success in a rapidly changing world. Technology is an important tool in meeting this goal when the technology is integrated with district-wide curriculum objectives and the New York State and Common Core Learning Standards.

Today's students have been raised with technology as a fundamental part of their lives. As a group, they are facile and comfortable using technology tools for tasks on a wide continuum of complexity. They are not, however, necessarily savvy in making the best decisions regarding the correct tools to use and HOW to use them. As educators, we are compelled to make digital literacy and ethics an important part of our technology vision and goals.

Technology has the capacity to create a more student-centered, self-directed learning environment for our learners. Since information is only a click away, rote learning and memorization is a thing of the past. Instead, we seek to empower students to find information to build knowledge and better understand our world. The teacher's role in this new learning environment changes from that of a tutor and sage to one of a facilitator and guide. The availability of inexpensive small, mobile devices makes it possible to put technology in the hands of more of our students than ever before. With effective utilization, the classroom becomes a center of creativity, collaboration and communication. Higher order thinking naturally ensues when students are navigating their own knowledge, with the expert guidance and support of teachers trained to help them problem-solve and learn Independently. No one learns to drive by listening to a lecture or reading a manual; experience on the road, in real life situations, prepares a person for a successful road test. The same holds true in the classroom. Students learn when they are active learners. Today's technology provides the opportunity for active learning in classrooms where students collaborate on tasks together, call upon expert advice from people outside of the classroom, and communicate their own knowledge to outsiders as well, through avenues such as websites, blogs, discussion boards, video channels, social networks and more. When provided with authentic audiences, students are motivated and empowered to produce high quality work that becomes part of a vast, global information network.

The following goals will help us attain our vision for the student-centered classroom:

- Increase the number of devices available to students to lower the ratio of device to student
- Provide a variety of software tools and online resources that are vetted by experts and are aligned with district and state learning outcomes and standards
- Provide systemic and continuous professional development for teachers to hone technology skills
- Provide professional development and curriculum planning time for teacher to redesign and redefine lessons
- Integrate digital citizenship and digital literacy into all technology professional development activities

Current Status

Equipment and Services

At the present time, there are approximately 4000 computers distributed throughout the buildings in the Lakeland district in the following manner:

- 4 desktop computers in each K-12 classroom (science classes have 6 computers)
- 99% of all classroom equipped with an interactive whiteboard to facilitate group instruction
- A networked printer in each classroom for both teacher and student use
- Computer controlled scientific probes for use in science laboratories
- Scanners, digital drawing tablets and digital cameras in art classrooms
- Midi keyboards and additional equipment appropriate for state of the art music classrooms
- Laptop computers for use on fieldtrips and for classes held outside the physical classroom/building
- Teacher laptops at the high school level
- Wireless infrastructure at all buildings
- Scanners and digital cameras for use by staff and students in the Library/Media Centers
- Appropriate furniture as needed to support the equipment
- Virtualized instructional and administrative servers support the infrastructure
- Computer labs in all buildings (secondary buildings have at least three labs)
- Mobile laptop carts in all buildings
- Video Conferencing units in all buildings
- Tablet technology at every building

Additionally, approximately 150 computers are used by administration.

All classrooms connect to a district-wide network with enhanced category 5 cabling and fiber backbones between wiring closets. Cisco switches are installed and support the infrastructure.

The district-wide network is supported by a single domain/tree. All buildings are connected to each other through gigabit fiber and the Internet through 2 gigabit connections to the LHRIC (Lower Hudson Regional Information Center). Technicians from the LHRIC are employed to support the network, servers, switches and routers.

Program Status

To support the size of our network and installation, the district employs the following personnel:

- Director of Information Technology
- Manager of Instructional Technology
- Assistant Director
- 2 network technicians (BOCES personnel)
- 8 computer facilitators
- 1 network/hardware technician
- 1 Webmaster

Under the current structure, the majority of training is offered in-house and is led by the Manager of Instructional Technology. District initiatives drive the type of professional development offered.

Daytime classes for teachers are held on an as needed or on request basis. As we add new equipment to our infrastructure and enhance our resources with new software and databases, we provide staff development to targeted curricular areas and/or grade levels, as appropriate. The goal is to empower teachers to use technology to enhance and enrich the curriculum while learning skills that also empower them to be more productive in their everyday classroom tasks.

Technology is ever changing, and so is our staff development program. A district-wide Technology Committee comprising of the Manager of Instructional Technology, the Director of Technology, librarians, computer facilitators, support engineers, teachers, administrators, students and community members meet quarterly to discuss the goals and objectives that drive our program and the tools and professional development necessary to meet current and future needs.

Current Budget (2015/2016)

The following is the 2015/2016 school year budget as approved by the voters in the Lakeland School District.

Item	Amount
Technical Support: Personnel (District)	\$792,788
Staff Development	16,018
Computer Hardware/Repair	242,415
Supplies	72,960
Software	164,836
Contractual Services: BOCES, etc.	<u>1,904,762</u>
	\$3,193,779

The technology infrastructure is supported through a combination of district technical staff and technical staff supplied by BOCES through a contract with the district. The BOCES contractual services not only include personnel costs to support the LAN operations, but also the Internet access fees and telecommunications costs for connection to the Internet and between the buildings.

Technology Objectives and Plans

Overview

The Lakeland Central School District recognizes that our educational system must provide students with the necessary tools and experiences to prepare them for the technologically advanced community they live in and for the one that will challenge them once they leave our community. In a world where information is abundant, instantaneous, and nearly effortless to attain, we must provide students with the tools to access this information (hardware), the knowledge of how to apply the tools (instruction), and, most importantly, the intellectual fuel to think critically and make rational decisions in a discriminate manner.

Our technology objectives must focus on educational goals and strategies that will help students become well-informed, imaginative and effective decision makers, capable of working collaboratively or independently. They must be able to create solutions to complex problems such as those they will face in our rapidly evolving Information Age.

We must offer a program that:

- Provides an adequate and reliable infrastructure
- Provides timely resolution to technical problems
- Provides equitable access to hardware and software resources
- Is adequately funded in both hardware/software and staff development
- Provides well-designed, ongoing professional development
- Includes technology integration in all district initiatives and written curriculum

Equipment and Services and their Relationship to District Goals

On average, a computer starts failing after five years and most warranties on equipment expire after three years. With the number of deployed computers in Lakeland, older equipment could dramatically increase the "Computer Hardware Repair" section in annual budgets. Additionally new software will require increased RAM, storage space and microprocessor speed. With these factors in mind, Lakeland began implementing a "virtual desktop" environment in 2014. Through the use of virtualization, the district is able extend the life of older equipment, because in this environment only the local keyboard, USB ports, video card and network card are used. Virtualization has been able to save the district in replacement and repair costs on its hardware.

Additionally, the district is able to keep its support staff needs in check through the use of a virtualized environment. In a virtualized environment, software, patches, update and fixes only have to be applied in one location and all devices get those changes immediately. Support staff can respond to a user's problem quicker by "shadowing" that user and seeing exactly what they see. If need be, they can even take over the device and correct the problem. This same technology can be used for staff developers to help individuals one-on-one. Staffing must be evaluated annually and adjusted according to changing needs. The district budget must be adjusted as well to accommodate these needs.

As our network has grown, so has our ability to use the resources to support our district goals and objectives. We are continuously looking for technology solutions to support our teachers, administrators, support staff and the community. Since technology is a valued component of teaching and learning at Lakeland, we have identified and developed specific technology solutions to help meet the needs of all learners according to their learning style.

Our community continues to drive our programs and initiatives. We have been fortunate to have a community that supports our budgets year after year which helps to keep Lakeland at the forefront of technology infrastructure and implementation. We have had a strong web presence for many years and have been awarded with numerous prizes and acknowledgements in that area. Our site is overseen by our district webmaster and is updated on a continually.

Staffing and Training

The deployment of new hardware must coincide with a comprehensive professional development plan that meets the needs of all district employees: administrators, teachers, and support staff. The goal common to these groups is identical: the effective utilization of the relevant tools that empower individuals to be productive, efficient, and creative in their work. The individual groups have quite different needs in terms of what tools they need to employ and master, and how they use the tools to advance and transform our system.

Administrators

Leadership plays a key role in successful school reform. In order to foster an environment and culture that is conducive to successful technology integration, we look to our administrators to set the example and provide the vision for its success in Lakeland. Proactive leaders who demonstrate the willingness to embrace and encourage continuous innovation provide the momentum needed to move our teachers forward with technology-enriched learning environments.

With these goals in mind, Lakeland provides ongoing professional development for administrators that focus on the following:

- Our student management system, eSchool
- Our website content management system, School World
- MyLearningPlan, the web-based professional development and observation tracking tool
- Data-driven decision making
- Office applications
- SMART Boards, specifically the recognition of effective use of the interactive board in instruction

Staff development is offered:

- by the district's Manager of Instructional Technology
- by the district's Webmaster
- by BOCES personnel
- by our district's curriculum chairpersons, through their data analysis workshops
- by Information Technology Aides for on-site troubleshooting and support
- by outside vendors, when necessary
- through our participation in the Technology Leadership Institute through the Lower Hudson Regional Information Center
- through participation in local technology conferences

We devote time at our Administrative Retreat to technology and data analysis initiatives. Additional training sessions are planned and scheduled at administrative meetings, after discussion of needs and new initiatives.

Support Staff

The support staff provides the backbone of our administrative infrastructure. They keep our schools running smoothly and efficiently, provide accurate and timely communications to the outside world, and maintain accurate data in order for the district to run productively.

Lakeland provides ongoing professional development for support staff that focuses on the following:

- Management systems relevant to job (eSchool, Finance Manager, IEP Direct, etc.)
- Productive use of office applications relevant to job
- Internet access for retrieval of information relevant to job

This training is provided by:

- Manager of Instructional Technology
- Director of Information Technology
- BOCES personnel, when appropriate
- Other outside vendors
- Information Technology Aides for on-site troubleshooting and support

The training is offered as daytime classes, one-on-one support, and customized classes, based on need. Occasional surveys are conducted to assess the needs of the individual departments, schools, and individuals.

Certified (Teaching) Staff

Our teachers are the key to transforming computers and peripherals into useful teaching tools. They guide the instruction and shape the instructional context in which technology is used. Teachers must be comfortable with technology in order to apply it appropriately so that students gain from its inclusion in the mix of tools used in today's classroom.

The training provided to teachers helps them develop a vision that is built on the understanding that technology is a tool that can offer solutions to longstanding teaching and learning problems. They are encouraged to "think with technology" in order to approach old problems in new ways.

Our staff development program deals with how to use technology tools, and also how to implement learning environments that effectively leverage these technology tools in today's changing world.

Through the efforts of an Instructional Technology Team, technology staff development is offered on Superintendent's Conference Days and on extended days when teachers are required to attend additional hours for professional development. These offerings allow staff members to take advantage of training opportunities during their contractual day.

In summary, the professional development for the teaching staff focuses on the following:

- Mastery of new web-based programs such as eSchool, Rubicon Atlas, Google Docs, School World, etc.
- Curriculum integration
- Best usage and application of tools available in the district (ie, SMART Boards, iPads, laptops, etc.)
- Use of technology to address other district goals (ie, Common Core Standards, Higher Order Thinking Skills, Communication and Collaboration, etc.)

The providers of the staff development are:

- Manager of Instructional Technology
- BOCES staff
- Webmaster
- Information Technology Aides for troubleshooting and answering questions and addressing concerns
- Certified staff members who have demonstrated exemplary technology integration initiatives in their classroom
- Vendors

The staff development takes place:

- On Superintendent's Conference Days and extended days
- After school during inservice classes
- Online and through blended learning initiatives
- In one-on-one sessions, as requested
- In after-school mini-sessions
- During daytime classes, as scheduled by the Manager of Instructional Technology
- At the LHRIC and PNW/BOCES

School Budget

Being a public school in New York State, operational budgets are prepared annually and presented to the voters for approval. Each year, during the implementation of this plan, the annual budget will be reviewed to accommodate the growth in the number of computers that are put into place, the necessary supplies, support services needed to keep the computers in operation, and the growth in infrastructure operational costs due the increase in technology usage.

Current Implementation

Computing Devices	Number of devices in use that are less than five years old
Desktop computers/Virtual Machine (VM)	2680
Laptops/Virtual Machine (VM)	1059
Chromebooks	84
Tablets less than nine (9) inches with access to an external keyboard	0
Tablets nine (9) inches or greater with access to an external keyboard	0
Tablets less than nine (9) inches without access to an external keyboard	0
Tablets nine (9) inches or greater without access to an external keyboard	384
Totals	4,187

Equipment Replacement

The Lakeland voters through support of our local budget ultimately determine the installation of replacement equipment into classrooms. Possible fund sources include a yearly IPA (Installment Purchase Agreement) through BOCES or a new bond referendum. Exact equipment will be assessed annually through the "Evaluation Process." Recently, Lakeland has moving in a new direction when it comes to replacing desktops. Lakeland is now taking a "virtual" approach when updating its desktop infrastructure. The district has begun replacing older failing equipment with "thin clients" and/or repurposing older functional equipment as virtual desktops. By virtualizing even older equipment, the district is able to provide the newest operating systems and newest applications on these systems, all with increased performance. By converting to a virtualized environment, the district saves money by not having to purchase new computers, through decreased energy needs, and lower support costs. This switch to a virtualized infrastructure began in 2014. The proposed rollout to buildings is listed below.

The district maintains an inventory of good working parts on failing or retired equipment and those parts are stored for reuse on working computers needing those parts. This equipment will be used temporarily until the equipment is replaced as part of the district overall plan. The process will save Lakeland on replacement parts on outdated equipment.

Wide Area Network Upgrades

As more equipment and resources are placed on the district wide area network, Internet access has become saturated. It is necessary to assess Internet line usage on a regular basis in order for future planning. The Lakeland school district currently uses Southern Westchester BOCES as its Internet provider.

<u>Building</u>	<u>Current</u>
Lakeland Copper Beach MS	1 gig fiber connection to BOCES/2 gig fiber building-to-building
Benjamin Franklin Elementary	2 gig fiber building-to-building
George Washington Elementary	2 gig fiber building-to-building
Lincoln Titus Elementary	2 gig fiber building-to-building
Thomas Jefferson Elementary	2 gig fiber building-to-building
Van Cortlandville Elementary	2 gig fiber building-to-building
Lakeland High	2 gig fiber building-to-building
Walter Panas High	1 gig fiber connection to BOCES/2 gig fiber building-to-building

By the end of 2016 the district will have all buildings connected by fiber with 10 gigabit speed.

Emerging Technologies and Considerations

New technologies are emerging regularly. These are evaluated in the context of our district and educational goals to see how they support district initiatives. The Lakeland community, through the normal budget process, will ultimately determine what new technologies to include in the budget to support instruction. New equipment can be funded by various means, including yearly IPA's (Installment Purchase Agreement) through BOCES or a new bond referendum. Exact equipment will be assessed annually through the "Evaluation Process."

Current Considerations

One to One Device Initiative – An on-going consideration is a 1:1 student to device initiative. Our goal is to create a more student-centered learning environment, incorporating 21st Century Skills to prepare students for the world they face when they leave high school, whether it be the workplace or college. With approximately 6000 students in Lakeland and a 2% tax cap on the district budget, the main challenge regarding a 1:1 initiative is financial. With the recent passing of the Smart School Bond, a 1:1 program could be a reality in the near future. The district is in the process of going through the application process to receive these bond funds through the state. For now the district supports a "bring your own device" program at our two high schools as an alternative.

District-wide Wireless Internet Access – Currently, Lakeland has wireless access in all its school buildings. As more and more devices utilize wireless technology, the district will need to re-evaluate its wireless infrastructure making sure that there is ample coverage for the increasing density of devices. As the state moves closer to online testing, wireless access will be utilized at a greater rate.

Online State Exams – The state will be requiring students to take state exams online sometime in the near future. Districts will need to have a device available for every student in a grade level to take that grade level's exam simultaneously. As part of the guidance given by the state, districts should look at enrollment numbers for each school building focusing on the largest grade level population in each building to determine the number of devices needed for that building. Using both district and Smart School Bond funds, the district will be able to purchase the number of devices needed for state online testing but to also have those device used by students in everyday instruction.

Digital Surveillance – Security of our students, staff and visitors is a top priority. During the next two years the district will be updating and replacing older analog cameras with current digital cameras. Digital cameras will allow for a sharper picture that will help identify anyone involved in an incident. Digital cameras also allow for zooming in on areas without losing clarity of the image. Lakeland has approximately 300 cameras located throughout the district. Even though this is a high number of cameras, there are locations that may not have coverage. The district is considering the deployment of additional cameras to improve coverage.

Voice over IP – The district phone system has become dated. In the next two years the district will be upgrading its current phone system with a "Voice over IP" (VoIP) system. VoIP is a digital system that utilizes IP protocols. This new system will allow for phone communication from every classroom, enhancing our school safety procedures. The system will also allow for a broadcast message to be sent from anywhere in the district. Since the system uses internal systems and uses internal wiring, any call made from a phone inside the district to another in the district will have no cost associated with it. Since a majority of the calls made by district personnel are internal, this will be a cost savings to the district. All external calls will have its same current rate applied.

Video Conferencing – Lakeland now has video conferencing in all its school buildings. The program has been very successful, allowing student to interact with experts on a variety of topics. The program has allowed students to take field trips without even leaving the building and missing valuable class time. As the program grows there may be a need for additional units throughout the district, especially the larger buildings.

Future Considerations

Instruction driven software (on-going)
Administrative software (on-going)
Video on-demand

Current Considerations – Financial Implications (estimated)

Project	Est. Cost	Possible Funding Sources
Replacement Plan - annual	\$400,000	IPA, BOCES aid, district funds
Wireless Mobile Carts	\$25,000 per cart	IPA, BOCES aid, district funds
“Smart Board” Technology	\$4,000 per room	IPA, BOCES aid, district funds
1:1 Student Device Program	\$1,150,000	IPA, BOCES aid, district funds, SS bond
Additional Video Conferencing	\$80,000	IPA, BOCES aid, district funds
Online State Testing	\$450,000	IPA, BOCES aid, district funds, SS bond
VoIP	\$2,425,000	IPA, BOCES aid, district funds, bond
Digital Surveillance Upgrade	\$300,000	IPA, BOCES aid, district funds, bond

- Currently, BOCES aid is approximately 50%
- A bond referendum is a possible funding source for all considerations

- Infrastructure - In 2013, the Lakeland community passed a School Security and Safety Bond. Technology items included in the \$14,000,000 bond are: the upgrade of all wiring closet electronics, upgrade of current surveillance systems, proximity access controls, upgraded phone system to VoIP, and upgrade paging system. The new switches and routers will allow POE, gigabyte speeds to every port and 10 gigabyte speed between buildings. Project is still awaiting SED approval.

Equitable Access to Instruction

The district is a strong advocate for the needs of students with disabilities and aims to make equitable access to instruction available for all learners, including materials and assessments compliant with a universal design for learning (UDL). We provide the same resources to ALL students in the district, regardless of disabilities. When necessary, special devices are provided to students, or modifications to devices are made to insure this equity.

Our goal is for every student to participate in the general curriculum offered in the district. To that end we have designated two employees, an Occupational Therapist and a speech teacher, as the Assistive Technology experts. These two individuals do assistive technology assessments on a regular basis. They stay abreast of the new and emerging technologies that address the needs of students with disabilities and have become the district resident experts in this field. They work closely with teachers and students to ensure that we find the best solution for all learners. We have an Assistive Technology Assessment Protocol in place that is followed and includes referral, needs assessment, identification of desired outcomes, device trials, staff training to assist students, implementation plans and follow up assessment and evaluation. Devices are configured to meet students' individual needs in order to provide multiple means of representation (e.g., visual, auditory supports), action and expression (e.g., alternate means for response and navigation), and engagement. Devices are procured and provided when existing devices cannot be modified.

We provide this service to nonpublic schools in our district as well and work closely with our local BOCES to ensure that we plan for and implement procedures that insure assistive technology to all within our purview.

Proposed Instructional Technology Plan Timeline

2015 – 16

- Devices for teachers and administrators, provided that Smart Schools funds are approved
- Additional support at Elementary Schools (one facilitator per building)
- Professional Development (teachers and administrators and computer facilitators): GAFE (Google Apps for Education)
- Physical Education: deployment of devices, software, pedometers, etc.
- Pilot Chromebooks in 3 (or 4) classrooms, one at each level (elementary, middle and high school)
- Begin application process for teachers to implement GAFE
- Ongoing assessment and evaluation of technologies to support needs of Special Education department
- Evaluation of Learning Management System for adoption by district
- Ongoing evaluation of technology plan through technology survey (two times during 2015-16), meetings, observations and walkthroughs
- Reevaluate technology plan for 2016-17

2016 – 17

- Ongoing Professional Development for teachers, administrators, computer facilitators
- Google Camp for teachers who want to pilot in September
- Implementation of Chromebooks/ GAFE in each building – up to 25 classrooms at elementary, 24 at middle, 15 at each high school for a total of up to 79 classrooms (one-to-one classrooms)
- Deployment of upgrades to Art, Music, Phys. Ed./Health, LOTE, Occ. Ed.
- Possible roll out of Learning Management System, if adopted
- Ongoing assessment and evaluation of technologies to support needs of Special Education department
- Security surveillance upgrades
- Infrastructure upgrades: all closet electronics, switches/routers
- Upgrade to 10 Gig backbone
- VOIP phones
- Proximity door security
- Ongoing evaluation of technology plan through technology survey (two times during 2015-16), meetings, observations and walkthroughs
- Reevaluate technology plan for 2016-17

2017 – 18

- Ongoing Professional Development for teachers, administrators, computer facilitators
- Evaluation of implementation and modifications where needed
- Ongoing assessment and evaluation of technologies to support needs of Special Education department
- Continuation of Chromebook/GAFE pilot expanded to more classrooms
- Evaluation of existing technologies in terms of changes that have ensued from deployment of Chromebooks
- Creation of next three year technology plan based on new technologies, available funding and district initiatives

Evaluation Process

During the 2014-15 school year, the district adopted a technology assessment and survey tool, Clarity, to help guide our technology plan and assess the impact of our technology resources. We administered this survey to all teachers, to students in grades 3 – 12 and made the survey available to all parents in the district. The results were used to shape our professional development plan and to pinpoint areas of weakness. The data was enlightening and provided information that we did not have through previous in-house surveys. We intend to use this survey again in the coming school year (2015-16) and to administer it twice: in the fall and again in the spring. The survey provides information about our infrastructure and equipment, access to technology, skills (both for teachers and students), quality of our tech support, assistive technology practices, our technology policies, practices and procedures, professional development, and our teachers' and students' beliefs about technology's impact and role in education. The survey provides an overall score and score in four different areas: classroom, access, skills and environment. Each school and each cohort (high school, middle school and elementary education) receives a score as well, helping us to identify strengths and weaknesses in different levels of instruction.

In addition to the Clarity survey, we will depend on our technology committees to provide valuable information regarding our plan's effectiveness and adoption throughout the district. We meet regularly with all committees and provide an open forum in which they can share feedback from their stakeholders.

Teacher evaluations and walkthroughs, done by our building and district administrators, provide snapshots of what is going on in classrooms each day: the technologies utilized and the outcomes that those technology-enhanced lessons deliver. We see teachers and students interacting with technology in a variety of ways and in all areas of the curriculum and those observations are documented, and shared with the teachers to provide feedback on what works and what needs improvement.

During the 2015-16 school year as we pilot Chromebooks in three classrooms, we will be working closely with the teachers and students involved to assess how the Chromebooks are being used and if they are meeting the desired outcomes: to foster communication and collaboration, prepare students with skills essential for success in an ever-changing digital world, teach digital literacy and ethics, and create an environment of self-directed learning.

During the 2016-17 school year we will also be introducing the SAMR model for assessing technology's impact on teaching and learning. Administrators will be introduced to this model first and they, in turn, will introduce the model to teachers at faculty meetings, grade level meetings and during workshops on our Superintendent Conference Days. This model will provide a way for teachers to reflect on their own technology integration and find ways to move up the SAMR model with the goal of lesson redefinition.