Greater Southern Tier Board of Cooperative Educational Services
Mobile Learning Device (MLD) Project
E-rate Deployed Ubiquitously 2011 Pilot Program
WC Docket No. 10-222

The application must contain the following information for all applicants:

(1) a full description of the current or planned Applicant Wireless Program, including but not limited to:

a. the nature of the Applicant Wireless Program, including the extent to which the use of connectivity is interactive and utilizes the Internet,

The Greater Southern Tier Board of Cooperative Educational Services (GST BOCES), the Watkins Glen Central School District, and Verizon Wireless have partnered to implement the Mobile Learning Device (MLD) Project at the Watkins Glen Middle and High Schools. The MLD Project provides 400 Watkins Glen Middle and High School students with ubiquitous access to online learning opportunities that support the development and demonstration of higher-level and critical thinking skills and essential 21st century fluencies that will prepare them for active participation in the digital age and globally-competitive world.

GST BOCES is an Educational Service Agency that supports twenty-one component districts in five counties across the Southern Tier of New York State. The Watkins Glen Central School District is located in Schuyler County, a rural, geographically isolated, economically depressed region within the GST BOCES service area. The rural nature of the district's attendance area, compounded by limited family resources, created dramatic inequities in families' capacity to access broadband Internet service. According to a district survey, nearly 40% of district families cannot effectively access online educational and curriculum-based learning tools away from the boundaries of their school building. However, over the last 15 months, the MLD Project has leveled the educational playing field for all Watkins Glen Middle School students. The integration of mobile learning devices into all curriculum areas has fundamentally changed the teaching and learning paradigm at the Watkins Glen Middle School. The anytime/anywhere nature of the mobile learning devices has provided flexible, collaborative, and student-directed learning outside of the classroom. Utilizing mobile learning devices has also created new and more relevant connections between students' in-school and out-of-school use of technology. Toolbox PRO, a GST BOCES-developed Virtual Classroom/ School software platform, provides teachers and students with mobile access to a robust software platform with Web 2.0 tools such as student/teacher messaging, student web lockers, student assignment upload, teacher and student wikis, teacher and student blogging, podcasting tools, and media rich assessments and activities. District teachers are now able to facilitate learning opportunities that more closely align with the 21st century work place and post secondary environment. As a result, the MLD Project has: (1) increased equitable access to online learning tools, (2) increased student achievement in core content areas, (3) increased student engagement, (4) increased student demonstration of essential 21st century skills and fluencies, and (5) increased parent engagement.

The GST BOCES/Watkins Glen Central School District MLD Project is a sustainable demonstration model for district across the GST BOCES region, state, and country that are considering mobile learning devices to meet the learning needs of students in rural communities. Participation in the E-Rate Deployed Ubiquitously (EDU) 2011 Pilot Program will allow the MLD Project partners to maximize the impact of local resources already committed to the program and expand the current initiative to 350 additional students at the Watkins Glen High School.

b. how long the Applicant Wireless Program has been in operation and the mobile wireless device(s) being used,

MLD Project Implementation – Phase 1:

The Mobile Learning Device Project has been in operation for fifteen months. Beginning in October 2009, GST BOCES and the Watkins Glen Central School District, in collaboration with Verizon Wireless, partnered to initiate the project at the Watkins Glen Middle School. The goal of the MLD Project is to increase students' academic achievement in core content areas by utilizing mobile learning devices during school-based instruction *and* as part of learning activities outside of the school day and off-school grounds.

District staff engaged in extensive training prior to implementation in the classroom. A GST BOCES Model Schools Instructional Technology Specialist provided two months of targeted professional development to twenty participating Watkins Glen teachers, including special education support teachers. The district utilized whole-building staff meetings, grade-level team meetings, after school workshops, and one-on-one tutorials to introduce teachers to the mobile devices, and to GoKnow! Mobile Learning software installed on the devices. In addition, teachers began developing and/or modifying lesson plans that integrated the devices into their curriculum. Teachers also began to identify and create web-based extension activities never before possible due to students' inequitable access to high-speed internet outside of school. Prior to implementation with students, district and building administrators hosted a Parent Information Night to provide parents with detailed information about the goals of the project. Parents were informed about: how the devices could be utilized – in school and at home – to support student learning; student and parent responsibilities; and acceptable use policies and regulations.

In December 2009, the MLD Project was formally launched by providing nearly 200 fifth and seventh-grade students at the Watkins Glen Middle School with a Verizon Wireless HTC 6800 smartphone for use across all content areas. Students began utilizing their mobile learning devices, equipped with unlimited mobile broadband access, to collaborate with classmates on class projects, research topics on the Internet, take pictures and field notes during fieldtrips to museums and cultural venues; complete and submit homework assignments, and communicate with their teachers.

MLD Project Implementation – Phase 2:

In July 2010, the project partners made several modifications to the MLD Project for the 2010-2011 school year based on analysis of student achievement data, teacher input, and cost analysis.

- The scope of the project was expanded to serve all 355 students in grades 5-8 at Watkins Glen Middle School. The district upgraded the mobile learning devices from HTC 6800 smartphones to LG-US750 smartphones. In addition, HP Mini 210 Netbooks were selected for student use in eighth grade to support more writing intensive coursework in English Language Arts and Social Studies. In early August 2010, the project was again expanded to provide 45 ninth-grade students in the district's Humanities courses (English and Global Studies) with HP Mini 210 Netbooks.

- The GoKnow! Mobile Learning software was replaced with Toolbox PRO, a GST BOCES developed Virtual Classroom/ School software platform. Toolbox PRO provides teachers and students with access to a robust software platform with capacities such as: a sharable whiteboard; class-to-class full screen video; teacher-to-teacher sharable desktop; online language translator; student/teacher messaging; student web lockers; student assignment upload; teacher and student wikis; teacher and student blogging; podcasting tools; a public classroom website; media rich assessments and activities; curriculum mapping tools; and virtual office hours. To support expansion of the MLD Project, members of the GST BOCES Instructional Development of Educational Applications Service (I.D.E.A.S.) Team developed a fully mobile version for use on students' mobile learning devices.

- The level of professional development and technical support services was increased to support the expanded scope of the project. Specifically, the district added a second GST BOCES Instructional Technology Specialists to deliver high-quality professional development, including job-embedded peer coaching. The district also added a second GST BOCES Desktop Technician to support technical troubleshooting of mobile learning devices and software applications.

Early Outcomes of MLD Project Implementation:

During the initial fifteen months of implementation, the project partners have identified the following impact on achievement of the project objectives:

Outcome #1: Equitable and ubiquitous access to online learning tools via high-speed mobile broadband, regardless of family resources

In 2008, district administrators conducted a survey of district families to determine the level of access families in the district had to internet connectivity. The survey results definitively quantified that a large number of district students were at a distinct disadvantage for effectively accessing educational and curriculum-based learning tools away from the boundaries of their school building. The rural nature of the district's attendance area demands mobile broadband access capabilities, since the availability of public and private Wi-Fi networks is limited and inequitable. Nearly 40% of respondents indicated that they had no access, had access but did not subscribe, or subscribed through dial-up service. This percentage directly correlates with the percentage of low-income families in the district that are eligible for free and reduced-priced lunches under the Richard B. Russell National School Lunch Act guidelines.

The availability of district-provided mobile learning devices has effectively leveled the playing field for Watkins Glen Middle School students. Using mobile learning devices in combination with Toolbox PRO software, GST BOCES and the Watkins Glen Central School District have equipped 100% of the participating students with the tools necessary to engage fully in learning opportunities that portable wireless devices can provide off campus and outside of regular school hours. Over a two-week period from December 1-14, 2010, GST BOCES and the district monitored how students utilized their mobile learning device to access Toolbox PRO outside of the regular school day (between 3:00 PM and 7:00 AM on weekdays, and anytime on weekends). Students regularly spent 15-20 minutes logged on to Toolbox PRO downloading and uploading course assignments or completing teacher-created assessments. Some students were logged in for substantially longer periods of time – in some cases up

to two hours – viewing podcasts, accessing research links to build background knowledge for class discussions, collaborating with peers, and chatting with teachers during virtual office hours.

Outcome# 2: Increased student achievement in core content areas

The use of mobile learning devices has increased student achievement on New York State assessments in English Language Arts and Math. For example, the current sixth grade cohort of students demonstrated significant improvements in the percentage of students achieving proficiency as compared to proficiency rates in the previous two years.[1]

School Year / Grade Level	% of Students Achieving Proficiency on NYS ELA Assessment	% of Students Achieving Proficiency on NYS Math Assessment
2007-2008 / Grade 3	60%	81%
2008-2009 / Grade 4	66%	80%
2009-2010 / Grade 5	87%	89%

In addition, an analysis of first quarter grades from the 2009-2010 and 2010-2011 school year indicates increased academic achievement across multiple grade levels and core curriculum areas. For example, the percentage of fifth grade students demonstrating mastery (defined by a grade point average above 85) has increased across all core content areas from 2009-2010 to 2010-2011:

- English Language Arts (ELA) mastery has increased by more than 40%, from 34.1% to 74.8%.
- Math mastery has increased by nearly 25%, from 40.3% to 64.9%.
- Social Studies mastery has increased by more than 25%, from 36.9% to 62.7%.
- Science mastery has increased by more than 40%, from 40.5% to 82.5%.

Participating classroom teachers report that the significant gains in mastery-level achievement are largely attributable to the dramatic increase in the amount of time on task and digital access to course content and online applications. District teachers and administrators estimate that the mobile learning devices have increased time on task by more than 20% during classroom instruction, in addition to the time students spend using the devices at home. Now that all students have around-the-clock access to mobile broadband service, teachers are able to assign coursework and projects that were not previously possible. Ben Connelly, a Social Studies teacher at the Watkins Glen Middle School, now requires students to view online video clips on their mobile learning device as part of homework assignments rather than as "sponge activities" at the beginning of a class period. As a result, students are able to utilize the video outside of class time as a jumping off point for building the necessary background knowledge and utilize in-class time for informed discussion and group analysis. Similarly, Mr. Connolly reports that the quality of student-created documentaries created as part of the "Being Ken Burns Project" has increased by 20% since incorporating the use of mobile learning devices. According to Mr. Connolly, the ubiquitous access to educational resources allowed students to spend more time (1) evaluating the quality of their research sources; (2) identifying high-quality images to include in their presentation; and (3) creating high-quality voiceover narrative because of their ability to work on the project anytime/anywhere.

[1] In 2009-2010, the New York State Board of Regents adopted new higher cut scores as a measure of proficiency. The proficiency percentages listed are based on the same thresholds that were used for the 2007-2008 and 2008-2009 school years in order to provide relevant analysis.

The mobile learning devices' capacity to support continuous student access to curriculum resources via the Toolbox PRO system has also resulted in gains for students with disabilities. Amy Planty, Special Education teacher at the Watkins Glen Middle School, reports that students who were previously reluctant to edit their handwritten work now engage in regular revisions in-class and at home using their mobile learning devices. Ms. Planty also reports that the mobile learning devices allow teachers to send customized and/or adapted assignments to students with disabilities, without any stigma attached to working on an "easier assignment."

Outcome #3: Increased student engagement

The MLD Project at the Watkins Glen Middle School has created new and more relevant connections between students' in-school and out-of-school use of technology. As a result, teachers report that both the quantity and quality of student engagement and classroom participation has increased since implementation. A comparison of attendance rates from the first quarters of the 2009-2010 and 2010-2011 school years indicate a 1.5% increase in the average daily attendance rate for students in grades 5-8. Collectively, students had 200 fewer unexcused absences during the first quarter of 2010-2011 – a 21% decrease over the previous school year. Now that more students are able to more effectively access and build background knowledge outside of class time, teachers report that students are more prepared to actively contribute during classroom activities such as brainstorming, teacher-facilitated discussions, and student-to-student collaborative projects. Numerous research studies have found that these types of exchanges result in higher-level thinking and processing, skills generally associated with learning that is more effective. Teachers also report that homework submission rates have increased substantially now that students are able to use their mobile learning devices to access, complete, and submit assignments anytime/anywhere using the Toolbox PRO system.

The ubiquitous access provided by mobile learning devices has also had a dramatic impact on engaging students who are reluctant to participate due to fear of "messing up" in front of their classmates. For example, Maria Chedzoy, a Spanish teacher at Watkins Glen Middle School, reports an increase in conversational fluency amongst her 8th grade Spanish students because students can practice vocabulary and pronunciation at home. The ability to effectively listen and speak in Spanish are critical skills that account for 70% (30% speaking and 40% listening) on the New York State 8th Grade Second Language Proficiency Exam. Ms. Chedzoy is now able to record, upload, and distribute individualized conversational prompts to her students using Toolbox PRO. Students listen to the prompts on their mobile learning device and prepare a recorded response that they submit electronically. Because students are now able to complete this type of activity at home, they have the ability to critically evaluate the quality of their response and re-record if they mispronounced a vocabulary word or want to construct a more sophisticated answer without the pressure of performing in front of their peers.

Outcome #4: Increased student demonstration of essential 21st century skills and fluencies

The implementation of mobile learning devices has fundamentally changed the teaching and learning paradigm at the Watkins Glen Middle School. According to Superintendent Tom Phillips, "Students are now empowered to be leaders, to deliver instruction, to problem-solve, and to come up with their own solutions, versus waiting for the teacher." The anytime/anywhere nature of the mobile learning devices has provided flexible, collaborative, and student-directed learning outside of the classroom that supports the learning needs and aptitudes of each individual student. Increasingly, student achievement

data, skill-based rubrics, and teacher observations indicate that the new teaching and learning paradigm fostered by the MLD project is allowing students to develop and demonstrate fluency in the following 21st century skill areas[2]:

- Information Fluency is the ability to unconsciously and intuitively interpret information in all forms and formats in order to extract the essential knowledge, authenticate it, and perceive its meaning and significance. Participating students are increasingly able to (1) ask good questions, in order to get good answers; (2) access and acquire the material from the appropriate digital information sources; (3) analyze and arrange these materials, and distinguish between good and bad, fact and opinion; (4) understand bias and determine what is incomplete to turn the raw data into usable knowledge; (5) apply the knowledge within a real world problem or simulation; and (6) assess both the product and the process.
- Solution Fluency is the ability to think creatively to solve problems in real time by clearly defining the problem, designing an appropriate solution, applying the solution then evaluating the process and the outcome. Participating students are increasingly able to (1) define the problem; (2) discover the history of the problem which provides context; (3) envision a future with the problem solved; (4) design a solution in stages through gap analysis from Define to Dream; (5) deliver a solution; and (6) debrief by getting involved in the evaluation of the problem-solving process.
- Creative Fluency is the process by which artistic proficiency adds meaning through design, art and storytelling. It regards form in addition to function, and the principles of innovative design combined with a quality functioning product. Participating students who were previously uncomfortable using limited art skills to express ideas are now able to utilize multi-media resources such as digital images, video clips, and audio files to support creative, "outside of the box" solutions to essential questions posed by teachers and classmates.
- Media Fluency is the ability to look analytically at any communication media to interpret the real message, how the chosen media is being used to shape thinking, and evaluate the efficacy of the message. Media fluency also includes the ability to create and publish original digital products, matching the media to the intended message by determining the most appropriate and effective media for that message. Participating students are increasingly able to create and present digital products that reflect their understanding of course content.
- Collaboration Fluency is team working proficiency that has reached the unconscious ability to work cooperatively with virtual and real partners in an online environment to create original digital products. The use of mobile learning devices allows participating students to engage in regular peer-to-peer and student-teacher partnerships to complete tasks, despite obstacles like geography and face-to-face contact time.

Kelly Batrowny, a GST BOCES Model Schools Instructional Technology Specialist working in the Watkins Glen Central School District, reports that participating students are using their mobile learning devices and Toolbox PRO software to develop high-level organizational skills. Because of the increase in the amount and types of content that is now being identified, analyzed, synthesized, and disseminated, students are developing progressively more sophisticated systems for organizing and managing their learning.

[2] The fluencies listed are based on research conducted by the 21st Century Fluency Project, a collaborative initiative that was created to develop exceptional educational resources to assist in transforming learning to be relevant to life in the 21st century. Additional information is available online at http://www.21stcenturyfluency.com/about.cfm.

Outcome #5: Increased parent engagement

Since the implementation of the MLD project, district and building administrators have documented a significant increase in parent engagement and participation in students' learning and school-based activities. Kristine Somerville, Principal at Watkins Glen Elementary School, reports that parent involvement has increased 60-70% since the implementation of the MLD Project. Both Parent Information Nights, the first in Fall 2009 and the second in Fall 2010, geared toward briefing parents/guardians about the project, have attracted more than 50% of families – far exceeding participation rates for other informational meetings such as the building's Academic Intervention Services (AIS) program for students who are struggling academically. Ms. Somerville also reports increases in the number and percentage of parents who are using Toolbox PRO to monitor their student's homework completion; monitoring the district website for information and educational resources; and effectively advocating for their student. For example, since implementing the MLD Project at the Watkins Glen Middle School, Ms. Somerville has received numerous phone calls from parents that have used their child's mobile learning device for personal and/or business use because the device has increased the family's capacity to access web-based resources. In nearly every case, parents have called to self-report their violation of the district's Internet and Network Acceptable Use Policy and to advocate that their student continue to have access to the device for use in school and at home.

In addition to the outcomes outlined above, the MLD Project at Watkins Glen Middle School has garnered regional, state, and national attention as a sustainable model for meeting the learning needs of students in rural communities. In April 2010, Watkins Glen Central School District Superintendent Tom Phillips participated in a webinar, sponsored by *District Administration* magazine, titled "Using Smartphones in K12 Classrooms Today: From Why to How." A panel of educators and experts in mobile learning from around the country provided first-hand accounts of implementing a successful mobile learning device project. In June 2010, an article by Watkins Glen District Administrator Billie Bauman detailing the use of handheld mobile learning devices at the Watkins Glen Middle School was featured in *District Administration* as one of four trailblazing districts around the country. In September 2010, a team of administrators highlighted the MLD Project during a session titled "Mobile Technology and Education in the 21st Century" at the New York State Council of School Superintendents' 2010 Fall Leadership Summit. In addition, Verizon Wireless has utilized the GST BOCES/Watkins Glen MLD Project to create promotional commercials and as a demonstration model for school districts and BOCES that are exploring the use of mobile technologies. In October 2010, GST BOCES, the Watkins Glen Central School District, and Verizon Wireless partnered to host representatives from 23 school districts, 4 BOCES, and 6 non-public schools from around New York State for a one-day conference that highlighted the benefits, challenges, resolutions, and costs of implementing the MLD Project.

c. a description of any technical issues associated with implementing the Applicant Wireless Program, including an analysis of any problems with the availability of wireless access to students or patrons off the school or library premises and how those issues are being or will be addressed by the school or library,

The MLD Project has experienced and successfully addressed a range of technical issues during the initial implementation and subsequent expansion of project activities. Specific issues include:

- Technical Issue #1: The ongoing annual cost of the GoKnow! Mobile Learning software became a barrier to expanding the project beyond fifth and seventh grades. Utilizing the GoKnow! program required a $60 fee for each device running the software platform, in addition to monthly connectivity costs for the mobile broadband data plan. Beginning in February 2010, GST BOCES staff and district administrators began working to identify potential cost savings measures. At the end June 2010, MLD Project leaders determined that switching to the GST BOCES Toolbox PRO software platform, at a cost of $25 per teacher account, was more sustainable and would allow the MLD Project to expand to other grade levels.
- Technical Issue #2: The GoKnow! Mobile Learning software did not provide classroom teachers with tools or functionality required to effectively utilize the mobile learning devices. In many cases, teachers were developing lessons in one format and then converting their materials into a second format before uploading to student devices. The same conversion process was required for students – work generated on a mobile learning device frequently had to be altered prior to submission for teacher review. To address the issue, GST BOCES and district staff replaced the GoKnow! software with a fully mobile version of Toolbox PRO. In addition to cost savings, Toolbox PRO – available for use on desktops and students' mobile learning devices – provided teachers and students with access to a more robust software platform to support anytime/anywhere learning.
- Technical Issue #3: In order to expand the MLD Project from a fifth and seventh grade project to a fifth through ninth grade project, GST BOCES and the Watkins Glen Central School District required additional instructional and technical support for classroom teachers and students. During Phase 1 of the MLD Project, GST BOCES provided Watkins Glen Central School district with a 0.70 FTE (full-time equivalent) Instructional Technology Specialist to deliver professional development and classroom support to teachers and a 1.0 FTE Desktop Technician to troubleshoot hardware and software issues. Prior to implementing Phase 2 of the MLD Project, GST BOCES increased to 1.7 FTE Instructional Technology Specialists and 2.0 FTE Desktop Technicians.
- Technical Issue #4: The mobile learning devices do not currently have the capacity to connect directly to the GST BOCES network. As a result, students cannot print directly to any of the networked printers in classrooms or computer labs. Instead, students must upload their materials into Toolbox PRO and then retrieve them for printing from a networked workstation within the building. GST BOCES technicians are currently working to identify an efficient process for imaging student's mobile learning devices to address this issue, starting with the HP Mini 210 Netbooks being utilized by all eighth-graders and 45 ninth-graders.

d. what training has been or will be provided to teachers, librarians, students or parents to implement the Applicant Wireless Program, and

Professional Development Framework:

In order to effectively implement MLD Project activities, GST BOCES and the Watkins Glen Central School District utilize a comprehensive, research-based model for providing intensive professional development to participating teachers. Numerous studies have confirmed that merely introducing technology to the educational process is not enough to ensure technology integration, since technology alone does not lead to change. Researcher Joseph Anderson argues that "to be effective and help teachers integrate technology into existing curricula, technology training must shift away from the

tradition of teaching software applications and move toward a model in which teachers see how technology can be part of their own classroom practices."[3]

Two GST BOCES Model Schools Instructional Technology Specialists facilitate regular professional development to ensure that participating teachers (1) are comfortable with the mobile learning devices; (2) know how to utilize Toolbox PRO software; and (3) effectively integrate the devices into their lessons. Approximately 25% of professional development activities take place via:

- Monthly presentations and demonstrations at staff meetings;
- Grade-level and/or department team meetings;
- After-school workshops;
- Intensive Summer workshops for grade-level teams;
- Teacher-driven user groups; and
- Open labs that support self-directed development and application of knowledge and skills

Knowledge and skills introduced during workshop presentations and open labs are intensively reinforced by daily job-embedded coaching provided by GST BOCES Instructional Technology Specialists. Nearly 75% of the Instructional Technology Specialists' time is spent supporting classroom application through modeling, collaborative teaching, and reflective practice. Studies indicate that "peer coaching can play an effective role in helping teachers integrate technology into their classrooms in ways that encourage active learning by their students. Researchers Joyce and Showers found that "fewer than 10% of teachers implement new ideas learned in traditional training settings like workshops. The problem with these traditional approaches . . . is that teachers often have no ability to apply what they learn in these workshops and no way to receive feedback when they do attempt to apply what they have learned."[4] In schools that adopted a peer coaching model, researchers found "that when teachers combined participation in typical workshops with peer coaching for sharing and observation, 88% of teachers were using new strategies in their classrooms effectively."[5]

Impact on Instruction

The MLD Project has dramatically changed the type of instruction taking place at Watkins Glen Middle School. According to Superintendent Tom Phillips, "The role of the teacher has shifted from the person who delivers instruction to the person who facilitates learning." GST BOCES Instructional Technology Specialist Kelly Batrowny reports that the number of teachers utilizing mobile learning devices and other instructional technologies (such as classroom webpages, online office hours, and real-time chat) in their classroom has tripled from 2009-2010 to 2010-2011. In addition to the formal professional development systems that are in place to support participating teachers, the MLD Project has triggered a steady rise in the number of informal activities that are also impacting how teachers are developing their skills. According to Ms. Batrowny, the amount of informal sharing and peer-to-peer sharing of knowledge and skills has increased dramatically. Teachers are self-organizing into teacher-driven user groups and collaborating with their more risk-taking peers to develop new instructional activities for students. The open collaborations and risk-taking have spread beyond the use of mobile learning devices to other technologies as well. For example, numerous teachers have begun

[3] Anderson, Joseph. (2002). District initiative keys in on classroom. National Staff Development Council's ***Journal of Staff Development, Winter 2002, Vol. 23, No. 1***
[4] Joyce, B., & Showers, B. (1994). *Student achievement through staff development*. New York: Longman, Inc.
[5] Darling-Hammond, L. (1996). What matters most: A competent teacher for every child. Phi Delta Kappan, 78(3).

experimenting with Prezi, a Web 2.0 presentation application and storytelling tool that uses a single canvas, as an alternative to traditional PowerPoint slide presentations.

Future Professional Development:

GST BOCES and Watkins Glen Central School District leaders recognize that sustainable professional development focused on progressively developing technologically-fluent teachers who are capable of integrating ubiquitous mobile learning into their instruction will be critical to the ongoing success of the MLD Project. Toward that end, all future MLD Project professional development activities will be sustained and expanded using multiple strategies. In addition to GST BOCES Instructional Technology Specialists, innovative Watkins Glen teachers will be identified to serve as peer models as part of a "teachers teaching teachers" model. Demonstration classrooms, peer sharing via wikis and/or blogs, teacher-driven user groups, and modeling will be used to share resources and disseminate effective practices. In addition, the district will continue to utilize the GST BOCES Computer Services/Instructional CoSer that supports ongoing job-embedded peer coaching and the GST BOCES Model Schools CoSer that supports teacher training stipends.

e. the extent to which the Applicant Wireless Program is integrated with federal, Tribal, state, regional or local governmental or non-profit initiatives to achieve educational or community access outcomes;

The MLD Project is directly aligned with the following regional, state, and federal efforts to increase equitable and effective broadband internet access:

- GST BOCES Virtual Learning Initiative: With the support of an ARRA Title IID Enhancing Education Through Technology grant, GST BOCES is working to develop a high school level virtual learning system that meets the needs of its 21 regional component districts and ensures that students are college and career ready when they graduate from high school. From 2002 to 2009, the number of college students taking at least one online course has increased from 1.6 million students to 5.6 million. Sixty-three percent of colleges and universities report that online learning is a critical part of their long-term strategy.[6] The MLD Project will support the GST BOCES Virtual Learning Initiative by piloting and evaluating the impact that access to online curriculum and learning materials outside of the school day and away from school-based resources has on student academic achievement, four-year graduation rates, and college and career readiness.
- Watkins Glen Central District Instructional Technology Plan: The district's 2010-2013 Technology Plan provides a strategic framework for integrating technology into all aspects of teaching and learning. The plan recognizes that "technological change and improvement over the next three year period will be centered on wireless connectivity across the entire district [and] expanding the MLD (mobile learning device) project first brought online at the Middle School." The MLD Project aligns with and advances the initiatives outlined in the district's technology plan.
- Southern Tier Central (STC) Regional Planning and Development Board: Based on its 2006 Telecommunications Study and its 2010 Telecommunications Business Plan, both funded by the Appalachian Regional Commission, the STC Regional Planning and Development Board has applied to the National Telecommunications and Information Administration (NTIA) for a multi-regional application to develop the telecommunications network across the Southern Tier. The

[6] Allen, Elaine I. and Jeff Seaman. *Class Differences. Online Education in the United States, 2010.* Babson Survey Research Group, 2010.

proposed project focuses on developing a Schuyler County broadband project to enhance the region's telecommunications infrastructure and bring increased bandwidth to rural and underserved areas of Schuyler County. The MLD Project aligns with and advances the efforts of this initiative by piloting and evaluating an education-sector broadband project within the targeted county.

- National Education Technology Plan 2010: In March, the U.S. Department of Education released a model of 21st century learning with goals in five essential areas: learning, assessment, teaching, infrastructure, and productivity. The model identifies the need to leverage the power of technology "to create engaging, relevant, and personalized learning experiences for all learners that mirror students' daily lives and the reality of their futures."[7] The MLD Project will directly align with this model by providing students with ubiquitous access to curriculum-based materials and other educational resources via a web-based software platform.
- National Broadband Plan: At the request of Congress, the Federal Communications Commission's plan identifies several initiatives focused on stimulating economic growth, spurring job creation, and boosting national capabilities in education, healthcare, homeland security and more. Specific to school districts, the plan suggests that broadband investment will help America lead the world in educational innovation by supporting 21st century teaching and learning both in the classroom and outside of it. The MLD Project directly aligns with Plan Recommendation 11.23 by providing a school-based demonstration model that is providing all participating students with equitable and ubiquitous access to educational opportunities during classroom instruction and off campus, outside of regular school hours.

(2) the poverty level based on the percentage of students eligible for a free or reduced-price lunch under the national school lunch program (NSLP) or a federally approved alternative mechanism, and the current discount rate of the school or library;

The Watkins Glen Central School District is located in Schuyler County, a rural, geographically isolated, economically depressed region in the Southern Tier of New York State. The district serves 1,232 students in three buildings, one elementary school, one middle school, and one high school. Based on September 2010 data, 37.7% of district students qualify for free or reduced price lunches. Nearly 15.6% of district students are living at or below the federal poverty line. The 2008 median household income in Schuyler County is $44,196, nearly 20% below the New York State median and 15% below the national median.[8] The current discount rate for the Greater Southern Tier BOCES is 83%. The current discount rate for the Watkins Glen Central School District is 67%.

(3) the financial need of the school or library, including any additional budgetary hardships, notwithstanding the school or library's current discount rate;

Despite the demonstrated outcomes achieved during the first two phases of the MLD Project, the Watkins Glen Central School District's current and future economic limitations pose a major risk to the ongoing implementation of the project. With no budgeted increase in State Aid by the New York State Legislature and the prospect of significant mid-year reductions in aid, the Watkins Glen Central School District's Board of Education and Superintendent developed the 2010-11 budget using two guiding principles: (1) limit the impact to children of any proposed reduction in program or staffing; and (2) limit the impact of any tax increase for property owners. As a result, the approved budget

[7] "Transforming American Education: Learning Powered by Technology." National Education Technology Plan 2010, Office of Education Technology, United States Department of Education. March 5, 2010.
[8] U.S. Census Bureau State and County QuickFacts. Available online at http://quickfacts.census.gov/qfd/states/00000.html.

included significant decreases in staffing through both attrition and excising of personnel. Specific reductions in staffing include:

- ten instructional positions, including driver education, art, English, special education, two reading, elementary education, foreign language, physical education and academic support;
- two teaching assistant positions; and
- one administrative position.

Even with deep cuts to staff and other components of the instructional program, the escalating costs of health insurance and retiree pension costs required a 3.71% increase in the local tax levy. The sluggish rate of economic recovery has already yielded legislative calls for additional cuts in state aid to school districts for the 2011-12 school year. Further reductions in New York State Aid funding, in combination with the Governor-elect's call for a two-percent property tax cap, will severely limit the district's ability to maintain and expand innovative instructional programs like the MLD Project.

(4) all costs, including those eligible for E-rate support and those not eligible for E-rate support, associated with implementing the Applicant Wireless Program, including but not limited to costs for equipment such as e-readers or laptops, access and connection charges, teacher training, librarian training, or student/parent training;

The 2010-2011 budget for the Mobile Learning Device Project at the Watkins Glen Central School District is $335,232.50. A detailed breakdown is included below:

Program Component	Annual Cost
Verizon Wireless Mobile Learning Devices	
- LG-US750 Cell Phones (No charge with Connectivity Plan)	$0
- HP Mini 210 Netbooks (No charge with Connectivity Plan)	$0
Verizon Wireless Connectivity Charges	
- LG-US750 Cell Phones (298 phones x $35.12 per month x 10 months)	$104,657.60
- HP Mini 210 Netbooks (161 Netbooks x $40.01 per month x 10 months)	$64,416.10
Toolbox PRO Teacher Accounts (31 teachers x $25 per teacher account)	$775
Professional Development	
- GST BOCES Computer Services/Instructional CoSer (supports a prorated portion of 1.7 FTE Instructional Technology Specialists)	$133,023
- Teacher Professional Development Stipends	$5,500
Technical Support	
- GST BOCES Computer Services CoSer (supports a prorated portion of 2.0 FTE Desktop Technicians)	$26,860.80
Total Program Costs	**$335,232.50**

(5) the committed school or library resources available to implement the entire Applicant Wireless Program, including whether those funds are from the school or library's general budget or from an outside funding source;

The Watkins Glen Central School District utilizes a GST BOCES CoSer, in combination with variety of district and vendor-provided resources, to support the successful implementation of the MLD Project. Currently, Verizon Wireless provides all mobile learning devices at no cost to GST

BOCES or the Watkins Glen Central School District. However, the majority of MLD Project expenses are paid for from the district's General Fund, comprised primarily of New York State Aid and revenue from the local tax levy.

In order to maximize General Fund resources, expenses for vendor-provided services (such as Verizon Wireless monthly broadband connectivity costs) and BOCES-provided services (such as Toolbox PRO teacher accounts, professional development provided by Model Schools Instructional Technology Specialists, and technical support provided by Desktop Technicians) are paid for using BOCES shared services accounts. GST BOCES is an Educational Service Agency (ESA) serving 21 districts across counties in the Southern Tier region of New York State. Boards of Cooperative Educational Services (BOCES) exist in New York State to help school districts better serve their students and meet their educational and financial goals by developing shared programs that serve children from all districts. New York State provides a financial incentive to school districts that participate in shared BOCES services by offering BOCES state aid the following school year. As a result, the Watkins Glen Central School District receives approximately $0.69 for each General Fund dollar expended through the BOCES shared services model. The district also utilizes federal Title II, Part A funds to support teacher professional development. Specifically, Title II, Part A funds are used to support: (1) teacher stipends for participation in before-school, after-school and summer professional development; (2) substitute costs to support teacher participation in professional development delivered during the school day; and (3) supplies and materials related to teacher professional development.

In addition, the district utilizes regular staff meetings, grade-level meetings, and department-team meetings to support joint planning and targeted professional development. The district also leverages its existing technology infrastructure, including classrooms equipped with interactive whiteboards and computer labs and library media centers with networked printers, to support student use of mobile learning devices.

(6) the effect EDU2011 support for off-premise connectivity is likely to have upon the school's or library's projects;

The access to E-Rate supported, off-campus connectivity provided through the EDU2011 Pilot Program will impact the current MLD Project in three primary ways. First, participation in pilot program will allow the GST BOCES and the Watkins Glen Central School District to maximize the impact of local resources already committed to the program. Second, E-Rate support will support the expansion of the current initiative to 350 additional students at the Watkins Glen High School. Based on current middle school level outcomes, the project partners anticipate the following outcomes at the high school:

- Increased number of students who are college and career ready as measured by student demonstration of 21st century skills and fluencies, student performance on New York State Regents exams in core content areas, and four-year graduation rates;
- Increased student engagement as measured by the rate of average daily attendance, student participation in class discussions, rate of homework completion, teacher surveys, and student surveys; and

- Increased parent engagement as measured by parent participation in school-based academic activities, parent use of the district website and/or Toolbox PRO to monitor student academic progress, and parent advocacy on behalf of their student.

Third, support for off-premise connectivity will support the long-term sustainability and ongoing improvement of the MLD Project. The potential to receive E-Rate discounts without having to cost-allocate the costs of off-premise mobile broadband connectivity plans will provide GST BOCES and the Watkins Glen Central School District with fiscal resources to explore and implement additional new technologies (i.e. tablets, e-readers) and/or device functions (i.e. voice plans, texting capability).

(7) an analysis of the cost-effectiveness of the current or planned Applicant Wireless Program as compared to the use of other types of technology that would also meet the Program's objectives;

The MLD Project in the Watkins Glen Central School District utilizes a highly-cost effective approach to meeting the needs of participating students and teachers. The rural nature of the district's attendance area requires the use of mobile learning devices with mobile broadband access capabilities, since the availability of public and private Wi-Fi networks is limited and inequitable. Despite recent technological advances, the range of devices with ubiquitous mobile broadband capabilities remains relatively limited. The Verizon Wireless-provided smartphone devices and Netbooks currently provide a dramatically lower cost option than most other 3G enabled devices such as tablet computers and many netbooks.

In addition, the use of GST BOCES' Toolbox PRO software provides significant cost savings compared with GoKnow! Mobile Learning software and provides a more robust platform for supporting student access to online learning materials, communication tools, and multimedia tools. For example, GST BOCES Toolbox PRO teacher accounts are billed on a per teacher basis. GoKnow! Mobile Learning software is billed on a per device basis. Utilizing GoKnow! Mobile Learning software on the mobile learning devices currently in use by Watkins Glen students would cost more than $27,500 per year. Comparatively, Toolbox PRO cost the district only $775 per year.

(8) any relevant technology planning documents and, if applicable, a statement of long-term objectives for the Program;

The ongoing implementation, evaluation, and expansion of the current MLD Project will continue to be a major focus for the Watkins Glen Central School District over the next several years. A copy of the Watkins Glen Central School District's New York State-approved 2010-2013 Technology Plan, including MLD Project projected timelines and budgets, is included (See ATTACHMENT A).

All Mobile Learning Device Project activities in the Watkins Glen Central School District are informed by four long-term objectives:

1. To ensure that all district students have equitable and ubiquitous access to educational opportunities by providing every student with the tools necessary to fully engage in learning during classroom instruction and off campus, outside of regular school hours.
2. To create a student-centered learning environment that empowers students to be leaders, to deliver instruction, to problem-solve, and to come up with their own solutions.

3. To increase the percentage of students who demonstrate higher-level and critical thinking skills and essential 21st century fluencies that will prepare them for active participation in the digital age and globally-competitive world in which they will live.
4. To increase the percentage of students who are college and career ready by better aligning the Prekindergarten – Grade 12 educational environment with the 21st century work place and post secondary environment.

(9) a description of the specific measures taken, or that will be taken, to ensure compliance with the Children's Internet Protection Act and measures to protect against waste, fraud, and abuse;

GST BOCES, the Watkins Glen Central School District, and Verizon Wireless are committed to enforcing a policy of Internet safety that includes measures to block or filter Internet access for both minors and adults to certain visual depictions in order to safeguard children against objectionable or harmful material on the Internet. All mobile learning devices are also subject to the Watkins Glen Central School Districts' Internet Safety Policy. According to the policy, the Superintendent or his or her designee will ensure the purchase or provision of a technology protection measure that blocks access from all district computers to visual depictions on the Internet and World Wide Web that are obscene, child pornography or harmful to minors. To ensure compliance with the Children's Internet Protection Act, every mobile learning device is equipped with age-appropriate filtering software that can be activated to block or filter Internet access using forty different categories, including pornography, alcohol, drugs, hate, violence, suicide, and adult content. The district's computer network coordinator is responsible for ensuring the installation and proper use of any Internet blocking and filtering technology protection measure utilized by the district.

The MLD Project will also take specific measures to protect against waste, fraud, and abuse. According to district's fiscal management policy on purchasing:

> *Goods and services which are not required by law to be procured by the district through competitive bidding will be procured in a manner so as to ensure the prudent and economical use of public monies, in the best interests of the taxpayers, to facilitate the acquisition of goods and services of maximum quality at the lowest possible cost under the circumstances, and to guard against favoritism, improvidence, extravagance, fraud and corruption.*

The goal of all MLD Project purchasing activity will be to: (1) obtain materials, supplies and contracted services at the lowest prices possible consistent with the quality and standards needed as determined by the Purchasing Agent in conformance with state law and regulation and in cooperation with the requisitioning authority. The educational and physical welfare of the students is the foremost consideration in making any purchase; (2) ensure that all purchases fall within the framework of budgetary limitations and that they are consistent with the educational goals and programs of the district; (3) maintain an appropriate and comprehensive accounting and reporting system to record and document all purchasing transactions; and (4) ensure, through the use of proper internal controls, that loss and/or diversion of district property is prevented.

(10) a description of internal policies and enforcement procedures governing acceptable use of the wireless devices used in the Program off the school or library's premises.

The Watkins Glen Central School District's Internet Safety policy specifically outlines enforcement procedures governing the acceptable use – both on-campus and off-premise – of district computers, including mobile learning devices. Prior to being assigned a mobile learning device, participating students and their parent/guardian must sign a Mobile Learning Device Usage Agreement. The agreement details appropriate student care for and use of the device and the consequences for failing to demonstrate acceptable use. All participating students and their parents are notified that classroom teachers or other district staff will conduct random, unannounced checks of their devices. A student's viewing history is incorporated as part of their course grade. The district's computer network coordinator is responsible for monitoring to ensure that the online activities of staff and students are consistent with the district's Internet Safety Policy and related regulations. He or she may inspect, copy, review, and store at any time, and without prior notice, any and all usage of the district's computer network for accessing the Internet and World Wide Web and direct electronic communications, as well as any and all information transmitted or received during such use.

The district's policy also requires that district staff provide age-appropriate instruction regarding appropriate online behavior during in-school and out-of-school use of mobile learning devices. Student training will specifically target (1) interacting with other individuals on social networking sites and in chat rooms, and (2) cyberbullying awareness and response.

Required Information (schools only). **The applications filed by schools also must contain the following information:**

(1) the location of the school;

The Greater Southern Tier (GST) Board of Cooperative Educational Services (BOCES) is an Educational Service Agency that provides services for twenty-one component school districts across a geographic region of more than 2,000 square miles in the Southern Tier of New York State. GST BOCES provides services from three campuses: the Bush Campus located in Elmira, NY; the Coopers Campus located in Coopers Plains, NY; and the Wildwood Campus located in Hornell, NY.

The Watkins Glen Central School District is located in Schuyler County, a rural, geographically isolated, economically depressed region in the Southern Tier of New York State at the Southern end of Seneca Lake. The district serves the Village of Watkins Glen (population 2,550) as well as numerous rural hamlets located in Schuyler County.

(2) the name of the school applicant, along with a complete list of the individual schools that will be served, including their billed entity numbers;

The Mobile Learning Device (MLD) Project is a joint venture between the Greater Southern Tier BOCES (legally known as Schuyler-Steuben-Chemung-Tioga-Allegany BOCES) and the Watkins Glen Central School District. GST BOCES is the E-rate applicant, and Watkins Glen Central School District is the recipient of services. The MLD Project serves the following schools:

- Watkins Glen Middle School (Billed Entity Number 16194)
- Watkins Glen High School (Billed Entity Number 16193)

(3) a description of the school district or school, including the type of school, such as private, public, charter, or other special type of school;

The Greater Southern Tier BOCES is an education service organization whose mission is to ensure the success of diverse learners, parents, community members, schools and businesses by providing collaboratively inspired, cost-effective, quality programs in an atmosphere that is safe and supportive. The Greater Southern Tier BOCES exists to serve twenty-one component school districts with a variety of shared services.

The Watkins Glen Central School District is a New York State public school district whose mission is "Together, school and community shall provide for growth, learning and achievement at all levels." The district serves 1,232 students in one elementary school, one middle school, and one high school.

(4) a description of the Program's curriculum objectives, the grade levels included, and the number of students and teachers involved and/or being served as part of the program; and

The MLD Project's curriculum objective is to increase the percentage of students who demonstrate the higher-level and critical thinking skills and essential 21st century fluencies that will prepare them for active participation in the digital age and globally-competitive world. Watkins Glen Central School District's curriculum is aligned to the grade-by-grade performance indicators as designated under New York State's learning standards and key ideas. Integrating mobile learning devices with ubiquitous mobile broadband access into all curriculum areas allows teachers to facilitate learning opportunities that more closely align with the 21st century workplace and post secondary environment.

The Mobile Learning Device Project involves 31 teachers and serves 355 students in grades 5-8 at the Watkins Glen Middle School at 45 students in ninth grade at the Watkins Glen High School.

(5) a summary of any data collected by the school on Program outcomes and achievement of Program objectives.

The project partners have collected a range of quantitative and qualitative data to evaluate how effectively MLD Project activities have achieved project objectives during the initial fifteen months of implementation. Specific data collected by GST BOCES and the district includes:

- Access to Toolbox PRO: Monitoring of student use of Toolbox PRO outside of the regular school day (between 3:00 PM and 7:00 AM on weekdays, and anytime on weekends) has revealed that a significant number of students regularly spend an average of 15-20 minutes logged on to Toolbox PRO.
- Student Academic Achievement: First quarter grades from the 2009-2010 and 2010-2011 school year indicate increased academic achievement across multiple core curriculum areas. The percentage of fifth grade students demonstrating mastery has increased by 40% in ELA; 25% in Math; 25% in Social Studies; and 40% in Science. In addition, the 2009-2010 fifth graders showed substantial gains in the percentage of students demonstrating proficiency on New York State assessments in ELA and Math compared to the cohort's previous scores.
- Time on Task: District teachers and administrators estimate that the mobile learning devices have increased time on task by more than 20% during classroom instruction, in addition to the time students spend using the devices at home.

- Homework Submission: Teachers report that homework submission rates have increased substantially now that students are able to use their mobile learning devices to access, complete, and submit assignments anytime/anywhere.
- Student Attendance: A comparison of attendance rates from the first quarters of the 2009-2010 and 2010-2011 school years indicate a 1.5% increase in the average daily attendance rate for students in grades 5-8. During the same period, the number of unexcused absences has decreased by 21%.
- 21st Century Skills and Fluencies: Skill-based rubrics and teacher observations indicate that students are increasingly developing and demonstrating information fluency, solution fluency, creative fluency, media fluency, and collaboration fluency. In addition, students are developing progressively more sophisticated systems for organizing and managing their learning.
- Parent Involvement: The Principal at Watkins Glen Elementary School reports that parent phone calls, participation in information meetings, and use of the district website have increased 60-70% since the implementation of the MLD Project.

Attachment A:

Watkins Glen Central School District 2010-2013 Technology Plan

District Mission Statement: "Together, school and community shall provide for growth, learning, and achievement at all levels."

Watkins Glen Central School District
2010 – 2013 Technology Plan

Index of Sections

Section A - District Overview & Factors:

Watkins Glen is a rural community, located at the south end of Seneca Lake in Schuyler County. The beauty of the region yearly attracts visitors for recreation, summer festivals and auto racing. Tourism and agriculture (grape and dairy) are the primary factors driving the economy in Schuyler County. Many individuals work outside of the county commuting to neighboring Ithaca, Elmira, Corning and beyond.

The Watkins Glen Central School district has a student population of approx.1,325 , including approx.152 students with disabilities (K-12 aged). 12% of the total district's student population is classified. One third of the student body is on free and reduced lunch. 61% percent of graduates attend two and four year institutions. The graduation rate is 86%. The dropout rate is 1%. There 140-145 professional teaching staff members.

The Watkins Glen Elementary, Middle and High School facilities tend to be the center of the community. Facilities include an adventure playground, a kindergarten playground, access to the Queen Catherine Nature trail and athletic fields – all available for community use.

A field house contains a large gymnasium, an indoor track and weight training facility. These facilities are adjacent to a new 8-lane pool. A $39 million capital improvement project completed in 2003 also provided for the augmentation of our computer network, which meant additional network closets, drops in each room, switches/routers at the closet ends in all buildings and virtualization of server. The project provided for additional computer labs in all three school buildings, along with wireless laptop mobile labs for each building. Computers are resident in all classrooms of each building as well.

Educational initiatives to support student achievement include before and after school tutorial programs in all 3 buildings. Thematic units, many with arts integration and several arts grants, create rich learning environments. Technology is integrated with the support of specially trained staff with a Director of Technology, an on-site LAN technician and a 3.5 day on-site Instructional Support Teachers all funded through our GST BOCES cosers , 605 & 512. AP/ACE and CISCO networking classes enable high school students to excel beyond the regular program.

Administratively, technology is also embedded deeply within our district. All staff have email capability, data storage, Internet access, networked student management reporting for grades, attendance and other pertinent information. The business office performs its various data, financial, tax, banking and records management functions both via the network and the Internet. Students all have access to the Internet, Microsoft Office applications, other appropriate networked & web based applications/programs and individual student accounts in order to store/retrieve their work data

Our Middle School through the Comprehensive School Reform (CSR) grant has partnered with the Galef Institute (Different Ways of Knowing) a nationally recognized school reform model using arts integration as a tool in the successful motivation of all students. Corning Museum of Glass has entered into this partnership with us. Many staff development opportunities for our staff and hands on experiences for students are a result of this partnership. This has only enhanced an arts integration program started in our Elementary School seven years ago, funded in part by the Arts of the Southern Finger Lakes and Syracuse Arts Partners.

Professional Development is centered on the districts core competencies for staff. The core competencies are Cooperative Learning. Language Literacy, Dimensions of Learning, Multiple Intelligence/Learning Styles, Team Building, Cooperative Learning Skills, Positive Behavior

Interventions and Support and Technology Literacy. Embedded staff development opportunities are offered to all staff to develop their skills in each of these areas. In addition, as we work to improve alignment of our curriculum and assessments to the NYS Standards, the district provides the training needs identified by the staff to create standards-based classrooms. The primary areas of technological change and improvement over the next three year period will centered on wireless connectivity across the entire district, expanding the MLD (mobile learning device) project first brought online at the Middle School in September of 2009, and continuing with expansion of Interactive Whiteboards, specifically Promethean Board to other classrooms in the district. Since September 2007, the district has installed 36 Promethean Boards and they have proven to be integral tools to classroom instruction. Relative to MLD's, deciding upon what type of devices or moving to a 1:1 computing devices environment will need to be a major focus for the district in the coming 1-2 years. Assisting with this decision financially, starting with the 2010-11 school year, the district will earmark $150,000 per school year specifically to update and add new hardware capabilities. The previous approach of waiting for a 3 year IPA lease agreement to run it's course has proven to be a difficult method for keeping up with ever changing technology.

The community is a partner with the district either directly or indirectly, supporting student achievement. The organizations/programs involved include the Retired Senior Volunteer Program, Rotary, Learn Not to Burn, Career Development Council, Parents as Reading Partners, C.A.A.S.T, Lake Country Players, Mental Health Outreach, FLACRA, PTA, D.A.R.E, Hospital Outreach, Even Start Family Literacy, Council on Alcoholism, Prevention Counselor (MS/HS), CCSI, Cornell Cooperative Extension and School Resource Officer Program.

As with any technology plan basic, foundational elements dictate the process for implementation, monitoring and course corrections. For Watkins Glen Central School District those "foundational" elements are the core beliefs, mission statement and CDEP focal points as indicated below. Certainly this plan is an ever evolving, living plan and process that at times will have a need to ebb and flow according to financial and consequential resource constraints but it will always maintain its direction based upon the district's mission statement of;

The district technology plan is structured to support the following belief statements of the district:

- Learning is a life-long process that is purposeful, challenging, stimulating, interesting and fun;
- It is the responsibility of the whole community to educate our children;
- Children and schools benefit when parents are involved in their children's upbringing and education;
- Reason risk-taking by all is an important part of the education process;
- The school community values challenge and accountability in a quality education
- Each individual is unique and has something to offer;
- Children learn in different ways and at different rates, and that different instructional strategies accommodate these differences;
- Respect for self and others is a part of the learning process.

The plan also supports the following district focal points as determined in the WGCSD Comprehensive District Education Plan:

- To Provide a Safe and Orderly Environment
- To Continually Enhance and Improve Home-School Relations

- To Continually Monitor Student Success
- To Continually Uphold the Message of High Expectations for Success
- To Continually Provide Opportunities To Learn

Section B - Strategy and Expectations for Student Outcome & Achievement

Technology can assist students in becoming better learners and given the embedded nature of technology in the daily routine of today's society, students need to learn about technology.

"*Curriculum for Information Technology Literacy"*, is a board approved curriculum that meets the New York State requirements for our district's continued integration of technology in the instructional setting. This curriculum was introduced at the onset of the 2008-2009 school year.

It should be noted that the method of intentional instruction at each building level might be delivered very differently based on students, staff and building needs. Of greatest importance is maintaining the integrity of the assessments, essential learning and performance indicators as defined and delineated in this curriculum.

The Curriculum for Information Technology Literacy utilized the following Technology Standards for Students as defined by the International Society for Technology in Education (ISTE) as the foundation for creation, implementation and assessment:

*The **Technology Foundation Standards for Students** are divided into six broad categories. Standards within each category are to be introduced, reinforced, and mastered by students. These categories provide a framework for linking performance indicators found within the Profiles for Technology Literate Students to the standards. Teachers can use these standards and profiles as guidelines for planning technology-based activities in which students achieve success in learning, communication, and life skills.*

The Six Major information technology standards:

1. Basic Operation and concepts:

- **A. Students demonstrate a sound understanding of the nature and operation of technology systems**
- **B. Students are proficient in the use of technology.**

2. Social, ethical, and human issues

- **A. Students understand the ethical, cultural, and societal issues related to technology.**

B. **Students practice responsible use of technology systems, information, and software.**
C. **Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.**

3. Technology productivity tools

A. **Students use technology tools to enhance learning, increase productivity, and promote creativity.**
B. **Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.**

4. Technology communications tools

A. **Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.**
B. **Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.**

5. Technology research tools

A. **Students use technology to locate, evaluate, and collect information from a variety of sources**
B. **Students use technology tools to process data and report results**
C. **Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.**

6. Technology problem-solving and decision-making tools

A. **Students use technology resources for solving problems and making informed decisions.**
B. **Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.**

(Adopted and revised from:: ISTE's National Educational Technology Competencies)

Section C - Curriculum for Information Technology Literacy

Watkins Glen Central School District

Curriculum for Information Technology Literacy – WGCSD

Note: Numbers in parenthesis ( ) refer to the ISTE'S Six Major information technology standards.

1. Basic Operation and concepts
2. Social, ethical, and human issues
3. Technology productivity tools
4. Technology communication tools
5. Technology research tools
6. Technology problem-solving and decision-making tools

By the End of 3rd Grade			
Point of Entry	**Performance Indicators**	**Sample Tasks**	**Assessment**
	• Work cooperatively and collaboratively with peers, family members, and others when using technology in the classroom. (2) • Demonstrate positive social and ethical behaviors when using technology. (2) • Practice responsible use of technology systems and software. (2)	▪ Plan, create and present a simple multimedia project. (Ex: a slide show presentation with graphics) ▪ Students will properly cite sources for a researched-based document ▪ Students will practice proper handling and care of software, hardware and Internet Ex: properly shutting down computer Ex not opening Pop-Ups	▪ Teacher evaluation Rubric ▪ Checklist - Rubric ▪ Teacher observation ▪ Acceptable Use Policy

By the End of 3rd Grade (continued)			
Point of Entry	**Performance Indicators**	**Sample Tasks**	**Assessment**

	• Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. (3, 4, 5, 6) • Gather information and communicate with others using telecommunications, with support from teachers, family members, or student partners. (4)	▪ Create a graphic organizer using computer software. ▪ Participate in a Distance learning project ▪ Communicate to others through the use of the school's TV Broadcasting studio	▪ Teacher observation Rubric ▪ End project ▪ Teacher observation ▪ Checklist

By the End of 5th Grade			
Point of Entry	**Performance Indicators**	**Sample Tasks**	**Assessment**
	• Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively. (1) • Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. (1, 2) • Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use. (2)	• Students will use proper keyboarding skills to key documents. • Use the internet to search for maps, people, and various topics. • Participate in an internet scavenger hunt. • Prepare a short report citing references and know and apply copyright and privacy rules. • Acceptable use policy	• Teacher observation, key at 15 wpm • End product • Completion of hunt • Teacher evaluation (rubric) • Signing of policy
	• Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum. (3) • Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom. (3, 4)	• Students will begin to develop proficiency in use of word processing software and creation of documents. • Using desktop publishing software, students will create a classroom newsletter to be shared with students, parents, and other classes.	• Teacher evaluation Rubric or checklist • Finished product Rubric

By the End of 5th Grade (continued)			
Point of Entry	**Performance Indicators**	**Sample Tasks**	**Assessment**
	• Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning, and pursue personal interests. (4)	• Distant learning tours conducted in classrooms (ex. NASA for model rockets, virtual tours)	• Teacher observation • Written assignment
	• Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. (4, 5)	• Use of video conferencing and distance learning to communicate with other schools to discuss various topics.	• Teacher observation
	• Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. (5,6)	▪ Students will be proficient in using spreadsheets to create line graphs of data collected monthly to show the change in amount of daylight (specific connection to the Astronomy unit).	• End product • Rubric
	• Determine which technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. (5, 6)	• Conduct a survey and create a graph using spreadsheet and presentation software to present the results.	• End product • Rubric
	• Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources. (6)	• Students will research a topic using the data bases recommend by the school to determine appropriate and accurate websites and information.	• Teacher evaluation of final product

By the end of 8th Grade			
Point of Entry	**Performance Indictors**	**Sample Tasks**	**Assessment**
	• Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use. (1) • Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society. (2) • Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse. (2)	• Students will develop a routine to trouble shoot software or computer problems before involving the teacher. • Students will understand how computers are used in the workplace and how jobs have changed because of them. • Through research and development of projects students are knowledgeable of copyright limitations, plagiarism and recognition of reliable sources. • Acceptable Use Policy	• Teacher observation • Test • Test • Evaluation of final product (rubric) • Signing policy
	• Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research. (3, 5) • Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum. (3, 6)	• Conduct a scientific investigation using probes that answers a question by means of the collection and analysis of data. • As a group, create a multimedia project on a given topic. (ex. music video, survey, advertising campaign)	• Proof of results • Evaluation of final product (rubric)

By the end of 8th Grade (continued)			
Point of Entry	**Performance Indicators**	**Sample Tasks**	**Assessment**
	• Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom. (4, 5, 6) • Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom. (4, 5) • Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems. (5, 6)	• Create posters, fliers, & brochures using technology to demonstrate knowledge and understanding of various subjects (ex. careers, nutrition) • Develop a product, create, market, and distribute using various technology tools. (ex. Cookbook) • Students create a short video on how they solved a problem and what technology they used to solve the specific problem.	• Finished product (rubric) • Finished product (rubric) • Finished product (rubric)
	• Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving. (1, 6) • Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems. (2,5,6)	• Students will understand and demonstrate how to save a file to several different locations, make back copies, and organize electronic data using folders. • In using the internet and methods taught, students will apply skills to decipher reliable sources for research papers	• Teacher observation of demonstration of skills. • Teacher evaluation of websites through citations.

By the end of 12th Grade			
Point of Entry	**Performance Indicators**	**Sample Tasks**	**Assessment**
	• Identify capabilities and limitations of contemporary and emerging technology resources and assess the potential of these systems and services to address personal, lifelong learning, and workplace needs. (2) • Make informed choices among technology systems, resources, and services. (1, 2) • Analyze advantages and disadvantages of widespread use and reliance on technology in the workplace and in society as a whole. (2) • Demonstrate and advocate for legal and ethical behaviors among peers, family, and community regarding the use of technology and information. (2)	• Basic skills: Mastery of skills from previous grade levels. ex. save and retrieve data, WP, spreadsheets, Presentation software. • Through research and development of projects students are knowledgeable of copyright limitations, plagiarism, and recognition of reliable sources. • Students agree to Acceptable Use Policy for the district. (see Board Policy) • Given a classroom topic, students evaluate technology choices and determine the most appropriate use of technology for presentation (PP, video, visual presenter, tables, graphs, etc)	• Teacher observation • Skills test • Key at 30 wpm (85% accuracy) • Teacher evaluation of proper citations • Signing of policy • Teacher observation Final Product
	• Use technology tools and resources for managing and communicating personal/professional information (e.g., finances, schedules, addresses, purchases, correspondence). (3, 4)	• Complete electronic college applications. • Letter of application for a job • Budget • Database of names/addresses	• Final product • Rubrics

By the end of 12 grade (continued)			
Point of Entry	**Performance Indicators**	**Sample Tasks**	**Assessment**
	• Evaluate technology-based options, including distance and distributed education, for lifelong learning. (5) • Routinely and efficiently use online information resources to meet needs for collaboration, research, publications, communications, and productivity. (4, 5, 6) • Select and apply technology tools for research, information analysis, problem-solving, and decision-making in content learning. (4, 5)	• Conduct interviews via internet and distance learning for thesis or other research projects. • Create web pages, newspaper, yearbook and other school publications. • As a group students will plan, create advanced multimedia projects including citations from internet sources. • Research to prepare brochure for a foreign country.	• Teacher evaluation of data (rubric) • Final product • Final product (rubric) • Rubric
	• Investigate and apply expert systems, intelligent agents, and simulations in real-world situations. (3, 5, 6) • Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works. (4, 5, 6)	• Stock market projects. Students evaluate the market, buy and sell stocks and compete with other classes. • Conduct a scientific investigation and present results.	• Stock Portfolio • Teacher observation • Proof of results

Note: Numbers in parenthesis ( ) refer to the ISTE'S Six Major information technology standards.

1. Basic Operation and concepts
2. Social, ethical, and human issues
3. Technology productivity tools
4. Technology communication tools
5. Technology research tools
6. Technology problem-solving and decision-making tools

The Crosswalk of ISTE's Education Technology Standards and Performance Indicators with NYS Learning Standards & Performance Indicators Associated with Education Technology Skills

1. Basic operations and concepts

MST Standard 2 Information Systems

Intermediate

- use a range of equipment and software to integrate several forms of information
- use spreadsheets and data-base software, electronic data bases and on-line services
- obtain accurate and relevant information from a range of sources
- collect data from probes to measure events and phenomena use simple modeling programs to make predictions.

MST Standard 3 Math

Intermediate-

- Explore and produce graphic representations of data using calculators/computers.

CDOS Standard 3a

Intermediate-

- Select and use appropriate technology to complete a task
- Select and communicate information in an appropriate format (e.g., oral, written, graphic, pictorial, multimedia)

English Language Arts (ELA) Standard 1:

Information and Understanding- Listening & reading to acquire information and understanding involves collecting data, facts, and ideas; discovering relationships, concepts, and generalizations; and using knowledge from oral, written, and electronic sources

MST Standard 2 Information Systems

Intermediate

- use a range of equipment and software to integrate several forms of information
- use spreadsheets and data-base software, electronic data bases and on-line services
- obtain accurate and relevant information from a range of sources
- collect data from probes to measure events and phenomena use simple modeling programs to make predictions.

MST Standard 5 Technology
Intermediate-

- assemble a complete computer system
- use a computer system to acquire information from the Internet
- use computer hardware and software to create prototypical designs and models
- use a computer system to monitor and control external events and/or systems

MST Standard 7: Access and Analysis
Intermediate-

- *Access information from printed media, electronic databases, and community resources*
- *Use the information to develop a definition of the problem and to research possible solutions.*

2. Social, ethical, and human issues

MST Standard 2 Information Systems
Intermediate

- use a range of equipment and software to integrate several forms of information
- use spreadsheets and data-base software, electronic data bases and on-line services
- obtain accurate and relevant information from a range of sources
- collect data from probes to measure events and phenomena use simple modeling programs to make predictions.

MST Standard 5 Technology
Intermediate-

- assemble a complete computer system
- use a computer system to acquire information from the Internet
- use computer hardware and software to create prototypical designs and models
- use a computer system to monitor and control external events and/or systems

CDOS Standard 3a
Intermediate-

- Select and use appropriate technology to complete a task
- Select and communicate information in an appropriate format (e.g., oral, written, graphic, pictorial, multimedia)

ELA Standard 4: *Social Interaction*
Intermediate -

- write social letters, cards, and electronic messages to friends, relatives, community acquaintances, and other electronic network users

Health, Phys. Ed. And FACS
Standard 3
Intermediate (Health)-

- Analyze how media and technology influence the selection of health information, products and services

3. Technology productivity tools

MST Standard 1 Analysis, Inquiry and Design
Intermediate-

- Locate and utilize a range of printed, electronic, and human information resources to obtain ideas.

MST Standard 2 Information Systems
Intermediate

- use a range of equipment and software to integrate several forms of information
- use spreadsheets and data-base software, electronic data bases and on-line services
- obtain accurate and relevant information from a range of sources
- collect data from probes to measure events and phenomena use simple modeling programs to make predictions.

MST Standard 3 Math
Intermediate-

- Explore and produce graphic representations of data using calculators/computers.

The Arts Standard 2
Intermediate (Dance)-

- Demonstrate knowledge of sources for understanding dance technologies: live, print, video, computer, etc.

Intermediate (Music)-

- Use traditional or nontraditional sound sources, including electronic ones, in composing and performing simple pieces
- Use current technology to create, produce and record/playback music

Intermediate (Visual Arts)-

- Use the computer and electronic media as designing tools and to communicate visual ideas

MST Standard 5 Technology
Intermediate-

- assemble a complete computer system
- use a computer system to acquire information from the Internet
- use computer hardware and software to create prototypical designs and models
- use a computer system to monitor and control external events and/or systems

ELA Standard 4: *Social Interaction*
Intermediate -
write social letters, cards, and electronic messages to friends, relatives, community acquaintances, and other electronic network users

4. Technology communications tools

MST Standard 2 Information Systems
Intermediate

- use a range of equipment and software to integrate several forms of information
- use spreadsheets and data-base software, electronic data bases and on-line services
- obtain accurate and relevant information from a range of sources
- collect data from probes to measure events and phenomena use simple modeling programs to make predictions.

Social Studies Standard 4
Intermediate-

- Identify and collect economic information from… computer databases,…
- Present economic information by using media…

Social Studies Standard 3
Intermediate-

- Use a number of research skills (e.g., computer databases,…)
- Present geographic information in a variety of formats, including computer-generated models.

CDOS Standard 2
Intermediate-

- Use academic knowledge and skills in an occupational context, and demonstrate the application of these skills by using a variety of communication techniques (e.g., sign language, pictures, videos, reports and technology

CDOS Standard 3a
Intermediate-

- Select and use appropriate technology to complete a task
- Select and communicate information in an appropriate format (e.g., oral, written, graphic, pictorial, multimedia)

ELA Standard 4: *Social Interaction*
Intermediate -

- write social letters, cards, and electronic messages to friends, relatives, community acquaintances, and other electronic network users

5. Technology research tools

Social Studies Standard 4
Intermediate-

- Identify and collect economic information from computer databases,…
- Present economic information by using media…

CDOS Standard 3a
Intermediate-

- Select and use appropriate technology to complete a task
- Select and communicate information in an appropriate format (e.g., oral, written, graphic, pictorial, multimedia)

MST Standard 2 Information Systems
Intermediate

- use a range of equipment and software to integrate several forms of information
- use spreadsheets and data-base software, electronic data bases and on-line services
- obtain accurate and relevant information from a range of sources
- collect data from probes to measure events and phenomena use simple modeling programs to make predictions.

Health, Phys. Ed. And FACS
Standard 3
Intermediate (Health)-

- Analyze how media and technology influence the selection of health information, products and services

6. Technology problem-solving and decision-making tools

MST Standard 2 Information Systems
Intermediate

- use a range of equipment and software to integrate several forms of information
- use spreadsheets and data-base software, electronic data bases and on-line services
- obtain accurate and relevant information from a range of sources
- collect data from probes to measure events and phenomena use simple modeling programs to make predictions.

****Information obtained from ISTES (International Society for Technology Education) National Educational Technology Standards Project**

Information Technology Literacy Standards for Students Assessment Checklist

WGCSD has worked with GST Boces Application/Programming Services to develop this checklist into a networked based application that will allow for easy data input, storage, reporting and historical retrieval. This application has been implemented for use at the start of the 2009-2010 school year, and acts as the district's assessment tool for tech literacy.

Educational Technology Literacy Standards for Students

Based on the International Society for Technology in Education (ISTE)
Six Major Categories

I = Introduction – the student is introduced to the subject via observation/one-on-one assistance/guidance
G = Guided – The student can perform with minimal assistance/reminders.
IU = Independent User – The student performs without assistance.

Basic Operations and Concepts (Standard 1)

	Use and understanding of basic computer related terminology
	Log In
	Cursor
	Icon
	Scroll Bar
	Hour Glass/busy
	Internet
	Minimize
	Maximize
	Network
	Directory
	Open File/Save File
	Word Processor
	Edit
	Hardware
	Software
	Copyright
	Software Policy
	License Agreement
	Electronic mail (e-mail)
	File
	Telecommunication
	Multimedia
	Read-only file
	Desktop Publishing
	Spreadsheet
	Cell
	Column
	Row
	Formula
	Database
	Query

	Field
	Record
	Boolean Search
	Firewall
	Podcast

Basic Operations and Concepts (Standard 1)

Identify basic computer hardware components and peripheral devices:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Keyboard & Mouse	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Monitor	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Printer	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Headphones/Speakers	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	CD-ROM/RW	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Hard Drive		I	G	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Disk		I	G	G	G	G	IU	IU	IU	IU	IU	IU	IU
	File Server		I	G	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Scanner				I	I	G	IU	IU	IU	IU	IU	IU	IU
	Digital Camera/Video				I	I	G	G	G	G	G	IU	IU	IU
	USB Port						I	G	G	IU	IU	IU	IU	IU
	Alternate Storage Devices						I	G	G	IU	IU	IU	IU	IU
	RAM								I	G	G	IU	IU	IU
Care and appropriate use of hardware:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Demonstrate appropriate care and use of basic computer components	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Demonstrate appropriate care and use of storage devices (disks, CD-ROM)	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Evaluate the computer's power system	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Demonstrate ability to turn computer off/on using the appropriate method	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Demonstrate appropriate care and use of printer	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
Identify the functions and advantages of computer productivity software:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Word Processing	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Telecommunications (e-mail & internet)		I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU
	Presentation				I	G	G	G	G	G	IU	IU	IU	IU
	Desktop Publishing				I	G	G	G	G	G	IU	IU	IU	IU
	Spreadsheet/Graphs				I	G	G	G	G	G	IU	IU	IU	IU
	Database										G	G	G	G
Use basic computer management skills:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Demonstrate ability to access and exit software	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Demonstrate ability to move throughout a document/window	I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Demonstrate ability to minimize, maximize and restore		I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU
	Demonstrate ability to manage files (saving, naming and retrieving)		I	G	G	G	IU	IU	IU	IU	IU	IU	IU	IU

	Demonstrate the ability to print		I	G	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Demonstrate ability to organize files/folders			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Demonstrate ability to use utilities (formatting, copying, deleting, backup, saving					I	G	G	G	G	G	IU	IU	IU
	Demonstrate appropriate use of log in numbers/names	I	G	G	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Demonstrate appropriate use of network printing			I	G	G	G	G	G	G	IU	IU	IU	IU
	Creating individual use passwords							I	G	G	IU	IU	IU	IU
	Knowing the importance of password security			I	I	I	I	I	G	G	IU	IU	IU	IU

Social, Ethical, and Human Issues (Standard 2)														
		K	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Demonstrate understanding of appropriate legal/ethical conduct by:														
	Demonstrate appropriate use of computers according to district policy	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
	Demonstrate appropriate computer etiquette	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
	Respecting the privacy of others	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
	Obeying copyright laws	I	G	G	G	G	G	G	G	G	G	IU	IU	IU
Social Skills														
	Use technology in a positive manner	I	G	G	G	G	G	G	G	G	G	G	G	G
	Work cooperatively with others	I	G	G	G	G	G	G	G	G	G	G	G	G
	Understand how misuse of technology can effect others.	I	G	G	G	G	G	G	G	G	G	G	G	G
Technology Productivity Tools (Standard 3)														
		K	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Keyboarding Skills														
	Demonstrate appropriate hand and finger positions and movements on the keyboard	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
	Demonstrate appropriate posture	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
	Demonstrate appropriate hand position and movement of the mouse	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
	Demonstrate appropriate hand and wrist exercises as needed	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
	Demonstrate correct finger reaches from home row to surrounding keys (letter, spacebar, enter key, backspace, shift and punctuation)	I	G	G	G	G	G	G	G	G	IU	IU	IU	IU
	Demonstrate appropriate use of special keyboard keys (Ctrl, Alt, Delete, Tab, Arrow Keys, etc.)			I	G	G	G	G	IU	IU	IU	IU	IU	IU
	Demonstrate appropriate use of special keyboard keys (Home, End, Page Up, Page Down)				I	G	G	G	IU	IU	IU	IU	IU	IU
	Demonstrate appropriate use of numbers, symbols and numeric key pad				I	G	G	G	IU	IU	IU	IU	IU	IU
	Type with continuity and rhythm using touch typing keyboarding methods.	I	I	I	I	G	G	G	G	G	IU	IU	IU	IU
Create and save new documents:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Creating a new document			I	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Identify the appropriate layout for intended use			I	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Use of save and save as			I	G	IU	IU	IU	IU	IU	IU	IU	IU	IU

	Save as HTML for use on a web page									I	G	G	G	IU
Open, view, and print documents:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Retrieve a document			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	View a document			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Use print preview			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Print an entire file			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Print selected parts			I	G	IU	IU	IU	IU	IU	IU	IU	IU	IU
	Print selected parts			I	G	G	G	IU	IU	IU	IU	IU	IU	IU

		K	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Format documents:														
	Selecting appropriate font, style, and size			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Word spacing			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Indenting				G	G	G	IU	IU	IU	IU	IU	IU	IU
	Alignment				I	G	G	G	IU	IU	IU	IU	IU	IU
	Line spacing				I	G	G	IU	IU	IU	IU	IU	IU	IU
	Selecting and formatting text				I	G	G	G	IU	IU	IU	IU	IU	IU
	Apply bullets and numbering				I	G	G	G	IU	IU	IU	IU	IU	IU
	Insert symbols							I	G	G	IU	IU	IU	IU
	Selecting page orientation					I	G	G	IU	IU	IU	IU	IU	IU
	Margins						I	G	G	IU	IU	IU	IU	IU
	Setting Tabs								I	G	G	IU	IU	IU
	Using headers, footers and pagination							I	G	G	IU	IU	IU	IU
	Tables							G	G	G	G	G	IU	IU
Edit Text:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Changing font, style and size			I	G	G	G	G	IU	IU	IU	IU	IU	IU
	Cutting, copying, pasting, drag, and deleting text			I	G	G	IU	IU	IU	IU	IU	IU	IU	IU
	Undo/Redo			I	G	G	IU	IU	IU	IU	IU	IU	IU	IU
	Using spell check				I	G	IU	IU	IU	IU	IU	IU	IU	IU
	Using thesaurus					I	G	G	G	G	IU	IU	IU	IU
	Using find and replace							I	G	G	IU	IU	IU	IU
Use desktop publishing techniques		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Inserting graphic			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Sizing graphics			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Creating graphics			I	G	G	G	IU	IU	IU	IU	IU	IU	IU
	Columns						I	G	G	G	IU	IU	IU	IU
	Use graphic/photo editing tools						I	G	G	G	IU	IU	IU	IU
	Use paint and draw tools						I	G	G	G	IU	IU	IU	IU
	Use appropriate design and layout						I	I	G	G	IU	IU	IU	IU
	Use appropriate templates and wizards						I	I	G	G	IU	IU	IU	IU
Use a word processor in a real world context to:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Create stories and/or poems			I	G	G	G	G	G	G	IU	IU	IU	IU
	Create reports				I	G	G	G	G	G	IU	IU	IU	IU

	Create letters with envelopes and memorandums					I	G	G	G	G	IU	IU	IU	IU
	Create a formal lab report							I	G	G	G	IU	IU	IU
	Create a bibliography								I	G	G	G	IU	IU
	Create a resume and cover letter										I	G	IU	IU
	Create a mail merge										I	G	G	IU
Spreadsheet Skills														
Create and save spreadsheet:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Identify intended use				I	I	G	G	G	G	G	G	IU	IU
	Identify cells, columns and rows				I	I	G	G	G	G	G	G	IU	IU
	Specify data organization				I	I	G	G	G	G	G	G	IU	IU
	Set cell attributes				I	I	G	G	G	G	G	G	IU	IU
	Navigate, enter and edit data				I	I	G	G	G	G	G	G	IU	IU
	Create calculation formulas				I	I	G	G	G	G	G	G	IU	IU

Retrieve Data		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Sort Data				I	I	G	G	G	G	G	G	IU	IU
	Create graphs				I	I	G	G	G	G	G	G	IU	IU
	Print spreadsheet				I	I	G	G	G	G	G	G	IU	IU
Edit Data		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Insert/delete column or row				I	I	G	G	G	G	G	G	IU	IU
	Cut, copy and paste data and formulas				I	I	G	G	G	G	G	G	IU	IU
	Use fill down/across				I	I	G	G	G	G	G	G	IU	IU
	Save updated spreadsheet				I	G	G	G	G	G	G	G	IU	IU
	Format data within a spreadsheet				I	I	G	G	G	G	G	G	IU	IU
	Insert graphics				I	I	G	G	G	G	G	G	IU	IU
	Save as HTML for use on a web page									I	G	G	G	G
Use a spreadsheet in a real world context to:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Analyze and solve problems					I	G	G	G	G	G	G	IU	IU
	Use appropriate graph(s) based on data					I	I	G	G	G	G	G	IU	IU
	Visually represent data					I	I	G	G	G	G	G	IU	IU
	Incorporate graphs in other applications						I	G	G	G	G	G	IU	IU
Database Applications														
Create and save database:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Identify intended use									I	G	G	G	G
	Specify data organization									I	G	G	G	G
	Name fields									I	G	G	G	G
	Set field attributes									I	G	G	G	G
	Enter data using a consistent format									I	G	G	G	G
	Edit data as needed									I	G	G	G	G
	Save as HTML for use on a web page									I	G	G	G	G
Retrieve Data		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Sort								I	G	G	G	G	G
	Search for specific data by field								I	G	G	G	G	G
	Create and print forms, queries and reports										I	G	G	G
Edit data:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Insert, modify and delete records									I	G	G	G	G
	Insert, modify and delete a field									I	G	G	G	G
	Save updated records									I	G	G	G	G
	Determine appearance of page										I	G	G	G
	Insert header/footer										I	G	G	G
Use a database in a real world context to:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Analyze and solve problems										I	G	G	G

	Integrate with other applications										I	G	G	G

Technology Communication Tools (Standard 4)														
Use the internet to:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Demonstrate appropriate behavior for Internet and e-mail use	I	G	G	G	G	G	G	IU	IU	IU	IU	IU	IU
	Sending and receiving electronic mail					I	G	G	G	G	IU	IU	IU	IU
	Navigate to teacher chosen websites			I	I	G	G	G	IU	IU	IU	IU	IU	IU
	Add/use Internet browser				I	I	I	I	G	G	IU	IU	IU	IU
	Ability to navigate browser software using the toolbar and hyperlinks				I	I	I	I	G	G	IU	IU	IU	IU
	Acquire information as text, audio and graphics				I	I	I	I	G	G	IU	IU	IU	IU
	Evaluate acquired information for validity and usefulness				I	I	I	I	G	G	G	IU	IU	IU
	Use electronic reference tools (CD-ROMs and Internet		I	I	I	I	I	I	G	G	IU	IU	IU	IU
Prepare an electronic presentation:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Create a slide presentation				I	G	G	G	G	G	G	IU	IU	IU
	Create and edit slides				I	G	G	G	G	G	G	IU	IU	IU
	Add and edit text (font, size and color)				I	G	G	G	G	IU	IU	IU	IU	IU
Change the look of your presentation:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Customize the background				I	G	G	G	G	G	G	G	IU	IU
	Arrange objects on the slide				I	G	G	G	G	IU	IU	IU	IU	IU
	Insert graphics, clipart and/or digital pictures				I	G	G	G	G	IU	IU	IU	IU	IU
	Use WordArt to enhance titles or to create original art					I	G	G	G	IU	IU	IU	IU	IU
Customize:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Add slide transitions to your slide show					I	G	G	G	G	G	G	IU	IU
	Arrange slides/screens in a logical and appropriate order					I	G	G	G	G	G	IU	IU	IU
	Use sounds to enhance your presentation						I	G	G	G	G	IU	IU	IU
	Create slide layouts for tables and/or charts						I	G	G	G	G	IU	IU	IU
	Link multiple pages together throughout a variety or applications						I	G	G	G	G	G	G	G
	Animate text and/or graphics to add impact						I	G	G	G	G	IU	IU	IU
	Place video in your presentation								I	G	G	G	G	G
Save:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Save a presentation as a new and/or existing presentation and				I	G	G	IU	IU	IU	IU	IU	IU	IU

	close the file													
	Save as presentation to a new location (shared directory for presentation)				I	G	G	G	G	G	IU	IU	IU	IU
	Save as HTML for use on a web page									I	G	G	G	G
Presentation:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Open an existing multimedia project				I	G	G	G	IU	IU	IU	IU	IU	IU
	Practice presentation skills for audience				I	G	G	G	G	IU	IU	IU	IU	IU
	Delivery of presentation using projection device				I	G	G	G	G	IU	IU	IU	IU	IU
	Create notes to have for final presentations								I	G	G	IU	IU	IU

Evaluating		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Ability to analyze one's own presentation:													
	Quantity/quality of information in presentation				I	G	G	G	G	G	G	IU	IU	IU
	Use/overuse of graphic, custom animation, background, text				I	G	G	G	G	G	G	IU	IU	IU
	Accuracy and completion of presentation				I	G	G	G	G	G	G	IU	IU	IU
	Evaluating the electronic information process as it evolves and makes appropriate adjustment				I	G	G	G	G	G	G	IU	IU	IU
Use Multimedia Peripherals:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Digital Cameras				I	G	G	G	IU	IU	IU	IU	IU	IU
	Scanner					I	G	G	IU	IU	IU	IU	IU	IU
	Digital Video Camera						I	G	G	G	IU	IU	IU	IU
Technology Research Tools (Standard 5)														
Use the computer/internet to:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Access a variety of on-line resources for research (encyclopedias, websites)			I	G	G	G	G	IU	IU	IU	IU	IU	IU
	Evaluate the appropriateness and accuracy of a web site					I	I	G	G	G	G	G	IU	IU
	Evaluate the reliability of a web site					I	I	G	G	G	G	G	IU	IU
	Sort through a variety of information for relevance					I	I	G	G	G	G	G	G	IU
	Use external devices to input data into a computer					I	I	G	G	G	G	G	G	IU
	Perform searches to acquire information					I	I	I	I	G	G	G	IU	IU
	Select an appropriate search engine for type of search					I	I	I	G	G	IU	IU	IU	IU
	Choose appropriate websites					I	I	I	G	G	IU	IU	IU	IU
	Perform Boolean searches						I	I	G	G	IU	IU	IU	IU
	Cite electronic searches/sites						I	I	G	G	IU	IU	IU	IU
	Perform self-directed learning	I	I	I	I	G	G	G	G	G	IU	IU	IU	IU
Technology Problem-solving and Decision-making Tools (Standard 6)														
Use the computer as a tool to:		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Analyze data/information	I	I	I	I	G	G	G	G	G	G	IU	IU	IU
	Make predictions/decisions	I	I	I	I	G	G	G	G	G	G	IU	IU	IU
	Convey thoughts and ideas	I	I	I	I	G	G	G	G	G	G	IU	IU	IU
	Identify and solve problems	I	I	I	I	G	G	G	G	G	G	IU	IU	IU
	Select appropriate tools/software to complete tasks	I	I	I	I	G	G	G	G	G	G	IU	IU	IU
	Integrate appropriate tools/software to complete tasks	I	I	I	I	G	G	G	G	G	G	IU	IU	IU

	Integrate technology with daily living	I	I	I	I	G	G	G	G	G	G	IU	IU	IU

Adapted from draft of NYS K-12 Business Computer Literacy Curriculum

Section D - Strategy and Expectations for Professional Development

To lead students in becoming life-long learners in today's society with embedded technical systems and processes in almost every aspect of daily life, it is critical that:

- the district emphasizes usage and integration of technology within the daily curriculum.
- the district identify, support and offer consistent opportunities for development of technology related skills and knowledge amongst the teaching staff.
- the teaching staff continually call upon their technology skills, embed those skills in their classroom instruction and keep their technology skill set sharp.

Teaching staff are expected to become proficient at operating and routinely using the core technology capabilities/applications listed below. As outlined in the section, Strategy and Expectations for Student Outcome & Achievement, it is critical that teaching staff must model, embrace and embed technology into their curriculum. Taking this approach will enhance student outcome, learning and success.

Teaching staff have accessibility to all of these applications not only at their individual classroom workstations but from any workstation on the district's network:

- **Microsoft Outlook** – For the purpose of sending, retrieving and storage of emails. Outside of the district access is provided via the World Wide Web as well.
- **Microsoft Internet Explorer** - For the purpose of navigating the World Wide Web to visit websites, gleaning and research of information and for downloading documents and information.
- **Microsoft Office** – For the purpose of accessing this MS suite of productivity tools/applications which includes Word – word processing and file creation, Excel – for spreadsheet production and Powerpoint – for presentation creation and delivery. .
- **ActiveInspire –** This software is the bedrock application for usage with the Promethean Board Interactive devices
- **Sasi** – A student management information system that allows teacher access to personal student information.
- **Class XP** – A student attendance system for the purpose of tracking, maintaining and reporting of period by period classroom attendance.
- **IG Pro** – A student grade reporting system that allows for centralized student grade reporting and distribution.
- **ToolBox Pro** – This application allows teaching staff to easily build and maintain their own unique, individualized websites and virtual online classrooms. A number of modules allows for homework posting, quiz creation, message board and email correspondence capability which is emphasized by the district for the purpose of enhancing home/school communications.

Professional and Curriculum Development Plan of Technology Curriculum

Professional development will continue to be provided by BOCES through our Model Schools 512 Coser. The Model Schools program is an instructional technology and implementation process for the curriculum-driven use of technology. Activities provided within this technology related service include: planning, curriculum and staff development, assessment and regional collaboration. Some example courses offered by Model Schools that our teachers attended in the 2008-2009 academic year are: How to use Microsoft Power Point, Web 2.0, many levels of ActiveInspire, the bedrock software for use with the 30 Promethean Interactive Boards the district has in place, Pod Casting, Technology Tools for Student with Learning Disabilities. Model School course selections for WG staff has continued for the 09-10, and will continue for the 2010-2011 school year.

The biggest foundational change to professional development for our staff to understand and continually learn how to integrate technology into their instruction, was the introduction at the start of the 2008-09 school year of an on-site, 3.5 day per week Instructional Support Teacher whose primary focus is technology integration. This position provides constancy of support and expertise in this area. The position continues for the 09-10 school year and will be in place for the 10-11 school. The continued thrust and introduction of technology makes this position a must have.

Curriculum development will also occur throughout the academic school year during superintendents' conference days and specific calendar days dedicated to professional and curriculum development. This training will be focused on ISTE's National Educational Technology Competencies, integration of NYS Learning Standards and ISTE's competencies, grade level benchmarks and performance indicator rubrics and the development of appropriate lessons incorporating the competencies, standards and rubrics.

Section E - Network Connectivity & Capability Overview

External:

Connection to the "outside" world, allowing for Internet access, accounting, payroll, instructional, etc, as well as remote network system management services, is provided through “Gig-E” telecommunication infrastructure. This configuration provides the districts with a 1000 mbps "pipe" for external applications. Within Watkins Glen Central School District the backbone consists of fiber between the 3 buildings, fiber to network closets, and fiber back to the GST BOCES campus. In addition, the Internet service regionally has been increased to a 75 meg service. The transition to an all fiber backbone service along with an increase in the Internet pipe and bandwidth were two necessary steps to stay in line with continually increasing demand for more capability from our regional network. This transition also comes at a time when all districts within the GST Boces region have continued to implement IP/ISDN based distance learning capabilities. With the introduction of these devices comes more push of audio and video across our regional network, and a need for all districts to monitor and work together toward maintaining a robust, fully capable network. Additional increases in the Internet pipe and bandwidth will be necessary in the future, as usage growth continues. As we continue to add laptops/mld’s (mobile learning devices), increased usage of network and web based software and applications for administration as well as for instruction, we know the capacity to connect faster and more reliably is a must.

Internal:

Our internal network capability has been improved and grown throughout the entire district. The enhancement of our network capability and infrastructure was funded primarily via our district's 2000 capital improvement project, and was coupled with the increase of end user computers from 397 (2000) to 855 (current as of 5/10 , both Windows & Apple/Mac OS's) within existing and new classrooms, labs, libraries, mobile laptop carts and offices. The number of network closets went from 9 to 16, and a corresponding increase in network drops (up to 5 per classroom) and network switches (40 currently- Cisco 2950 and 3500 series models were the switch of choice) also occurred. Connectivity, in the form of a new core router was updated in the summer of 2009 and virtualization of servers took place in the summer of 2009 via the district's Excel aid project.

The district's current network infrastructure relative to the number of switches in place and the number of network drops either live or available to go live will be adequate for the 2010. A plan to develop a full, district-wide wireless environment and an intent to gauge when and how to move to VOIP telephony is included in the 5 year facilities study that will go to NYS for approval in October of 2010. A direct timeline for these projects will not be determined until funding levels and other facility priorities as they are gauged in latter part of the 2009-2010 school year.

Section F – Application & Software Overview per Building

Instructional, Productivity and Information Management Networked Applications Overview – Watkins Glen Elementary School

Networked Applications providing Instructional, Productivity and Information Management functions used in the MS include the following:

- Microsoft Outlook – Email capability – Staff usage
- Microsoft Internet Explorer – Internet navigation software – Student and Staff usage
- Microsoft Office – PowerPoint, Word, Excel, Access – Student and Staff usage
- Microsoft Publisher – Newsletter and brochure creation tool – Student and Staff usage
- RoomMate – Facilities and room reservation system – Staff usage
- BusNotes – System to transfer student/bus info to Transportation Clerk – Staff usage
- Lunch Program – network application that delivers daily lunch info/count to café – Staff usage
- Sasi – Student record information – Staff usage
- Clear Track 2000 – web-based IEP reporting tool – Staff usage
- Tool Box Pro – Teacher website/online classroom building/maintenance tool – Staff usage
- Mandarin – Library lookup and research service – Student and Staff usage
- World Book Encyclopedia Online – Reference and research tool – Student and Staff usage
- Kidspiration – Graphic organizing application.
- BrainPop & Brain Pop Jr. – Internet driven graphical learning and educational system – Student usage
- Type 4 Fun – Develops students' keyboarding and typing skills – Student usage
- Reader Rabbit – Reading software program – Student usage
- Kid Pix – Early level graphics and drawing program – Student usage
- Phonics Express – Exercises and develops students on phonics and vocabulary skills– Student usage
- Writing Express – Exercises and develops students on Writing skills – Student usage
- Accelerated Reader/Ren Place – Reading enhancement and proficiency tracking program. Handheld responders are also part of this implementation.

Instructional, Productivity and Information Management Networked Applications Overview – Watkins Glen Middle School

Networked Applications providing Instructional, Productivity and Information Management functions used in the MS include the following:

- Microsoft Outlook – Email capability – Staff usage
- Microsoft Internet Explorer – Internet navigation software – Student and Staff usage
- Microsoft Office – PowerPoint, Word, Excel, Access – Student and Staff usage
- Microsoft Publisher – Newsletter and brochure creation tool – Student and Staff usage
- RoomMate – Facilities and room reservation system – Staff usage
- BusNotes – System to transfer student/bus info to Transporation Clerk – Staff usage
- Sasi – Student record information – Staff usage
- Class XP – Student period by period attendance tracking – Staff usage
- IG Pro – Student grade reporting – Staff usage
- Clear Track 2000 – web-based IEP reporting tool – Staff usage
- Tool Box Pro – Teacher website/online classroom building/maintenance tool – Staff usage
- Mandarin – Library lookup and research service – Student and Staff usage
- World Book Encyclopedia Online – Reference and research tool – Student and Staff usage
- Science Workshop – Experiment generating software – Primarily in Science Department – Student usage
- Type to Learn 3 – Software to enhance typing/keyboarding skills – Student usage
- Hyper Studio – Graphic design and presentation software – Student usage
- Accelerated Math – math proficiency and handheld responders.
- Everyday Math online
- Visions computer management systems used in all lab, multi computer settings.
- ARC View GIS Mapping – topography and geo spatial capability.

Instructional, Productivity and Information Management Networked Applications Overview – Watkins Glen High School (Includes District Office)

Networked Applications providing Instructional, Productivity and Information Management functions used in the HS include the following:

- Microsoft Outlook – Email capability – Staff usage
- Microsoft Internet Explorer – Internet navigation software – Student and Staff usage
- Microsoft Office – PowerPoint, Word, Excel, Access – Student and Staff usage
- Microsoft Publisher – Newsletter and brochure creation tool – Student and Staff usage
- WINCAP – Financial services package/tool – Staff usage (Primarily District Office usage)
- GST Boces Tax Collection system - Staff usage (Primarily District Office usage)
- RoomMate – Facilities and room reservation system – Staff usage
- Sasi – Student record information – Staff usage
- Class XP – Student period by period attendance tracking – Staff usage
- IG Pro – Student grade reporting – Staff usage
- Clear Track 2000 – web-based IEP reporting tool – Staff usage
- Tool Box Pro – Teacher website/online classroom building/maintenance tool – Staff usage
- Mandarin – Library lookup and research service – Student and Staff usage
- World Book Encyclopedia Online – Reference and research tool – Student and Staff usage
- Solid Works – Autocad drawing and design system – Primarily in the AutoCad lab – Room 724 – Student usage
- Cisco Networking Academy – Networking design and curriculum program – Primarily in lab/room 718 – Student usage
- A+ Computer Repair – Application for the computer repair curriculum – Primarily in lab/room 718 – Student usage
- Adobe Creative Suite – Graphic design and drawing program
- Peachtree Accounting – Accounting and financial program – Primarily in business lab/room 732 – Student usage

- Texas Instruments Navigator system – Allows for network dissemination and collection of information– Primarily Math department usage
- Finale – Music composition software – Primarily in music room 7003 – Student usage
- iLife– Apple/Macintosh based music, video and graphic design suite.
- Tell Me More – Spanish & French Language Software
- Visions computer management systems used in all lab, multi computer settings.
- ARC View GIS Mapping – topography and geo spatial capability.

Section G - Monitoring & Assessment Overview and Process

There is a constant need to monitor the equipment, connectivity and applications that the district currently employs to make certain that our network, instructional and professional development systems adapt properly as technology changes. The district utilizes the following methods to monitor and assess changes in instruction, curriculum, network connectivity that would require commensurate planning for technology changes, upgrades and/or adaptations:

- At weekly administrative council meetings that include the District Superintendent, all three building Principals, District Treasurer, Director of Special Services and Director of Operations & Maintenance and the Technology Director, shared discussions and planning processes take place on all areas of daily district operations(instructional, curriculum, financial, technology, etc.). Decisions made relative to these shared discussion meetings set policy, procedure and process, and/or recommendations to the Board of Education for their approval. The Technology Coordinator also reports out to this group with information from his/her other regularly scheduled technology related meetings in-district and outside of district.

- The district Technology Coordinator regularly attends two monthly meetings at GST Boces. One monthly meeting includes the Technology Coordinators from the other GST Boces regional school districts, the GST Boces Computer Services Center Manager and the GST Boces Network/Server Team Manager. Since GST Boces provides the bulk of IT services for the district, the primary purpose of these regularly scheduled meetings is for the GST Boces Computer Services Manager to deliver information on technology changes, updates and modifications that affect the WGCSD district and others in the region, and their individual technology services. A subsequent discussion occurs that allows for a thorough Q&A on recent or ongoing issues, and also provides for opportunities for the individual district Technology Coordinators to share information about their

respective districts' technology changes. The other monthly meeting involves the same group of individuals but with the additional of the GST Boces Supervisor of School Library Systems & Instructional Technology and an administrative representative from one of the districts. The primary purpose of these meetings is to provide information to everyone involved regarding technology changes, updates and modifications across the region. This group decides on recommendations for an array of issues. These recommendations are then delivered by the group's administrative representative to the district superintendents at their monthly meeting for their approval.

- Meetings are held every other month with the GST Boces Model Schools/Instructional department. The purpose of these meetings is for the dissemination of information regarding new technology driven instructional technics/programs/applications and the ways they can be integrated within a district's curriculum scope and approach. The district's Technology Director and Instructional Support Teacher attend these meetings, and report out to district administration and staff on the information that was disseminated.

- The district Technology Coordinator meets monthly with individual building Technology Coordinators. A building Technology Coordinator is a member of the teaching staff that is embedded in each building. These meetings act as information sharing and planning process opportunities relative to each building's technological requests and set of problems to be overcome. The district Technology Coordinator reports out to the administrative council from these building meetings.

- The district Technology Coordinator meets monthly with members of the GST Boces Server, Network and Telco teams to discuss changes in IT processes that could affect email usage, Internet access, file storage and retrieval capability and other applications.

Section H - Major Technology Initiatives for School Years 2010-11, 2011-2012 and 2012-2013

Area/Project	*Funding Source*	*Schedule*
Implement 30 new mobile, wireless laptops and carts across 3 buildings (10 laptops per building) in special service areas.	**Federal ARRA/Stim funds**	**Get ready for Sept. 2010** **Cost approx. - $30,000** ***(completed – 3/2010)***
Implement a district intranet solution built by GST Boces for document and form retrieval by staff.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2010**
Replace 240 teacher and ES lab/library computers across the district with updated machines, along with new licenses for MS Office.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2010** **Cost approx. - $150,000**
Potential implementation of a mobile/wireless laptop cart for the freshman academy team at the high school. (25 netbooks ordered)	**NYS Hardware funds**	**Get ready for Sept. 2010** **Cost approx. - $30,000** ***(completed – 5/2010)***
Implement assistive tech software via Premier Literacy on the district network.	**GST Boces grant funded.**	**Get ready for Sept. 2010** **Cost approx. - $3,000**

Add 180 MLD's (Mobile Learning Devices) to MS cellphone project for 6th and 8th grade students. Continuation of project started with 5th and 7th students.	**GST Boces 512 Coser/contract.**	**Get ready for Sept. 2010 Cost approx. - $60,000**
Add 3 Promethean Interactive Whiteboards into 3 special needs classrooms, 1-MS, 2-HS	**Federal ARRA/Stim funds**	**Get ready for Sept. 2010 Cost approx. - $25,000** ***(completed – 2/2010)***
Implement GST Boces Bus transport/routing system.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2010**
Transition to IEP Direct from ClearTrack for special services dept.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2010 Cost approx. - $30,000**
Research and consider streaming of athletic events across the internet.	**NYS Software Funds**	**Get ready for Sept. 2010**
Work with GST Boces Web IDEAS team to re-tool ToolBox Pro for mobile learning and interaction purposes. This will fit within the district's MLD (mobile learning device) ongoing direction.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2010**

Transition to School Tool student management system from current Sasi system.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2011 Cost approx. - $30,000**

Add 6-9 Promethean Interactive Whiteboards into classrooms, 2-3 per building.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2011 Cost approx. - $55,000**
Develop scope to consider replacing current district networked laser printers with Boces purchased printers in order to maximize state aid.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2011 Cost approx. - $10,000**
Possibly add 1-2 laptop/netbook carts in the HS building. Contingent upon a larger district scope of 1:1 computing.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2011 Cost approx. - $50,000**
Scoping work to define a district-wide wireless infrastructure installation.	**District capital fund project.**	**Estimated rollout for Sept. 2011 Cost approx. - ?**
Replace Apple/Mac computers in HS music, video and business lab settings.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2012 Cost approx. - $25,000**
Pro Board LCD Projector replacements reaching end of life.	**GST Boces Computer Services Coser/contract.**	**Get ready for Sept. 2012 Cost approx. - $20,000**

Section I - Funding Sources for Technology, Computer & Information Services

The primary funding sources in the district for technology purchases, maintenance, support, enhancement and training are derived from the following:

- District Computer Aided Instruction Budget – Comprised of district funds and NYS Software & Hardware funds/aid. These sources allocate monies for the purchase of hardware peripherals such as digital cameras, camcorders, scanners, flash drives, document cameras, etc., new software applications and/or new licenses for new computers, as well as annual license renewals, supplies centered on printer cartridges district-wide and lcd projector lamp replacements, and one contractual item related to one annual dial up account for Operations & Maintenance HVAC remote access via laptop.

2010-2011 Watkins Glen Computer Aided Instructional Budget presented below (The intent is for this budget line to remain within the same amount areas for 2011-2012 & 2012-2013, albeit with an expected 2-3% increase for each school year):

$25,000 (NY State funds)	**Hardware**
$200 (District funds)	**Contractual**
$26,000 (district funds)	**Supplies & Materials**
$21,000 (NY State funds)	**Software**

GST Boces Instructional Tech Teacher, Distance Learning, Instructional Software/Application purchasing & support and Model Schools Professional Development technology coursework offerings are listed below. **(The intent is for this budget line to remain within the same amount areas for 2011-2012 & 2012-2013, albeit with an expected 2-3% increase for each school year):**

2010-2011 GST Boces CoSer 512 Budget for 3.5 day per week, on-site Instructional Technology Teacher that assists staff and students with classroom technology intergration and professional development/training - $75,000

2010-2011 GST Boces CoSer 430 Budget for Distance Learning/Video Learning Experiences for students and staff. This budget accommodates approx. 30-40 DL/VLE sessions per school year- $7,000

2010-2011 GST Boces CoSer 512 Budget for Instructional Software/Application purchasing & support (Solid Works, Cyber-Civ, Bridges Career building) and Model Schools Professional Development technology coursework offerings for staff – $27,000

- GST Boces 605 Hardware Coser:

This budget area is part of the overall computer services contract that the district has with GST Boces, but is a discretionary area of the budget. In the past, the district applied funds to the 605 section in order to make large scale purchases for multiple computer replacements. Also, in the past the district has allocated funds for computer replacements within a 3 year repayment segment. Starting in July 2010 the district will earmark $150,000 per year to this budget line in order to more readily replace computers, and facilitate consistent purchasing of other big ticket technology items such as interactive whiteboards, additional MLD's (Mobile Learning Devices) and/or additional laptops.

- GST Boces Computer Services contract:

This source of funding is comprised of technology services and support provided by GST Boces. The wide range of services this contract covers includes network connectivity, file/data storage and retrieval for staff & students, internet access, email, financial management, student attendance, grading and record management, on-site desktop technician service, helpdesk service, customized application programming services, computer, audio-visual and printer repair services, web-based IEP record management, bus garage/transportation vehicle record management, personnel record management and networked printer management and support.

2010-2011 GST Boces Computer Services Budget – approx. $568,000

2011-2012 GST Boces Computer Services Budget – estimated approx. $575,000+

2012-2013 GST Boces Computer Services Budget – estimated approx. $600,000+

Section J - Computer Hardware Locations and Usage

- Bus Garage – 7 Windows Computers and 1 Laptop

- ES Macs/Apples – 7 Computers for music, tv studio & video production
- ES Ipaqs – 3 Windows PDA's used by phys-ed staff for skills assessment
- ES Administration/Mgt. – 15 Windows Computers
- ES Labs – 56 Windows Computers in library, computer and kindergarten lab settings
- ES Mobile Carts – 47 Windows Laptops in 2 mobile carts
- ES Classrooms – 84 Windows Computers across all classrooms

- HS Macs/Apples – 22 Computers for music, video production & graphics
- HS Ipaqs – 3 Windows PDA's used by phys-ed staff for skills assessment
- HS Administration/Mgt. – 31 Windows Computers
- HS Labs – 124 Windows Computers in Cisco, language, business, graphics, guidance, and cad lab settings
- HS Mobile Carts – 87 Windows Laptops and Netbooks in 5 mobile carts for library, science and special services
- HS Classrooms – 75 Windows Computers across all classrooms

- MS Macs/Apples – 27 Computers for music, graphics and industrial arts
- MS Ipaqs – 3 Windows PDA's used by phys-ed staff for skills assessment
- MS Administration/Mgt. – 16 Windows Computers
- MS Labs – 37 Windows Computers in multi-purpose and AIS lab settings
- MS Mobile Carts – 151 Windows Laptops in 8 mobile carts for library, science, each grade level (5^{th}, 6^{th}, 7^{th}, 8^{th} – 2 carts for 5^{th}) and special services
- MS Classrooms – 60 Windows Computers across all classrooms

Total # of computers in district – 855 as of 5/2010

- 36 Promethean Interactive Boards in the district – 12 in each building

Section K – Meeting updates for full tech plan submission to NYSED by 7/1/10

September 22, 2009 – At the start of the 09-10 school, a large group meeting with department chairs from all buildings and grade levels was held to discuss updating the district's technology plan for 2010-2013. Over the course of the remainder of 2009 and early into 2010, the district computer services coordinator, met with district administrators and department chairs, representing all grade levels and subject areas, to go over the 3 year technology goals each department had assembled. This department level information, along with budget metrics and other priority technology items, served to build out this updated technology plan and highlight the major technology initiatives for school years 2010-2013.

The following district staff members were involved in discussions/meetings to address future technology directions and emphasis:

Tom Phillips – District Superintendent
Gayle Sedlack – Business Manager
Billie Bauman – District Administrator
David Warren – High School Principal
Kristine Somerville – Middle School Principal
Rod Weeden – Elementary School Principal
Andy Patros – Computer Services Coordinator
Kathy Gillette – Elementary School Tech. Coor.
Jack Telech – Middle School Tech. Coor.
Eileen Malaney – High School Tech Coor.
Christy Fedele – HS Math Dept. Chair
Barb Coon – HS Science Dept. Chair
Marie Fitzsimmons – HS History Dept. Chair
Kate Lamoreaux – HS English Dept. Chair
Eileen Malaney – HS Business Dept. Chair
Kathy Meierjurgen – K12 Language Dept. Chair
Cyndy Wood – K12 Phys. Ed. Dept. Chair
Elaine Wojtus – K12 Art Dept. Chair
Karen Armstrong – K12 Tech. Dept Chair
Claudia Laface – ES Social Studies Dept. Chair
Sally Cocca – ES Science Dept. Chair
Daphne Holland – ES Math Dept. Chair
Kathy Gillette – ES Tech. Dept. Chair
Matt Craig – ES Arts in Ed Dept. Chair
Rod Weeden – ES ELA Dept. Chair
Becky Sue Bianco – MS ELA Dept. Chair
Jim Murphy – MS Science Dept. Chair
Holly Weed – MS Math Dept. Chair
Scott Morse – MS Social Studies Dept. Chair