

# KENTUCKY EDUCATION NETWORK

## *Project Plan*

7/19/2006  
Version 6.0

Prepared For:

**Education Cabinet  
Council on Postsecondary Education  
Kentucky Department of Education  
Education Professional Standards Board**

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6.0	10/2/06	1. Modified Pg. 3, para. 5. Added Sec. Fox's retirement announcement and the appointment of Laura E. Owens to assume leadership role. 2. Modified Pg.4, para. 6. Removed ". . . some locations may not be complete until the first half of the next biennium"	KAR

# Project Plan

## 1. Purpose

### Vision

In direct support of Governor Fletcher's Educational Vision, the Education Cabinet seeks to continue to build on the successes and lessons of the first 14 years of KERA, seven years of postsecondary reform and the research and technology improvements during that time by implementing a seamless education-centric network that equitably supports lifelong learning for all Kentuckians.

### Key features of KEN include:

- Equity in terms of cost, geographic availability, access, and support for all learning styles
- Immediate availability
- Support of audio and video-intensive learning and research opportunities
- Scalable and adaptable network design that easily supports future growth
- 24 x 7 network availability and support

This proposal will create the Kentucky Education Network (KEN), a high-speed education-centric telecommunications network. The purpose of KEN is to facilitate the development, deployment, and operation of a set of seamless P-16 applications. It will support advanced research and education applications in order to further Kentucky's educational agenda. It will connect every college, university, and K-12 school district in the state to enhance the learning experience of students' at all educational levels, regardless of geographic location.

Plans for future growth of the network include the agencies of the Education Cabinet and their statewide locations. This includes Kentucky Educational Television (KET), the Department of Workforce Investment, Kentucky Adult Education, the Department for Libraries and Archives, the Commission on the Deaf and Hard of Hearing, the Kentucky Environmental Education Council, the Center for School Safety, and the Kentucky Higher Education Assistance Authority.

## 2. Project Summary Description

A seamless K-20 educational network is a requisite foundation for many of the innovative initiatives envisioned by Governor Fletcher, Secretary Virginia Fox, Commissioner Gene Wilhoit, President Tom Layzell, Phil Rogers and other educational leaders in Kentucky. Secretary Fox retired effective August 31, 2006. Laura Owens has been appointed the Secretary of Education and will therefore assume the leadership role on this project.

- Maximize student achievement and college readiness of all students.

The Commonwealth must take advantage of every opportunity to provide and support expanded learning opportunities for all participants in the P-20 educational

environment. As more focus is placed on the successful transition of students from the high school to post secondary environment, systems must be positioned to support students that simultaneously participate in multiple educational levels. More and more students are simultaneously enrolled in high school and post secondary institutions (University and community and technical colleges). Information about their enrollment, status and progress must be simultaneously available to all parties. Pertinent student data must be moved between organizations on both a scheduled and ad hoc basis.

The power and functionality provided by Internet 2 offers a wealth of learning opportunities for PK-12 students. The Kentucky Board of Education is currently considering enhancements to graduation requirements in several content areas including science. There is a potential requirement for applied learning and lab-based science experiences which could be enhanced with the rich educational features Internet 2.

Educators must also be able to operate in multiple environments simultaneously. Systematic and embedded professional development for P-12 educators will occur throughout the year. Some of the PD will be provided by Higher Education instructors, other PD will be provided by peers within or outside of the local district. These adult learning experiences must be recognized in P-12 management systems as well as those of the affected Higher Education institution and the Education Professional Standards Board. PD will no longer be relegated to a two or three week course each summer. Higher Education instructors must be able to assist local educators in reviewing the educational requirements of their students and creating need-specific professional development.

- Acquire data communications capabilities.

The actual capacity required will vary based upon the number of students within each district and the sophistication of the use of instructional technology within each district. For planning purposes, approximately 40% of the K-12 districts are estimated to require large network capacity (100 Mbps) with the remainder of the districts placing medium demands on the network (10 Mbps). 122 Education Cabinet sites are estimated to need medium network capacity (10 Mbps). Upgrades for postsecondary locations from their current bandwidth to the next level (10 Mbps, 45 Mbps, 100 Mbps, 1 GB) will be provided.

During fiscal year 2006-07, approximately half of the K-12 education districts will be upgraded. During fiscal year 2007-08, the remainder of the K-12 education districts will be upgraded as will as some postsecondary sites and other Education Cabinet locations.

*Add on-line assessments of all types – formative, diagnostic, summative, and end of course -- in support of the Governor's and the Kentucky Board of Education's requirements for early and continuous diagnosis, intervention and accountability with a heavy focus in the content areas of math and reading but also including technology and science.*

### **3. Systems Involved**

*To be determined by the KEN Application Subcommittee and the KEN Network Subcommittee.*

### **4. Impact on Other Systems**

*To be determined by the KEN Application Subcommittee and the KEN Network Subcommittee.*

### **5. Special Considerations**

The Education Cabinet will form a project steering committee, composed of senior executives from each agency. This will insure that the research and instruction applications unique to education remain the primary focus. The steering committee will drive the design and capabilities of the network. Once all the education partners are on a single network, we will explore additional enhancements to continually expand capacity to service emerging educational and research needs.

### **6. Pilot Installation**

*To be determined.*

### **7. Contingency Plans**

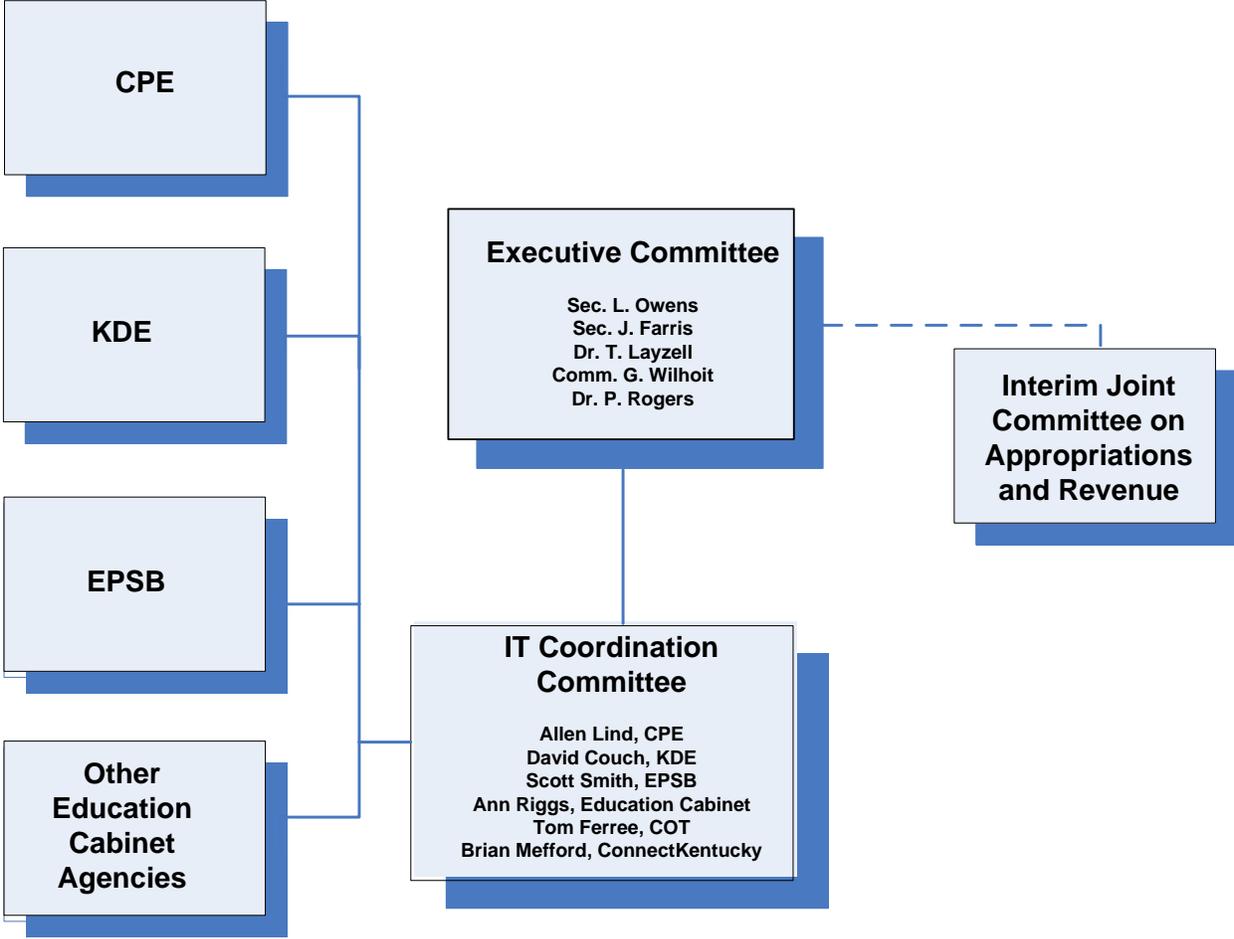
*To be determined*

## 8. KEN Governance and Operating Structure

Agency	Executive Leadership	IT Coordinating Committee	Program Manager
<b>Education Cabinet</b>	Laura E. Owens Secretary	K. Ann Riggs, CIO & Director of Division of Technology Services	TBD
<b>Council on Postsecondary Education</b>	Dr. Tom Layzell, President	Allen Lind, VP of Information Technology & CEO of KYVU/KYVL	TBD
<b>KY Department of Education</b>	Gene Wilhoit Commissioner	David Couch Assoc. Commissioner Office of Education Technology	Terry Orr Project Manager
<b>Education Professional Standards Board</b>	Dr. Phil Rogers Executive Director	Scott Smith Information Technology Branch Manager	N.A.
<b>Finance Cabinet</b>	John Farris Secretary	Tom Ferree Executive Director Office of Enterprise Policy & Management Commonwealth Office of Technology	TBD

# Kentucky Education Network

9/20/2006



**Ken Subcommittees**  
9/20/2006

**IT Coordination  
Committee**  
Allen Lind, CPE  
David Couch, KDE  
Scott Smith, EPSB  
Ann Riggs, Education Cabinet  
Tom Ferree, COT  
Brian Mefford, ConnectKentucky

**Network Subcommittee**  
Tim Sizemore  
Chairperson

**Application  
Subcommittee**  
Miko Pattie  
Chairperson

## 9. Primary Roles and Responsibilities

- **Executive Committee:**

House Bill 380 included funds for the Kentucky Education Network (KEN). As part of this initiative, HB380 contained language that requires the Secretary of the Education Cabinet, the Commissioner of the Department of Education, the President of the Council on Postsecondary Education, the Secretary of the Finance Cabinet, and the Executive Director of the Education Professional Standards Board to submit a coordinated implementation plan with timelines and regular progress reports to the Interim Joint Committee on Appropriations and Revenue.

- **Information Technology Coordination Committee:**

The Executive Committee has charged the Information Technology Committee (ITC) with coordinating and communicating all activities as it relates to this project. The committee is also charged with organizing two committees: the Network Subcommittee and the Application Subcommittee.

- **Network Subcommittee:**

KEN Network Subcommittee Charge:

- (i) Commence a high-level design. This is intended to resolve major issues such as the choice of WAN technology and equipment, the IP addressing plan, the degree to which routing is used instead of switching and so on.
- (ii) This high level design should then be compared to the constraints. If the constraints are not met an iterative step backwards is required. In the event of the constraints being met the design process can proceed.
- (iii) Determine the performance parameters that best specify each of the design goals. For example application response time, percentage packet loss, latency, and application availability. Identify any design constraints. The most obvious constraint is budget. Other constraints may include implementation timescale, support of legacy equipment, incorporation of specialized departments that require unique network specification and policy.
- (iv) After considering the constraints, set targets for the relevant network performance parameters.
- (v) A specific network design plan can now begin to be formulated. This addresses all technical details and alternatives for the design.
- (vi) Each major aspect of the technical solution should be lab tested. The application response and availability characteristics should be tested in a lab. This will facilitate an iterative refinement of the technical solution.

- (vii) The design is complete when the technical design is fully refined. In some cases the final lab tests may indicate that the fundamental performance targets or constraints are unrealistic and may have to be revised and compromised. It is however an aspiration to tentatively finalize these parameters at the high level design stage.
- (viii) Our objective is to solve a strategic network infrastructure design problem to determine:
- (ix) Number of nodes (usually computers or servers) and their processing speeds
  1. Set of links between nodes and their bandwidths
  2. Formulate and solve a mathematical program for the network infrastructure design problem by minimizing a cost function subject to satisfying quality of service (QoS) as well as robustness requirements.
  3. Simplification—A simple and sustainable network architecture is based on information needs rather than physical layout.
  4. Standardization—Centralized policy definition and management enables dynamic reconfiguration and consistent deployment throughout the enterprise.
  5. Modularity—Geographically distributed network; group together systems or applications
  6. Integration—environments for integration and easy addition of new applications, services, or devices.

- **Application Subcommittee:**

KEN Applications Subcommittee Charge:

- (x) To identify uses for existing and proposed information technologies that will use the Kentucky Education Network and the applications of these technologies to all learning opportunities within the Commonwealth.
- (xi) To assess and prioritize the existing use, need or desire for such applications in learning institutions, along with their supporting administrative systems.
- (xii) To recommend changes to infrastructure, policies or work processes that will facilitate the successful implementation of these applications.
- (xiii) To review the effectiveness of implemented applications in terms of student success, educational achievement and lifelong learning.

- **Program Manager:**

The Program Manager will be responsible for maintaining the vision of the KEN project. This individual will also be responsible for coordinating results of findings into a report to be submitted to the ITC Committee for review and presentation to the Executive Committee. The ITC will make a recommendation to the Executive Committee on when, and if, a program manager is needed.

- **Project Manager – KDE:**

The project manager acts as a leader and a process manager to for coordinating planning, preparing & implementation of KEN within the K-12 districts. As a leader, the project manager is responsible for managing and communicating a clear vision of the project's objectives, and motivating the project team to achieve them. As a process manager, the project manager must ensure the appropriate timing, resources, and sequencing of work efforts are applied to create the project deliverables within a given time frame and budget.

Project objectives are rarely static. Over the life of the project, objectives and deliverables may change as new information is gathered by the project team and evaluated by the project sponsor. The project manager must manage these inevitable changes with a well defined scope management plan, provide continuous leadership for the development team, manage the project sponsor relationship effectively, and create a project environment that allows all participants to maintain peak performance.

The work required to manage a work effort is grouped into the following interrelated processes:

- Structure the Project
- Plan the Project
- Assess Change
- Manage Budget
- Control the Project
- Report Project Status
- Conclude the Project

## 10. Implementation Schedule and Check List

*Expand the checklist in the following table to include all activities required by project team members to move this project to production.*

Activity	Planned Start Date	Planned Finish Date	Person Responsible	Status
Charter Project	6/19/06	9/30/06	Information Technology Committee	Completed
Program Manager	6/19/06	TBD	Information Technology Committee	TBD
Assemble Network Subcommittee	6/28/06	7/5/06	Tim Sizemore Chairperson	Completed
Assemble Application Subcommittee	6/28/06	7/26/06	Miko Pattie Chairperson	Completed
KEN Web Site: <a href="http://www.ken.ky.gov">http://www.ken.ky.gov</a>	6/19/06	9/20/06	Information Technology Committee	Completed
Review Business Requirements	6/19/06	10/31/06	Application Subcommittee	In Progress
Develop Communication Plan	6/19/06	6/28/06	Information Technology Committee	Completed
Procurement Requirements	8/31/06	9/15/06	Finance/COT	Completed
Assemble Advisory Council	6/19/06	6/28/06	KDE	Completed
Draft Design	6/28/06	10/31/06	Network Subcommittee	In Progress
K-12 District Check List	6/19/06	9/15/06	KDE	Completed
Pilots Identified	6/28/06	10/31/06	Network Subcommittee/Application Subcommittee	In Progress
Final Design	10/31/06	12/31/06	Network Subcommittee/Application Subcommittee	In Progress
Begin Pilot	1/31/07		Network Subcommittee	In Progress
Final Implementation Plan for K-12 Districts	6/28/06		Network Subcommittee	In Progress
Measure Success	6/28/07	1/31/08		In Progress
Full Production	6/30/08			

## 11. Budget Information

### KENTUCKY EDUCATION NETWORK ROLL-OUT FUNDING PLAN

#### KENTUCKY EDUCATION NETWORK OPERATING BUDGET

YEAR 1 PLAN ROLL OUT OPTION				Estimated Amt
HB380 FUNDING				\$ 5,300,000
K-12	92	district sites	\$	5,300,000
<b>Total</b>				<b>\$ 5,300,000</b>
<b>Balance Year 1</b>				<b>\$ -</b>

YEAR 2 PLAN ROLL OUT OPTION				Estimated Exp
HB380 FUNDING				\$ 15,300,000
K-12	178	district sites	\$	12,794,688
CPE	col/univ		\$	1,052,371
ATC	55	(1)	\$	200,000
KAE	5	(2)	\$	231,840
DWI	26	sites	\$	1,021,101
<b>Total</b>				<b>\$ 15,300,000</b>
<b>Balance Year 2</b>				<b>\$ -</b>

(1) 55 Area Technology Centers statewide, most are located within LSD, cost to provide hook up between ATC and District

(2) All adult education ctrs scheduled to have broadband, sites above are those not collocated at site w/ existing broadband

#### KEN CAPITAL BUDGET

PLAN ROLL-OUT OPTION	Estimated Amt
HB380 FUNDING (biennium)	\$ 8,900,000
K-12	\$ 5,300,000
CPE	\$ 2,240,000
EPSB	\$ 112,500
DWI/OTHER	\$ 1,247,500
<b>Total</b>	<b>\$ 8,900,000</b>
<b>Biennium balance</b>	<b>\$ -</b>

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