

# BALTIMORE COUNTY PUBLIC SCHOOLS

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**DATE:** September 25, 2001

**TO:** BOARD OF EDUCATION

**FROM:** Dr. Joe A. Hairston, Superintendent

**SUBJECT:** Computer Repair Technician Career Completer Program for Chesapeake High School

**ORIGINATOR:** Christine Johns, Deputy Superintendent of Curriculum and Instruction

**RESOURCE PERSON(S):** Phyllis Bailey, Executive Director of Special Programs, PreK-12  
Charlene Bonham, Manager, Career and Technology Education  
Rhonda Hoyman, Supervisor, Technical Programs  
Michael Linkins, Principal, Chesapeake High  
Michael Shealey, Supervisor, Technology Education

## INFORMATION

The purpose of this report is to advise the Board of Education of the proposed computer repair technician career completer program. This program will open in September, 2002.

The Offices of Career and Technology developed the Chesapeake High School Computer Repair Technician Career Completer Program proposal in conjunction with the school administration and many Baltimore County Public Schools' stakeholders. (Appendix I). This program proposal represents contributions from the Executive Director, PreK-12 Special Programs; Southeast Executive Director of Schools; Manager, Offices of Career and Technology Education; Supervisor, Technology Education; Supervisor, Technical Programs; Principal Chesapeake High School; Executive Director, Fiscal Services; Director of Budget; Executive Director, Facilities; Special Assistant, Facilities; Territory Manager, International Division, Alcatel Networking; Account Executive, K-12 Education, Dell.

The Education Investment Prospectus (Appendix II) describes the Computer Repair Technician Program in the context of the field of Information Technology.

Appendix I – List of Stakeholders

Appendix II – Education Investment Prospectus

## **BALTIMORE COUNTY PUBLIC SCHOOLS**

### **Computer Repair Technician Program, Chesapeake High School**

#### **LIST OF STAKEHOLDERS**

Phyllis Bailey	Executive Director, PreK-12 Special Programs
Ann Glazer	Southeast Executive Director of Schools
Charlene Bonham	Manager, Offices of Career and Technology Education
Michael Shealey	Supervisor, Technology Education
Rhonda Hoyman	Supervisor, Technical Programs
Michael Linkins	Principal, Chesapeake High School
Barbara Burnopp	Executive Director, Fiscal Services
Michael Goodhues	Director of Budget
Donald Krempel	Executive Director, Facilities
John Damron	Special Assistant, Facilities
Larry Graff	Territory Manager, International Division, Alcatel Networking
Kevin Clark	Account Executive, K-12 Education, Dell

*An Education Investment Prospectus*

*Review Document Only  
June 12, 2001*

*The Chesapeake High*

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*21st CENTURY*

**INFORMATION TECHNOLOGY PROJECT**

*Implementation 2001 to 2004*

**Baltimore County Public Schools**

**Chesapeake High School**

Michael Linkins, Principal

**BCPS Southeastern Area Office**

Ann Glazer, Southeast Executive Director of Schools

**Division of Physical Facilities**

Johnny Damron, Special Assistant

**Offices of Career & Technology Education**

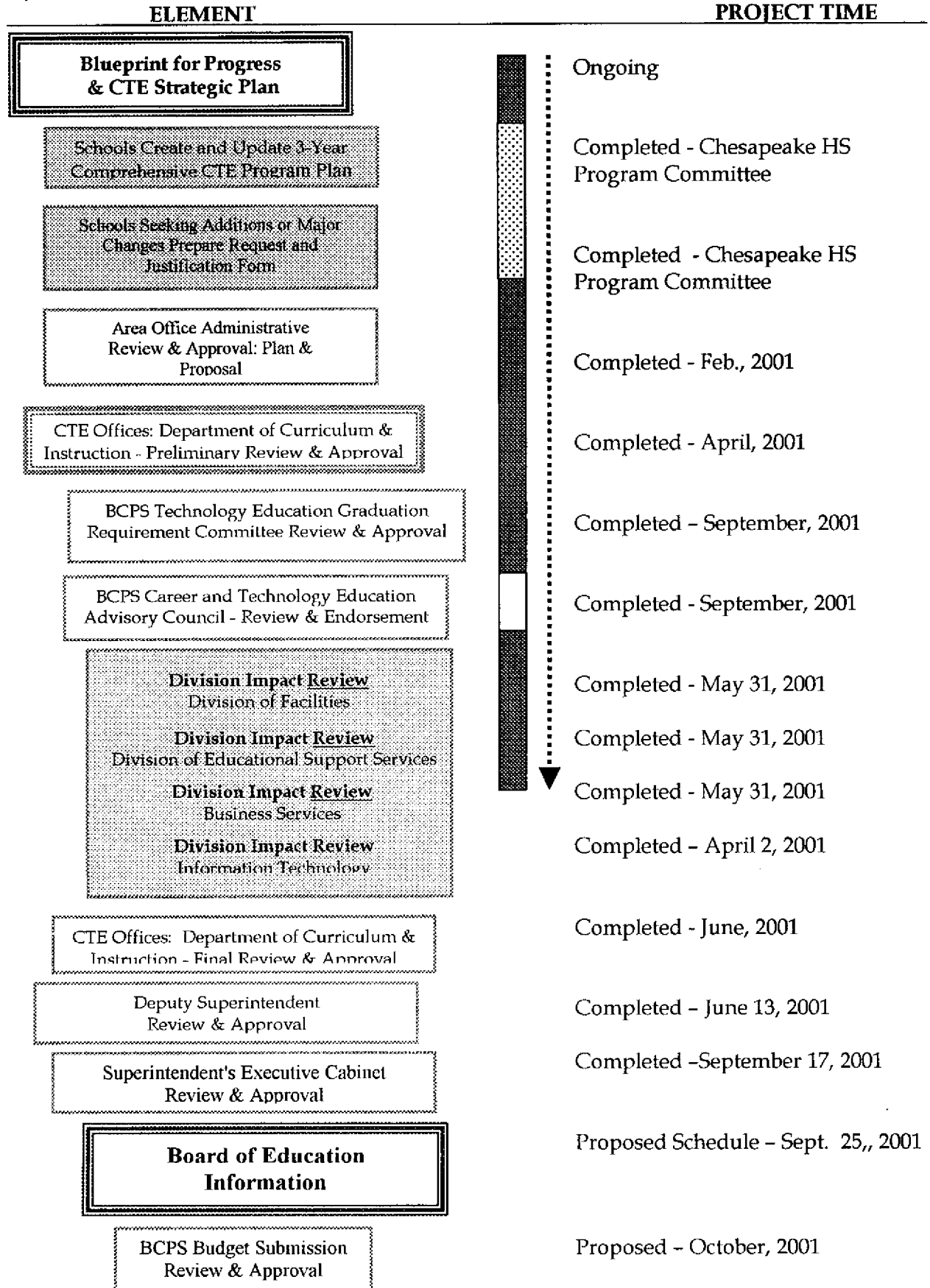
Charlene Bonham, Manager CTE

Mike Shealey, Supervisor, Tech. Ed.

Rhonda Hoyman, Supervisor, Technical Programs

# Chesapeake IT Project Approval Process & Timeline

Reference - BCPS CTE Program Approval Process





## The Chesapeake High 21st Century Information Technology Project

This project is designed to expand the Career & Technology Education program offerings for students at Chesapeake High School. The program will ensure students have opportunities to acquire skills and knowledge consistent with the career demands of the evolving information technology economy and workplace. The CITP project will involve major additions to the schedule of Advanced Technology and Technical Programs course offerings and laboratory facilities of Chesapeake High.

### *The Need*

The Advanced Technology and Technical Program course structure of Chesapeake High has evolved little during the 20 years since the school opened. Current Technology Education course offerings are limited and reflect the "old" and out-of-date nature of Technology Education laboratory facilities.

In the past 10 years, Chesapeake High has struggled to keep pace with the diverse nature of its student population, and the changing nature of area business and industry. At the center of the changes in the Chesapeake business community has been a shift from heavy manufacturing to service and information technology-based logistics and logistics support businesses. The key career skills and knowledge elements in the Chesapeake service area business economy are information technology skills.

The nature of the new information technology driven society demands that students have a new level of technology literacy - **IT literacy**. The new IT skills students will need in the workplace, and in the course of daily life activities include:

- knowledge of system concepts related to information and telecommunications networks,
- knowledge and skill in the use of IT data acquisition, processing, transmission and management technology,
- knowledge and skill in the use of computers in IT system sensing, processing and control applications,
- the ability to apply academic capabilities in complex problem solving situations,
- and the ability to work cooperatively and effectively in work group settings.

The new IT literacy and occupational competencies students will develop as a result of the addition of the learning opportunities provided by this project will serve all levels of student interest and ability. The new courses will allow students to develop "high tech" computer and telecommunications service and maintenance application skills, and the technology systems knowledge necessary for the IT work place of today and tomorrow. The new learning opportunities available within the courses to be implemented as part of this project are appropriate for all students, both those entering employment upon high school graduation and those continuing their education technically or academically in college or technical school.

See attachment: "Greater Baltimore Information Technology Worker Study 2001,"  
Maryland Department of Labor, May, 2001 for supporting IT labor demand data.

## CITP & BCPS - A System View

Dr. Joe Hairston, as he assumed leadership of the Baltimore County Public Schools in the summer of the 2000, identified these challenges for the school system:

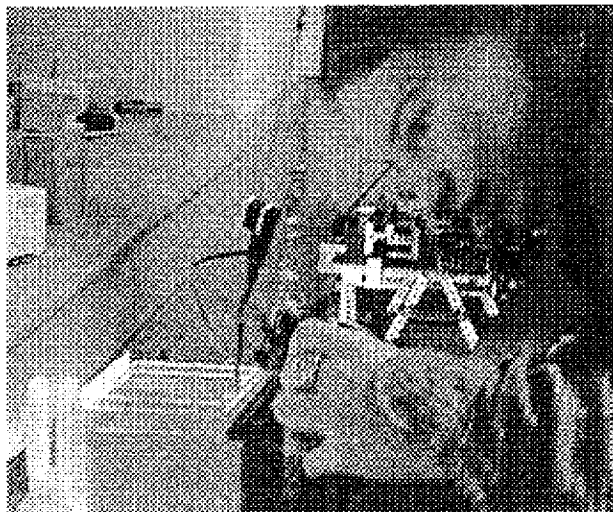


"To grow and improve, we must continue to adapt to changing conditions and expectations. An organization which fails to adapt is one that is soon left behind and replaced by other more dynamic institutions. In our school system, there will be change over time, but all changes will be carefully planned ..."

" We have the awesome responsibility of producing the next generation of citizens and the world's workforce, the decision-makers and thinkers of the future. We have the responsibility to shape the future to be what we want it to be for our children."

**The Chesapeake 21st Century Information Technology Project is a direct response to the challenges of vision and leadership presented in Dr. Hairston's speech.**

The project will provide Chesapeake High School with an entirely new level of capability for providing all students with rigorous educational experiences applicable to



the information technology driven workplace, home, and recreation spaces of the next century.

*The added value of the educational experience for students provided by the Chesapeake Information Technology Project investment will quickly be returned to the community in increased tax income paid by the students served as they become IT skilled employees in the skilled workforce of tomorrow.*

## BCPS Key Strategies - The CITP Connection

The *Chesapeake Information Technology Project* will focus on the following system-wide strategies and relevant benchmarks as project implementation proceeds and success is measured:

- *Set high and consistent expectations and institutionalize continuous feedback processes and support systems to ensure that quality daily instruction and continually increasing student achievement occur in all schools*

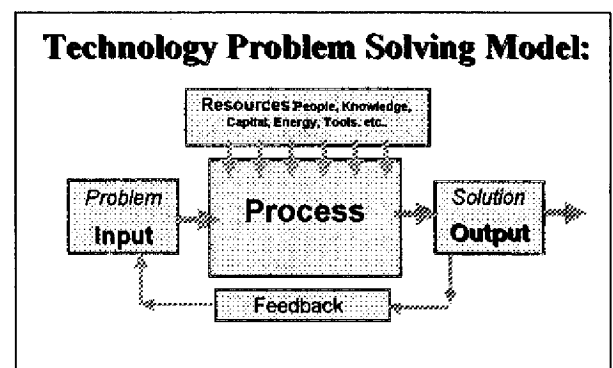
- **Focus on the consistent and systematic implementation of the Essential Curriculum in all content areas, as revised and aligned with the Maryland Content Standards, Learning Outcomes, and Core Learning Goals**
- **Identify and consistently implement a common core of research-based instructional practices that will result in more engaging work for students by incorporating state-of-the-art knowledge of lesson and unit planning, student learning styles, direct instruction, diverse and ongoing assessment, critical thinking, brain research, and multiple intelligence**
- **Develop and implement countywide formative milestone assessments, aligned with curriculum and instruction, that will enable staff to make more informed instructional decisions based on student achievement data**
- **Establish a flexible and responsive direction for the use of technology to prepare students to meet the requirements of a technologically oriented society and to meet the data access needs of staff members**
- **Implement system-wide processes to strengthen communication among schools, homes, and the community and among components of the school system in order to foster greater understanding, increased involvement, and greater accountability and to ensure a quality organization**
- **Implement programs that will develop in students a strong values system and promote positive behavior and ethical decision-making**
- **Provide the necessary student support services that will enable all students to maximize their educational opportunities**
- **Recruit and maintain a quality work force and provide for the needs of employees**
- **Provide differentiated professional development for all personnel that is aligned with system goals, focused on research-based practices, and designed to increase the quality of programs and services**
- **Assess the organizational performance of the Baltimore County Public Schools against world class standards; identify strengths and opportunities for improvement; and put needed processes in place to address organizational, management, communication, and other identified gaps**
- **Provide safe and well-maintained facilities that enhance the implementation of instructional programs.**

## A Systematic Approach - The CITP Project

The implementation of this project will center around four areas:

1. Curriculum & Program Development
2. Staff Recruiting & Development
3. Equipment & Resource Procurement
4. School Facilities Development

Each of the four elements will involve leadership collaboration among the school, school system departments and offices, community business partners, and parent advisory groups. The process model for the implementation of the project will follow the technology process model, shown here:



## **1. Curriculum & Program Development**

The new Information Technology program planned for the project will include the following new courses: [New Course Titles & Numbers For 2001/2002]

- Computer Technology Fundamentals - 55.5310.0-.5 Credit [Basic Grad. Credit - Match]  
[Commercial program match: Heathkit "Computer Concepts"]
- Information Systems Cabling Technology - 55.5330.0-.5 Credit  
[Commercial program match: Heathkit Computer Cabling: Copper & Fiber Optic]
- Computer Technology Service & Maintenance I - 55.5320.0- 1.0 Credit  
[Commercial program match: Heathkit "Computer Service & Troubleshooting I"]
- Computer System Peripheral & A+ Certification - 55.5326.0-.5 Credit  
[Commercial program match: Heathkit " Printers Service & A+" ]

In addition to the new course that will form the content base of the CITP advanced technology program, the following existing courses and planned future course offerings could be serviced using the facilities: Existing Advanced Technology Education courses offerings:

- Drafting & CAD Technology- 55.4010.4- 1 Credit
- Architectural Drafting & Design- 55.4200.4- 1 Credit
- Digital and Analog Electronics I- 55.5100.4- 1 Credit
- Digital & Analog Electronics II- 55.5110.4- 1 Credit
- Introduction to Networking I- 55.5210.4 - .5 Credit [Basic Grad. Credit - Match]  
[Commercial program match: "Cisco Networking Semester 1"]
- Introduction to Networking II- 55.5220.4- .5 Credit  
[Commercial program match: "Cisco Networking Semester 2"]
- Advanced Networking I- 55.5230.4- .5 Credit  
[Commercial program match: "Cisco Networking Semester 3"]
- Advanced Networking II- 55.5240.4- .5 Credit  
[Commercial program match: "Cisco Networking Semester 4"]

Planned future Advanced Technology Education course offerings:

- Telecommunication Systems Technology
- Information Systems Component Service & Maintenance
- Introduction to Digital Control Technology
- Animatronics & Technology Systems
- Computer Control & Sensing In Engineering & Medicine
- Computer Design & Prototype Development For Manufacturing

The program will be implemented in two stages during the 2002/03 and 2003/04 school years. The implementation plan for course offerings is as follows:

### **Scheduling Course Codes:**

- A -Computer Technology Fundamentals - 55.5310.0. 5 Credit [Basic Grad. Credit - Match]  
[Commercial program match: Heathkit "Computer Concepts"]
- B - Information Systems Cabling Technology - 55.5330.0-.5 Credit  
[Commercial program match: Heathkit Computer Cabling: Copper & Fiber Optic]
- C - Computer Technology Service & Maintenance I - 55.5320.0-.1.0 Credit  
[Commercial program match: Heathkit "Computer Service & Troubleshooting I"]
- D - Computer System Troubleshooting, Peripheral & A+ Certification - 55.5326.0-.5 Credit
- E - Drafting & CAD Technology- 55.4010.4- 1 Credit
- F - Digital and Analog Electronics I- 55.5100.4- 1 Credit



**Scheduling Pattern 2002/03: Program Start-up [Based on 4 period day]**

Periods →	1	2	3	4	Semester:
28 students per period max. enrollment.	A	A	C		Fall 1
	B	B	C		Fall 2
	A	C	D	E	Spring 1
	B	C	D	E	Spring 2

**Scheduling Pattern 2003/04 Full Program Implementation**

Periods →	1	2	3	4	Semester:
28 students per period max. enrollment.	C	D	A	E	Fall 1
	C	D	B	E	Fall 2
	D	A - I	C	F	Spring 1
	D	B - I	C	F	Spring 2

**2. Staff Recruiting & Development**

The single most important element of this project is the human resource element - the teacher or teachers who will be teaching the IT courses. Finding and hiring qualified teaching personnel in today's market place will require incentives and a commitment to continue technical training to ensure they are able to use the resources purchased to support instruction.

Annual funding for continued technical training will be required to support the program with competent teaching staff.

**3. Equipment & Resource Procurement**

Four areas of support will be necessary to ensure the program remains current in terms of IT technology: Major Equipment &

Training Systems, Text & Reference Materials, Minor Equipment & Tools, and Consumable Resources.

**Major Equipment & Training Systems:**

- Furniture, Student Desks
- Furniture, Learning Stations
- Student & Instructor Seating
- Drill Press, 15" Ped. Type
- Soldering Station & Learning System [Heathkit or equal]
- Computer Technology Fundamentals Learning System [Heathkit or equal]
- Information Systems Cabling Learning System - [LJ or equal]
- Computer Technology Service & Maintenance Learning System [Heathkit or equal]
- Computer System Peripheral & A+ Certification Learning System [Heathkit or equal]
- Drafting & CAD Learning System [AutoCad or equal]
- Digital and Analog Electronics Learning System [LabVolt or equal]
- Student Computers
- Digital Projection System
- Instructors Resource Station
- Network Learning Station Package [Routers & Switches]
- Computer Service Benches
- Printers & Peripherals



**Text & Reference Materials:**

- Computer Tech. & Peripheral Reference Materials [Hard copy & digital]
- Computer Technology Fundamentals Learning System Tests & References
- Information Systems Cabling Learning System Tests & References
- Computer Technology Service & Maintenance Learning System Tests & References
- Computer System Peripheral & A+ Certification Learning System Tests & References
- Drafting & CAD Learning System Tests & References
- Digital and Analog Electronics Learning System Tests & References
- Network Learning Station Package Tests & References

**Minor Equipment & Tools:**

- Instrument & Maintenance Tools Package & Panel
- Student service tools packages

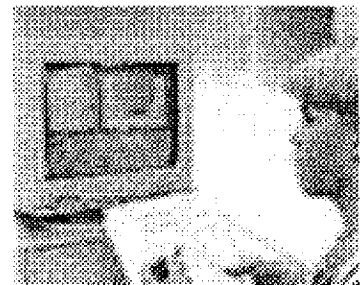
**Consumable Resources:**

- Cabling & Wiring Supplies
- Soldering & Component Service Kits

**School Facilities Development**

Changes required to existing Technology Education laboratory [room A10] at Chesapeake High:

- Electrical Panel Retrofit
- Electrical Surge Suppression
- Wiremold/IT Service
- Electrical Supplies
- Lighting Fixtures [36]
- Power Poles [12]
- Project Contingency @ 10%
- Construct 12' X 24" Information Technology Equipment Service Room within the laboratory.



## Budget Projections

**Projected Total : \$ 316,535.00**

<i>Staffing Position (salary and benefits estimate)</i>	\$ 62,000.00
<i>Staff Recruiting &amp; Development</i>	\$ 6,925.00
<i>Major Equipment &amp; Training Systems</i>	\$ 180,680.00
<i>Text &amp; Reference Materials</i>	\$ 1,500.00
<i>Minor Equipment &amp; Tools</i>	\$ 8,350.00
<i>Consumable Resources</i>	\$ 7,080.00
<i>School Facilities Development</i>	\$ 50,000.00

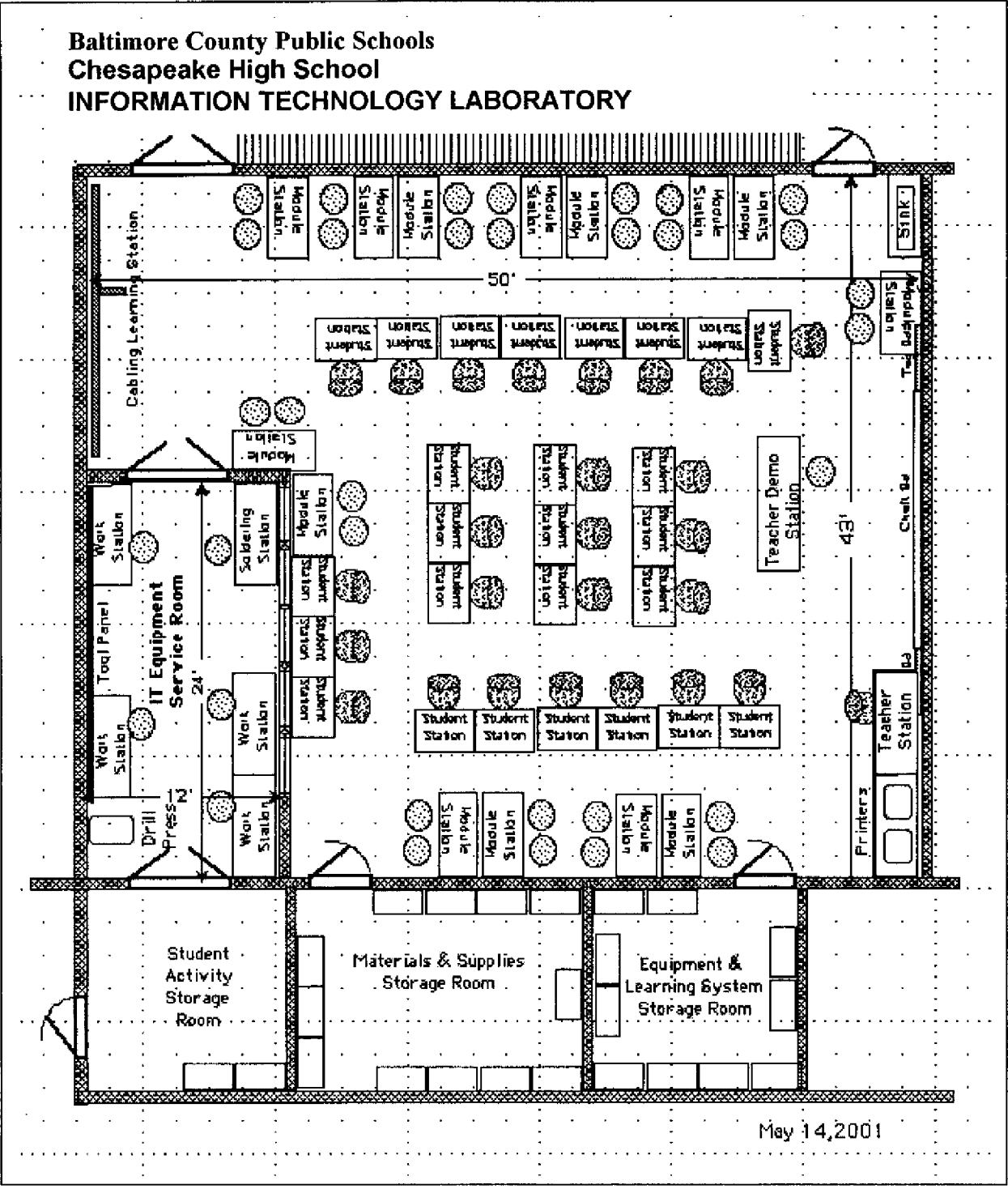
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**Phase I Funding Requirements, 2002/03 \$ 292,665.00**

**Phase II Funding Requirements, 2003/04 \$ 23,870.00**



# Laboratory Plan



- Facility Modifications & Up-Grading Requirements: [ \$27,390.00 ]
- Electrical system up-dating
  - IT network services at learning stations
  - Construct 12' X 24" IT Equipment Service Room
  - Painting
  - Flooring maintenance
  - Ceiling maintenance

The Chesapeake High □ 21st CENTURY □ INFORMATION TECHNOLOGY PROJECT							
Budget Item	Unit	Projected Unit Cost	No. Units	Projected Cost - Set Up: Pre School Year 2002/03	Projected Cost Phase 1: School Year 2002/03	Projected Cost Phase 2: School Year 2003/04	Projected Total
				\$ 10,925.00	\$ 219,740.00	\$ 85,870.00	\$ 316,535.00
<b>Staff Recruiting &amp; Development</b>							
• Training stipend, daily cost	each	\$ 140.00	15	\$ 2,100.00			\$ 68,925.00
• Contract Training, consultant services, daily	each	\$ 200.00	5		\$ 1,000.00		
• New teacher incentive - LT computer & printer	each	\$ 3,200.00	1	\$ 3,200.00			
• CAD Software Training, daily	each	\$ 125.00	5	\$ 625.00			
Staffing Position	each					\$ 62,000.00	
<b>Equipment &amp; Resource Procurement</b>							
							\$ 180,680.00
• Furniture, Student Desks, Learning Stations, Instructor Seating & Storage Cabinetry	each	\$ 22,000.00	1		\$ 22,000.00		
• Student & Instructor Seating	each	\$ 65.00	52		\$ 3,380.00		
• Drill Press, 15" Ped. Type	each	\$ 600.00	1		\$ 600.00		
• Computer Technology Fundamentals Learning System [Heathkit or equal]	each	\$ 1,100.00	14		\$ 15,400.00		
• Information Systems Cabling Learning System - [LJ] or equal]	each	\$ 3,200.00	14		\$ 44,800.00		
• Computer Technology Service & Maintenance Learning System [Heathkit or equal]	each	\$ 1,550.00	14		\$ 21,700.00		
• Computer System Peripheral & A+ Certification Learning System [Heathkit or equal]	each	\$ 600.00	14		\$ 8,400.00		
• Drafting & CAD Learning System [AutoCad or equal]	each	\$ 300.00	14		\$ 4,200.00		
• Digital and Analog Electronics Learning System [Lab/Volt or equal]	each	\$ 400.00	14			\$ 5,600.00	
• Student Computers	each	\$ 1,300.00	28		\$ 36,400.00		
• Digital Projection/Presentation System	each	\$ 6,500.00	1		\$ 6,500.00		
• Instructors Resource Station	each	\$ 3,500.00	1		\$ 3,500.00		
• Network Learning Station Package [Routers & Switches]	each					\$ -	
• Computer Service Benches	each	\$ 450.00	6			\$ 2,700.00	
• Printers & Peripherals	each	\$ 5,500.00	1		\$ 5,500.00		
<b>Text &amp; Reference Materials:</b>							
							\$ 1,500.00
• Computer Tech. & Peripheral Reference Materials [Hard copy & digital]	each	\$ 1,500.00	1			\$ 1,500.00	
• Computer Technology Fundamentals Learning System Tests & References	Provided w/ learning system						
• Information Systems Cabling Learning System Tests & References	Provided w/ learning system						
• Computer Technology Service & Maintenance Learning System Tests & References	Provided w/ learning system						
• Computer System Peripheral & A+ Certification Learning System Tests & References	Provided w/ learning system						
• Drafting & CAD Learning System Tests & References	Provided w/ learning system						
• Digital and Analog Electronics Learning System Tests & References	Provided w/ learning system						
• Network Learning Station Package Tests & References	Provided w/ learning system						
<b>Minor Equipment &amp; Tools:</b>							
							\$ 8,350.00
• Instrument & Maintenance Tools Package & Panel	each	\$ 4,500.00	1			\$ 4,500.00	
• Student service tools packages	each	\$ 550.00	7		\$ 3,850.00		
<b>Consumable Resources:</b>							
							\$ 7,080.00
• Cabling & Wiring Supplies	each	\$ 12.00	90			\$ 1,080.00	
• Soldering & Component Service Kits	each	\$ 40.00	150			\$ 6,000.00	
<b>School Facilities Development</b>							
							\$ 50,000.00
• Electrical Panel Retrofit	each	\$ 5,000.00	1		\$ 5,000.00		
• Electrical surge Suppression	each	\$ 1,000.00	1		\$ 1,000.00		
• Wiremold/IT Service	each	\$ 3,000.00	1		\$ 3,000.00		
• Electrical supplies	each	\$ 2,500.00	1		\$ 2,500.00		
• Lighting Fixtures (36)	each	\$ 175.00	36		\$ 6,300.00		
• Power Poles (12)	each	\$ 200.00	12		\$ 2,400.00		
• Construct 12' X 24" Information Technology Equipment Service Room within the laboratory. 24' wall @ \$75 per foot, with double door @ \$2900, and other facility modifications and up grades.	each	\$ 22,310.00	1	\$ 5,000.00	\$ 22,310.00		
• Project Contingency @ 10%	each	\$ 2,490.00	1			\$ 2,490.00	