NEEDS ASSESSMENT STUDY

for the

WARREN COUNTY CAREER CENTER

Warren County School District
North Warren, Pennsylvania

CONSULTANTS FOR EDUCATIONAL FACILITY AND LONG-RANGE PLANNING

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July 13, 2007

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T A B L E O F C O N T E N T S

Chapter I

INTRODUCTION

The discussion of the future directions of vocational and technical education is an important issue for public school systems to address. Today's global economy has created the need for a workforce with strong academic, workplace, and technical skills. A strategy that maintains an innovative edge is significant for Warren County and the Commonwealth of Pennsylvania to provide a workforce with higher levels of education and marketable credentials in high-wage, high-demand occupations.

Today, there is a nationwide debate about how education must be tailored to meet the needs of the new global economy. There are many viewpoints on how to prepare all students to be productive members of a new, technologically savvy, global society. What is the mission of career and technical education (CTE) in the 21st Century quest for excellence in education?

It is no longer possible for the United States to maintain its economic advantage without tapping into the potential of all its workers. Every student, whether he or she chooses a traditional educational path or career training by way of a CTE system, must be equipped with a set of basic skills that is far more sophisticated and advanced than that required in the manufacturing-based economy of fifty years ago. The workforce of the 21st Century demands greater knowledge and more complex computational, communication, teaming, and technological skills of its workers. The American public must therefore acknowledge a new role for the CTE delivery system: a role that prepares students for lifelong learning in order to effectively respond to our local and nation's ever more challenging workforce development needs.

A report to Congress in 2004 on the status of CTE and the Perkins III was generated by the National Assessment of Vocational Education Study. It was noted that "in an era in which strong skills and life-long learning are rewarded, the nature and impact of student experiences in vocational education could have important implications for the nation's workforce and America's place in the global economy"[1]

With a more diverse population and commerce, that easily crosses national and continental divides, gainful employment today requires teaming, communication, and technological skills like never before. At a time when new information, communication, and media technologies connect people, ideas, and data across the world simultaneously, works must function effectively in international contexts and the ability to function in cross-cultural situations has become a critical part of the 21st Century skill set. With global competition, the demand for skills equivalent with menial tasks is at an all-time low. The American workforce has to become more sophisticated if it is to maintain its competitive edge and public education must find a way to attain that higher level of sophistication.

In the "Reinventing the American High School for the 21st Century: Strengthening a New Vision for the American High School through the Experiences and Resources of Career and Technical

[1] National Assessment of Vocational Education, "Final Report to Congress", Washington, DC, 2004.

Education" published in January 2006, the Association for Career and Technical Education advocates for clearly focusing American high schools on the goal of preparing every student for full participation in a spectrum of college opportunities, meaningful work, career advancement and active citizenship[2]. Given the long history and evolution of CTE and based upon its origins, many assume the purpose of CTE is still to prepare young people who are "non-college bound" for direct entry into the workplace, usually a low or medium skilled workplace, directly after completion of high school.

However, students participate in CTE programs for a variety of reasons. There appears to be more complex views for CTE student participation. According to the Association for Career and Technical Education, a CTE should:

- Support students in the acquisition of rigorous core knowledge, skills, habits and attitudes needed for success in post-secondary education and the high-skilled workplace.
- Engage students in specific career-related leaning experiences that equip them to make well-informed decisions about further education and training and employment opportunities.
- Prepare students who may choose to enter the workforce directly after high school with levels of skill and knowledge in particular career area that will be valued in the marketplace.

An enterprising teacher and now Director of Technology for Arapaho High School in Centennial, Colorado, Karl Fisch, created a PowerPoint presentation for staff development in his school district. The presentation was created in 2004 and was posted on the Internet for others to enjoy. Since it originally was developed, it has been updated in January 2007 on YouTube and gained greater distribution.

(www.lps.k12.co.us/schools/arapahoe/fisch/fischbowlpresentations.htm) The"Did You Know" video is part of this report to summarize the educational challenges facing student preparation for all students and for this report CTE. Below is the data displayed on the each slide in one version of a Did You Know presentation.

- Did you Know
- Sometimes size does matter
- If you're one in a million in China
- There are 1,300 people just like you
- In India, there are 1,100 people just like you
- The 25% of the population in China with the highest IQ's
- Is greater than the total population of North America
- In India, it's the top 28%
- Translation for teachers: They have more honors kids than we have kids

[2] Association for Career and Technical Education, "Reinventing the American High School for the 21st Century, A Position Paper, January 2006

- Did you know
- China will soon become the number on English speaking country in the world
- If you took every single job in the U.S. today and shipped it to China
- China would still have a labor surplus
- During the course of this 8 minute presentation: 60 babies will be born in the U.S., 244 Babies will be born in China, 351 babies will be born in India.
- The U.S. Department of Labor estimates that today's learner will have 10-14 jobs
- By the age of 38
- According to the U. S. Department of Labor
- 1 out 4 workers today is working for a company they have been employed by for less than one year
- More than 1 out of 2 are working for a company they have worked for for less than five years.
- According to former Secretary of Education Richard Riley
- The top 10 in-demand jobs in 2010 didn't exist in 2004
- We are currently preparing students for jobs that don't yet exist
- Using technologies that haven't been invented
- In order to solve problems we don't even know are problems yet
- Name this country: largest military, center of world business and finance, strongest education system, world center of innovation and invention, currency the world standard of value, highest standard of living
- England
- In 1990
- Did you know
- The U.S. is 20th in the world in broadband Internet penetration (Luxembourg just passed us)
- In 2002 alone Nintendo invested more than $140 million in research and development
- The U.S. Federal Government spend less that half as much on Research and Innovation in Education
- 1 out every 8 couples married in the U.S. last year met online
- There are over 100 million registered users of MySpace (August 2006). If MySpace were a country it would be the 11th largest in the world (between Japan and Mexico)
- The average MySpace page is visited 30 times a day
- Did you know
- We are living in exponential times
- There are over 2.7 billion searches performed on Google each month
- To whom were these questions addressed BG? (Before Google)
- The number of text messages sent and received every day exceeds the population of the planet
- There are about 540,000 words n the English language
- About 5 times as many as during Shakespeare's time
- More than 3,000 new books were published
- Daily
- It's estimated that a week's worth of New York Times

- Contains more information than a person was likely to come across in a lifetime in the 18th century
- It' estimated that 20 exabytes (that is 4.0 x 10 to the 19th power) of unique new information will be generated worldwide this year.
- That's estimated to be more than in the previous 5,000 years
- The amount of new technical information is doubled every 2 years
- It's predicted to double every 72 hours by 2010
- Third generation fiber optics has recently been separately tested by NEC and Alcatel
- That pushed 10 trillion bits per second down one strand of fiber
- That's 1,900 CDs or 150 million simultaneous phone calls every second
- It's currently tripling about every 6 months and is expected to do so for at least the next 20 years
- The fiber is already there, they are just improving the switches on the ends. Which means the marginal cost of these improvements is effectively $0
- Predictions are that e-paper will be cheaper than real paper
- 47 million laptops were shipped worldwide last year
- The $100 laptop project is expecting to ship about 50 and 100 million laptops a year to children in underdeveloped countries
- Prediction are that by 2013 a supercomputer will be built that exceed the computation capability of the Human Brain
- By 2023, a $1,000 computer will exceed the computation capability of the Human Brain
- First grade Abby will be just 23 years old and beginning her (first) career
- And while technical predictions further out than about 15 years are had to do
- Predictions are that by 2049 a $1,000 computer will exceed the computational capabilities of the human race
- What does it all mean?
- Shift Happens
- Now you know

This is a long exhaustive presentation that demonstrates the challenges of preparing students for the world of work, especially those choosing CTE. The Warren County Career Center should embrace the challenges in the future.

Chapter II

UNDERSTANDING THE PLANNING SITUATION

With the challenges facing the Warren County School District for Career and Technical Education (CTE), it is important to examine the demographic and economic characteristics of the Commonwealth of Pennsylvania, Warren County, and other related areas. Multiple sources were utilized to attain the data: U. S. Department of Labor Bureau of Labor Statistics, U. S. Census Bureau, Commonwealth of Pennsylvania PA Powerport, and Center for Workforce Information and Analysis. Selective data is presented to demonstrate the planning situation for CTE in Warren County, Pennsylvania.

EMPLOYMENT BY INDUSTRY SECTOR

Selected statistics for Warren County, PA from various data sources are presented by economic sectors. The data in Table II-1 indicates that in 2002 the manufacturing, retail trade, and health care and social assistance sectors out distances the other industrial sectors for employment in Warren County. Keep in mind that most of the data is in summary form with detailed information readily from the source of the data.

Table II-1

2007 WARREN COUNTY EMPLOYMENT BY INDUSTRY SECTOR

EMPLOYMENT BY INDUSTRY SECTOR*		
	Employer Units	**Employment**
Manufacturing	74	2,982
Retail Trade	144	2,786
Health Care & Social Assistance	184	2,433
Local Government	61	1,407
Acccomodation & Food Services	90	835
State Government	15	739
Finance and Insurance	52	647
Professional & Technical Srvs	59	575
Other Srvs, Except Public Admin	129	538
Transportation & Warehousing	37	406
Wholesale Trade	37	260
Federal Government	19	233
Construction	66	222
Information	18	159
Mining	25	126
Arts, Entertainment, & Recreation	18	117
Admin/Support, Waste Mgt/Remediation Srvs	21	115
Utilities	11	100
Educational Services	5	97
Real Estate	18	84
Agriculture, Forestry, Fishing & Hunting	15	47
*Source: Center for Workforce Information and Analysis June 2007		

The 2000 U.S. Census data provides a snapshot of the distribution of general population by occupations. The data reflects similar data shown in the 2007 Table II-1. Table II-2 displays the 2000 Census information by occupation.

Table II-2

INDUSTRY SECTOR*		
	Number	**Percent**
Manufacturing	5,427	26.6
Educational, Health, and Social Services	4,029	19.7
Retail Trade	3,765	18.4
Arts, Entertainment, & Recreation	1,181	5.8
Transportation & Warehousing	931	4.6
Other Srvs, Except Public Admin	909	4.5
Public Aministration	723	3.5
Finance and Insurance	650	3.2
Agriculture, Forestry, Fishing & Hunting	635	3.1
Admin/Support, Waste Mgt/Remediation Srvs	694	2.9
Wholesale Trade	442	2.2
Information	284	1.4
*Source: U. S. Census 2000		

METROPOLITAN STATISTICAL AREAS

The U. S. Department of Labor gathers economic and employment data by MSA Metropolitan Statistical Area (MSA). Due to the relative small general population of Warren County, the county data is included in a larger area, Erie MSA. The data for the Erie MSA is not necessarily applicable to Warren County because of distance and differing resources available for development. However, the Center for Workforce Information and Analysis in June 2007 did a historical review of the civilian workforce, employment, unemployment, and the unemployment rates. Table II-3 displays data of the study findings.

Table II-3

EMPLOYMENT COMPARISONS WARREN/ERIE COUNTIES

	Civilian Labor Force	Employment	Unemployment	Unemployment Rate (%)
Warren County				
1990	21,800	20,800	1,000	4.5
2000	22,100	21,300	800	3.8
2001	22,500	21,500	1,000	4.6
2006	21,100	20,000	1,100	5.2
2007	20,700	19,900	800	4.0

*Source: Center for Workforce Information and Analysis June 2007

	Civilian Labor Force	Employment	Unemployment	Unemployment Rate (%)
Erie County				
1990	133,400	125,700	7,700	5.8
2000	140,300	133,900	6,400	4.5
2000	140,300	133,900	6,400	4.5
2006	140,900	133,600	7,300	5.2
2007	138,600	132,600	6,100	4.4

The comparative data in Table II-3 indicates that Warren County has performed a little better than the statistics for Erie County.

Chapter III

CURRENT STATUS OF WARREN COUNTY CAREER CENTER

MISSION STATEMENT

Warren County School District and the Warren County Career Center (WCCC), where today's student is our future, is to equip all students with the educational skills necessary to achieve their unique personal potential. The Career Center fully supports this mission with hands-on learning that assists students in understanding that Leaning = Earning.

STUDENT ENROLLMENT

Students may apply to attend WCCC during 9th, 10th, 11th, and 12th grades. WCCC courses are considered in a student's elective program with the student able to earn three credits. The courses of study include:

- Auto Collision Technology
- Automotive Technology
- Business
- Building Construction
- Electronics Technology
- Food Production & Management
- Machine Technology
- Power Equipment Technology
- Pre-Engineering
- Welding Technology

Students can apply to the following two-year courses of study/programs in 11th and 12th grades and choose from the areas for one year as an elective:

- Marketing
- Protective Services
- Business Computer Information Technology
- Building Construction (Tech Prep-Penn College)
- Electronics Technology (Tech Prep- Erie Institute of Technology)
- Food Production and Management (Tech Prep-IUP)
- Machine Technology (Tech Prep-Penn College)
- Pre-Engineering (Tech Prep-Penn State DuBois)

A number of articulation agreements aid WCCC students in their potential transition to post-secondary education. Table III-1 displays a compilation of the articulation agreements and respective institutions.

Table III-1

WCCC ARTICULATION AGREEMENTS

WCCC Course	Articulation Agreements
Food Production and Management	Mercyhurst College
	Pennsylvania Institute of Technology
	Winner Institute of Arts and Sciences
Electronic/Comm Eng.	Erie Institute of Technology
	Triangle Tech, Inc./Erie
	Pennsylvania Institute of Technology
	Penn State DuBois
Pre-Engineering	Edinboro University of PA
	Pennsylvania Institute of Technology
	PSU/Commonwealth College-DuBois
	Triangle Tech, Inc./Erie
Protective Services	Pennsylvania Institute of Technology
Building Construction Occupations	Pennsylvania Institute of Technology
Auto Collision Technology	Pennsylvania Institute of Technology
Automotive Technology	Pennsylvania Institute of Technology
	Northwestern College
	Ohio Technical College
Power Equipment Technology	Motorcycle & Marine Mechanics Institute
	Pennsylvania Institute of Technology
Machine Technology	Pennsylvania Institute of Technology
	Precision Mfg. Institute
Welding Technology	Pennsylvania Institute of Technology
	Precision Mfg. Institute
Marketing and Business	DuBois Business College/DuBois
	Erie Business Center
	Erie Institute of Technology
	Pennsylvania Institute of Technology

In the 2006-2007, student enrollment by program area for the 352 students selecting WCCC are displayed in Table III-2. From review of the data, there is an indication that Building Construction Occupations appears to rank as the top selection by students particularly in grades 11 and 12. According to the Director, this data distribution by program areas has been consistent for at least the last five years.

Table III-2

WCCC ENROLLMENT BY PROGRAM AREAS
2006-2007

Program Area	10	11	12	Total
Bldg Construction Occupations	9	16	14	39
Drafting	15	9	12	36
Electronics	13	13	10	36
Auto Body	10	9	15	34
Power Equipment	10	13	10	33
Protective Services	0	18	15	33
Auto Tech	11	10	11	32
Food Service	13	11	8	32
Machine Tech	14	9	7	30
Welding	14	7	7	28
Marketing	0	9	10	19
TOTALS	**109**	**124**	**119**	**352**

A comparison with the Pennsylvania Department of Education Secondary Career and Technical Education enrollment by program area for 2005-2006 in Table III-3 indicates that WCCC has a different focus than other programs across the state. One area that is emphasized across the state that is not a defined program area at WCCC, Health Occupations Education. Agriculture Education was once offered at WCCC but is no longer a choice for student programs. Agriculture Education has declined across the CTE community with program directions for agriculture directed toward business principles.

Table III-3

PDE SECONDARY CAREER & TECHNICAL EDUCATION ENROLLMENT
2005-2006

Area	Total Enrollment	Occupational	Tech Prep
Trade & Industrical Ed	46,638	35,225	11,413
Business Education	21,724	14,366	7,358
Occupation Home Econ Ed	10,430	8,167	2,293
Agriculture Education	7,974	7,532	442
Health Occupations Ed	7,387	5,170	2,217
Marketing & DE	2,333	2,047	286
Others Not Classified	1,078	4,016	62
TOTALS	**100,494**	**76,523**	**24,071**

COURSE DESCRIPTION AT WCCC

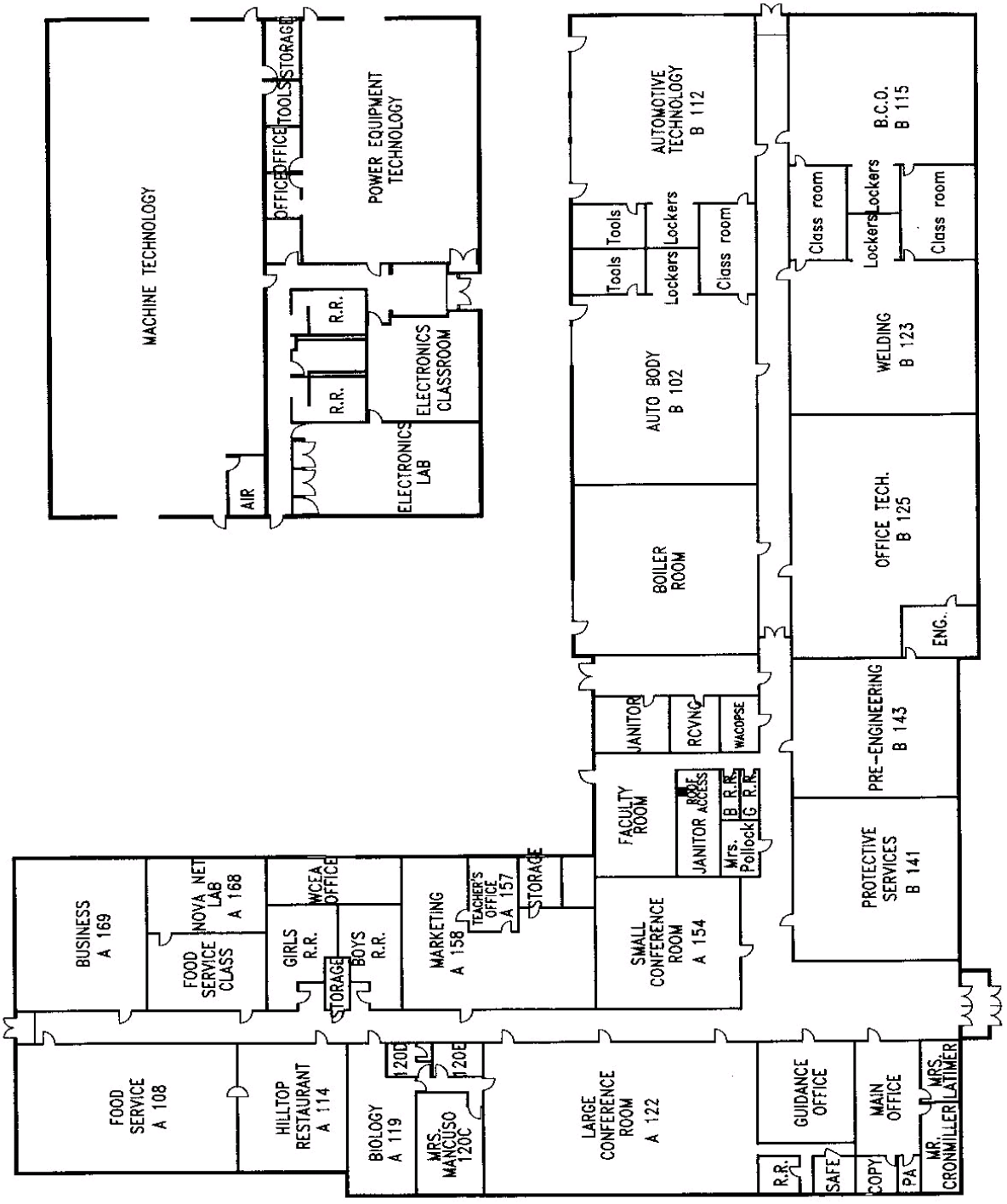
"The Warren County School District has provided the facilities to educate the next generation of technicians with technical skills necessary to succeed in the post-secondary world". The WCCC publishes a document for high school students and their parents/guardians that includes that previous quotation. The document, **Course Description Booklet 2007-2008,** also includes definitive narrative of courses of study and programs. *Note: it is not and has not been the intention of this report to copy verbatim the complete courses of study/programs at WCCC but to highlight selective items in this booklet.*

FACILITY

The current WCCC is comprised of two buildings on the campus with Warren Area High School and the Warren Elementary Center. The facility appears to be in good to fair condition. Conference rooms, both large and small, are available in the building for district use. Laboratories appear to be adequately equipped to meet the program needs and strategies. The building has a full time program capacity of 224. This program capacity is based upon a maximum of 16 students per laboratory area. With a half-day about student schedule, this school has adequate total capacity for the enrollment but may be overcrowded in selective laboratories due to program selection patterns. Figure III-1 on the next page displays a floor plan of the WCCC.

Figure III-1

WCCC FLOOR PLAN



Chapter IV

COMPARATIVE ANALYSIS OF VOCATIONAL TECHNICAL PROGRAMS

The purpose of this chapter is to draw comparisons of various CTEs across the Commonwealth of Pennsylvania to direct potential areas for WCCC to evaluate and/or pursue. The program area/course information is presented in summary form. If a selected area is viewed as of value for further investigate, that information is easily accessible from the school's websites.

Data was collected for similar geographic and economic environments as Warren County with additional data from an exemplary CTE school, Lehigh Career and Technical Institute. The LCTI is Pennsylvania's one of the most recent CTE facility renovation and expansion. New program development and increasing enrollment necessitated the LCTI construction project. Table IV-1 profiles the data inclusive of WCCC program areas.

Table IV-1

SELECTED PA CTE SCHOOLS PROGRAM AREAS

Program Areas	Lehigh CTI	Warren CCC	Butler Cty AVTS	Lawrence Cty CTC	Beaver Cty AVTS	Erie CTS	Clarion Cty CC	Parkway West CTC
Trade & Industrial Ed*	24	9	12	10	18	11	7	7
Business Ed	3	0	1	2	1	4	1	4
Occupational Home Econ Ed	3	0	0	1	0	0	0	0
Health Occupations	2	0	2	1	1	2	1	1
Marketing & DE	2	1	0	1	1	1	1	0
Not Classified (2)	2	1	1	0	0	0	1	0
Agriculture Ed	1	0	0	0	0	0	0	0
**Note: Some areas are clusters of trades*								

IMPLICATIONS FOR WCCC

With the futuristic concerns presented in Chapter I Introduction regarding the workforce of the future, it appears that program areas at WCCC have been regionally developed without a total global perspective. The geographical location and past positive economic conditions of Warren County has possibly prevented the need for a vision beyond northwest Pennsylvania.

The Lehigh Career and Technical Institute has developed their program vision beyond the Lehigh Valley, Pennsylvania and developed program areas with a global orientation. The emphasis on career programs and cluster certifications was an area of concern in program development. This CTE vision may be responsible for a resurgence of technical companies locating/relocating to the Allentown/Bethlehem area and the sharp increases in student enrollments in all school districts over the past five years. The availability of a skilled technical workforce is certainly a positive environment for change. The decimated manufacturing environment of the Lehigh Valley has been transformed into a technology environment to compete in the future.

Comparing WCCC to similar environments such as Butler County AVTS, Lawrence County Career and Technology Center, Beaver County AVTS, and the Clarion County Career Center shows that all centers have been somewhat stagnate in program development to meet the needs of the global economy. The focus of instruction is in developing skilled trades for local occupations. The question to be asked is what advancements in technology are integrated into the skilled trade development. The labor market data presented in Chapter II indicates that these trade areas are still needed for the Erie MSA. There is no question that "hard" skill trades, such as carpentry, auto body, etc. still need to be areas of emphasis but the ultimate question is: what is the need for these skills at the level currently pursued in the global economy?

Parkway West Career and Technology Center is included in the comparative analysis to present a CTE in the Pittsburgh, PA area. The Parkway West CTC is located by the Pittsburgh International Airport and some technology firm development. The decrease in skilled trade emphasis and the increase in business/technology education development reflects the economic changes to the area.

All schools presented in this comparative analysis have articulation agreements with two and four year institutions. Some of the schools have dual-enrollment higher education credit programs for capable students.

ACADEMY FOR TECHNOLOGY AND ACADEMICS

A visitation to the newly constructed Horry County (SC) Academy for Technology and Academics (ATA) was part of this study. The school opened in 2006-2007 with the most update technology for each program area. In most of the majors, students have the opportunity to take college courses or receive college credits provided they meet all the qualifications set by the ATA and the participating colleges. There is a major program emphasis on cluster certifications. The ATA program and certification areas are included in Appendix B of this report.

SUMMARY

Warren CCC is similar in their program approach as other CTEs of like geographic and economic regions. It appears that few schools across the Commonwealth of Pennsylvania have enveloped the global perspective of CTE.

Chapter V

SUMMARY: POTENTIAL AREAS FOR FUTURE PLANNING

Presumably, some combination of the identified potential alternatives from the data in previous chapters should provide an acceptable direction to the anticipated future needs in terms of the program development and realigning the existing school facility. Identification of the objectives and expectations for the solution are important to the process of selecting the best solutions.

Plan Objectives

Comparing the varying directions with general objectives for an overall program development is an important step in the evaluation process. Fundamental objectives should be:

- address and incorporate the educational and instructional needs of Warren County students through the proposed school program and facility improvement;
- reverse any planning situation that might exist where facility limitations dictate educational CTE policy;
- maximize the capacity of the WCCC facility and improve space utilization and allocation; and
- accommodate the student enrollments that are expected to occur as a result of community changes and any planned economic development.

AREAS FOR FUTURE DEVELOPMENT

The analysis and interpretation of the data presented in this report will need greater discussion in the very near future. Faculty, Board, and Administration should participate in the development and exploration of new and realigned program areas to meet the workforce demands of the 21st Century.

Visitations to exceptional CTEs with similar demographic and economic conditions as Warren County should be scheduled in the near future. The choice of visitations should included schools that have recently adjusted/revised their program offerings and facilities to meet the global economy needs.

It appears the data presented indicates that WCCC should plan to have greater emphasis in the following areas:

- variety of health occupation programs;
- technology integration in all career areas;
- greater articulation between the academic pathways and skill trades;
- offering of college credit courses for capable students;
- strength the academic requirements in all program areas;
- open enrollment for academic students to access CTE on an elective basis; and the
- clustering of skill areas

SUMMARY

The need for reassessment of WCCC program approaches and strategies is an excellent educational activity. It becomes readily apparent that this assessment should be done on a periodic basis. Many successes have been accomplished with the current program approach but it may not address the major concerns that will face todays and future students to achieve in the expanding global economy, as highlighted in the introduction to this report.

APPENDIX A
SCRIP TO DID YOU KNOW PRESENTATION

Sources for Did You Know

Slide #	My Source	Original Source
12-17 China/India Population	Web Search on population, then did the math.	Same.
19 China #1 English Speaking Country	http://weblogg-ed.com/2006/more-musings-from-milken/	Somebody at the Milken Conference - http://www.milkeninstitute.org/events/events.taf?function=detail&ID=159&cat=GC&EventID=GC06
21 China labor surplus	Former Maine Governor Angus King presentation - http://web.mac.com/northeastleadership/iWeb/Angus_King/Podcast/A19C541A-7E2C-4BB3-A581-63EA068369CE.html	Don't Know.
23 Babies in US/China/India	Web search on population, then did the math.	Same.
Old 24 U.S. Dept of Labor 10-14 careers	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Presumably U.S. Department of Labor Report. Also on web - http://www.fltimes.com/main.asp?SectionID=38&ArticleID=11301&SubSectionID=121 Can't verify so changed slide (see next row).
New 24 10-14 jobs by the age of 38	http://www.bls.gov/news.release/pdf/nlsoy.pdf among others	Same.
Old 27-28 1 out of 2, more than 2 in 3	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Presumably U.S. Department of Labor Report. Also on web at http://capitol2.tlc.state.tx.us/psf/9_12_03/meeting/Ian%20Jukes/Ian%20Jukes%20Presentation.pdf#search=%22%221%20out%20of%202%20workers%22%22 referencing book Windows on the Future by Ian Jukes and Ted McCain. Can't verify so changed slide (see next row).
New 27-28 1 out of 4, more than 1 in 2	ftp://ftp.bls.gov/pub/news.release/History/tenure.09212004.news	Same.
30 Top 10 in-demand jobs in 2010	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Says Richard Riley was recently quoted in an article. Also on web at http://www.marquette.edu/magazine/winter06/frontier.shtml citing A 2004 book, *The Jobs Revolution: Changing How America Works*
34-37 Name this Country	Angus King Presentation - http://web.mac.com/northeastleadership/iWeb/Angus_King/Podcast/A19C541A-7E2C-4BB3-A581-63EA068369CE.html	Don't Know.
39 Broadband Penetration	Web Search - http://www.websiteoptimization.com/bw/0607/	Same.
40-41 Nintendo vs. U.S. Government	http://davidwarlick.com/2cents/2006/03/18/too-tired-to-blog/	"2002 Annual Report for Nintendo Company, Ltd" Corporate Info Nintendo Company, Ltd. 27 Apr. 2003 <http://www.nintendo.com/corp/report/financialstatements_5-30-02.pdf> "FY 2004 Budget for the United States Government" U.S. Department of Education U.S. Department of Education. 27 Apr. 2003 <http://www.whitehouse.gov/omb/budget/index.html>
42 1 out of 8 met online	Fortune Magazine 8-7-2006 - http://money.cnn.com/magazines/fortune/fortune_archive/2006/08/07/8382578/index.htm	Quotes Diana Farrell, head of the McKinsey Global Institute

43-44 MySpace statistics	Web Search - http://www.secretlair.com/index.php?/clickableculture/entry/myspace_stats_noted/	http://www.thevirtualhandshake.com/blog/2006/06/23/shawn-gold-svp-myspace-marketing-in-a-networked-culture Updated to 100 million – Fortune Magazine, 9-4-2006 - http://money.cnn.com/magazines/fortune/fortune_archive/2006/09/04/8384727/index.htm
47 2.4 billion Google Searches	Web search Updated – 2.7 billion - http://searchenginewatch.com/showPage.html?page=2156461	Same.
49 Number of text messages in a day	Can't find at the moment - I think it was in my notes from NECC.	Haven't found anything on web yet, but the numbers I'm seeing are in the ballpark.
50-51 540,000 words in English Language vs. Shakespeare's time.	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Don't Know. Lots on the web including http://en.wikipedia.org/wiki/English_language
52-53 3000 books daily	Ian Jukes - attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Don't Know. Lots on the web including http://www.princetoninfo.com/200405/40512c03.html
54-55 Week of NY times more than lifetime in 18th century	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Cites Richard Wurman book – Information Anxiety - http://www.amazon.com/Information-Anxiety-Richard-Saul-Wurman/dp/0789724103/sr=1-1/qid=1172692015/ref=pd_bbs_sr_1/002-0116902-0249611?ie=UTF8&s=books
56-57 40 exabytes of info	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Cites UC Berkeley Study Update - http://www2.sims.berkeley.edu/research/projects/how-much-info-2003/ - 5 exabytes in 2002 Updated to 40 exabytes – new IDC study many places on web including http://hosted.ap.org/dynamic/stories/I/INFORMATION_EXPLOSION?SITE=WIMAR&SECTION=HOME&TEMPLATE=DEFAULT
58-59 Tech info doubling	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Cites George Gilder - http://www.amazon.com/Telecosm-World-After-Bandwidth-Abundance/dp/0743205472/sr=1-2/qid=1172692403/ref=sr_1_2/002-0116902-0249611?ie=UTF8&s=bookshttp://www.amazon.com/Telecosm-World-After-Bandwidth-Abundance/dp/0743205472/sr=1-2/qid=1172692403/ref=sr_1_2/002-0116902-0249611?ie=UTF8&s=books
60-64 Fiber Optics	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Some from George Gilder, some from Ray Kurzweil, some from ?
65 epaper cheaper than real paper	Ian Jukes – attended session at NECC, then downloaded http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf	Don't Know. Couldn't verify on web, so changed slide to remove 2008.
66-67 Laptops	Nicholas Negroponte Keynote at NECC (attended and took notes)	Don't Know on the shipping number, the estimate is his of course.

68-72 Computers and Humans	Ray Kurzweil book - The Singularity is Near - http://singularity.com/	Also http://www.kurzweilai.net/articles/art0134.html?printable=1

Music – A mix of tracks from the Last of the Mohicans soundtrack, available at fine music stores everywhere, as well as online at iTunes or Amazon.

APPENDIX B

Academy for Technology and Academics

07-08

HORRY COUNTY SCHOOLS
ACADEMY for TECHNOLOGY and ACADEMICS

"Successful Careers Begin Here"

CURRICULUM GUIDE

2007-2008

Academy for Technology and Academics
Career Majors

- Automotive Technology
- Business--Administration and Information Support
- Business—Paralegal and Legal Systems Administration
- Building Construction
- Computer Service Technology
- Cosmetology
- Culinary Arts
- Digital Arts
- Education
- Health Science/Nursing
- Health Science/Pre-Med
- Industrial Systems Technology
- Marketing, Management, & Promotions
- Pre-Engineering (GIS/AutoCAD)

National Career Programs/Clusters Certifications*

- Automotive Technology (Automotive Service of Excellence-ASE Certification)

- Building Construction (National Center for Certification and Research/Carpentry-NCCER Certification)

- Business, Management, and Administration (Microsoft Office User Specialist Certification-MOUS)
  (Administration and Information Support)
  (Paralegal and Legal Systems Administration)

- Computer Services Technology (A+ Certification)

- Cosmetology (State Board Accredited Program)

- Culinary Arts (National Restaurant Association ProStart – ServSafe Certification)

- Health Science Technology-Nursing (Certified Nursing Assistant, First Aid, and CPR Certifications)

- Health Science Technology-PreMed (Pharmacy Tech, First Aid, and CPR Certifications)

- Hospitality/Tourism (Lodging Management Certification)

- Pre-Engineering (GIS/CAD

** Most of the majors prepare the students for national or state certifications which are recognized by business and industry. All of the certification areas require students demonstrate mastery standards. Also, some certifications require a specific number of hours to be completed in the area of study. Upon completion, students are eligible to take the certification tests. Enrollment in*