CAREER
&
TECHNICAL
EDUCATION

LONG-RANGE PLAN

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C.T.E.

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INTRODUCTION

Career and technical education (CTE) programs in Virginia public schools serve more than 640,000 students in one or more CTE courses in grades 6-12. These programs prepare young people for productive futures while meeting the Commonwealth's need for well-trained and industry-certified technical workers.

Orange County Public Schools provides students with opportunities that prepare them to acquire jobs in the ever-changing work environment of the future.

Beginning in the elementary grades, teachers introduce students to available careers. Moving into the middle grades, students work with their counselors to complete an Academic and Career Plan through the Xello platform.

Middle school CTE courses allow students to sample a wide range of hands-on lessons that will better prepare them to select a pathway in high school.

Counselors work with students to continue to adapt their Academic and Career Plans throughout high school to better prepare them for post-secondary training, higher education, the military, or the workforce.

Orange County Public Schools actively partners with businesses and industry to design and provide high-quality, dynamic programs to meet current, emerging, and projected labor market needs.

Virginia's 16 career clusters help students investigate careers and design a plan of study to advance their career goals.

The OCHS CTE program continues to expand to provide multiple pathways representative of those career clusters that represent a standard set of academic, technical, and employability skills.

OCHS is dedicated to expanding career pathways and industry credentials to qualify students for career opportunities from entry to professional levels.

THEN & NOW

During the 2015-16 school year, the CTE Business Advisory met with Orange representatives from healthcare, manufacturing, technology, and agriculture. These focus groups provided valuable insight into the business and industry needs of Orange County. At that time, Orange County Public Schools committed to increasing student CTE opportunities.

Since then, the administration has strengthened programming by developing delineated pathways to ensure depth of knowledge in different career fields.

The nursing program doubled its capacity to provide instruction and licensing opportunities for students. Nationally recognized certification for trades, NCCER Core Craft Skills, was offered with 46 students completing the national certification in the 2019-2020 school year.

Manufacturing, Mechatronics, Robotics, Computer Science, Game Design and Development, Communications, increased pathways in Agriculture to include animal, plant, and power systems, and an Automotive Technician Program are some new programs offered.

Moving forward, OCPS plans to increase course offerings and industry certifications.

	2015-2016	2021-2022
Courses w/ Enrollments	47	59
Active Pathways	33	45
# of Enrollments	1407	1603

Program	Program Changes Since the 2015-2016 School Year
Agriculture Education	- A second type of welding offered at OCHS - New equipment, including: - Virtual welding - Plasma CNC - Virtual heavy equipment simulator - Greenhouse - Tractor - FFA reboot - Ten classes added
Family and Consumer Sciences	- Community Service Learning (Hornet Helpers) added - Partnership with Germanna added (DE Introduction to Teaching, DE Human Growth and Development)
Culinary Arts, Food Sciences & Hospitality	Space issues resulted in program deletion
Health and Medical Sciences	- Doubled the nursing program capacity - EMT program partnering with Orange Rescue
Human Services	- Added Cosmetology lab at TEAC, now offers Cosmetology I and II - Offered the Cosmetology Board testing
Technology Education	- Robotics class and lab added (formerly only a club) - Fabrication Lab created, including: - Advanced 3D printers - CNC machine - Multimedia large Format Printer - Large Format CNC machine
Trade and Industrial Education - Could Include: Automotive Services, Aviation, Construction Services, Machining, Manufacturing, Industrial Maintenance	- Manufacturing and Mechatronics offered at OCHS - Automotive Program - Provided through a partnership with Germanna Community College - Added Computer Science Programming, Intro to Computer Science Python, Game Design and Development, AP Computer Science Principals, and AP Computer Science A - Core Craft Skills offered at OCHS - Carpentry was added, but space issues resulted in program deletion

CURRENT COURSE OFFERINGS

AGRICULTURE
Foundations of Ag, Food & Natural Resources
Introduction to Animal Systems
Veterinary Science I, Veterinary Science II
Introduction to Power Structure & Tech Systems
Horticulture Sciences
Livestock Production Management
Agricultural Power Systems, & Advanced
Equine Science
Agricultural Fabrication & Emerging Technology, & Advanced
Greenhouse Plant Production & Management
Landscaping I, II

BUSINESS & INFORMATION TECHNOLOGY
Economics & Personal Finance
Principles of Business & Marketing
Accounting
Computer Information Systems
Digital Applications
Design, Multimedia, & Web Tech, & Advanced
Entrepreneurship Education
Opportunities in Hospitality & Tourism

COMMUNICATIONS
Communication Systems
Graphic Communications
Video & Media Technology

FAMILY AND CONSUMER SCIENCES
Independent Living
Child Development & Parenting
Community Service Learning
DE Introduction to Teaching EDU 200
DE Human Growth & Development EDU 207

HEALTH & MEDICAL SCIENCES
Introduction to Health & Medical Sciences
Nursing Aide I, II
Sports Medicine /Athletic Training I, II
Emergency Medical Technician I

HUMAN SERVICES
Cosmetology I, II

LAW, PUBLIC SAFETY & SECURITY
Firefighting I

MARKETING
Marketing
Sports, Entertainment, & Recreation Marketing
Fashion Marketing
Digital & Social Media Marketing

MILITARY SCIENCE
JROTC Leadership Education and Training 1-8
JROTC Teams
Leadership & Citizenship
LEAD 134 - Military History Staff Ride

TECHNOLOGY EDUCATION
Technical Drawing & Design
Engineering Drawing & Design
Architectural Drawing & Design
Advanced Drawing & Design
Technology Foundations
Technology Transfer
Advanced Graphic Design
Technology of Robotic Design
Mechatronics I, II

TRADE AND INDUSTRIAL EDUCATION
Advertising Design I
Dual Enrollment Automotive Technology
Dual Enrollment Automotive Diagnostician
Information Technology Fundamentals
Computer Science Programming, & Advanced
Cybersecurity Fundamentals
Cybersecurity Technology, & Advanced
Cyber Security Network Systems
Game Design & Development
Introduction to Computer Science - Python
AP Computer Science Principles
AP Computer Science A

FUTURE EXPANSION

Orange County Public Schools intends to expand experiences by incorporating workplace skills with hands-on, experiential instruction to prepare students for future employment.

To meet these goals, increased space and equipment are necessary to provide realistic simulations that seamlessly transition students from the classroom to the workforce.

Our space is limited, and we have a critical need for more extensive labs for CTE programs. We aim to expand pathways and training for students using industry-standard simulators and equipment that mirror the workforce.

If additional space is secured, it will impact current and future programs.

1 Agriculture:
Turf Management
Small Engine Repair
Outdoor Recreation,
Parks, & Tourism
Forestry Management

2 Architecture & Const.:
Construction Technology
Building Trades
HVAC
Masonry
Plumbing
Electricity
Utility/Heavy Const.

3 Tech & Communications :
Telecommunications
Interior Design
Television & Media

4 Business Mgt. & Admin.:
Business Management
Medical Administration
Legal Administration

5 Energy Pathway:
Energy & Power
Renewable Energy

6 Health & Medical:
Medication Aide
Pharmacy Technician
Radiologic Technology

7 Hospitality & Tourism:
Culinary Arts
Hospitality, Tourism
& Recreation
Travel & Tourism Marketing

8 Information Technology:
Geospatial Technology
Programming

9 Law, Public Safety,
Corrections & Security
Criminal Justice
Public Safety

10 Manufacturing:
Precision Machining Tech.
Industrial Robotics Tech.
Comp. Integrated Mfg.
Welding

11 Marketing:
Oppor. in Global Trade
Real Estate

12 Transportation,
Distribution & Logistics:
Small Engine Technology
Diesel Equipment Tech.

FUTURE SPACE NEEDS

A location close to the existing high school is ideal. Traveling to an offsite location presents limitations, such as shortening the course time due to travel. CTE courses require either 140 or 280 clock hours. This travel time would take away from the required hours and add transportation costs. To reduce the lost time, additional core teachers at the remote site would be necessary so that students could also meet other graduation requirements. Other limitations include:

- Cafeteria
- Transportation costs
- Campus community
- Human Resources - cross-subject teachers
- Nursing, Administrative, and Security
- Multi-Use of classroom space

CTE courses require space and equipment that provide realistic simulations that enable students to seamlessly transition from the classroom to the workforce. Current space is limited, and we need more extensive labs to expand pathways and training for students using industry-standard simulators and equipment that mirror the workforce.

Securing additional space will not only impact future offerings but also enhance our existing courses. Examples include:

- Building trades pathway that includes electricity, plumbing, HVAC, and masonry
- Culinary Arts
- Expanded nursing program
- Manufacturing and mechatronics lab space to utilize industry simulators
- Cosmetology program expansion to operate a working salon
- Small Engine Repair
- Advanced Welding

VIRGINIA SCHOOL SPACE REQUIREMENTS

CTE classrooms and laboratories are often larger than general classrooms and are extensively equipped and, therefore, more expensive to build than regular classrooms. Spaces should be designed to be flexible for changing educational needs.

According to the Virginia Department of Education, classroom spaces must be at least 700 square feet. CTE laboratory requirements are laid out in the table below:

High School Grades 9 - 12 Programs and Courses Requirements for Labs	Size
Agriculture Education	2,200 - 2,600 sq. ft. (Could also include Greenhouse 1,400 -1,800 sq. ft)
Business and Information Technology	1,000 - 1,400 sq. ft.
Career Connections	1,000 - 1,400 sq. ft.
Family and Consumer Sciences	2,200 - 2,600 sq. ft.
Early Childhood Education and Services	2,200 - 2,600 sq. ft.
Culinary Arts, Food Sciences & Hospitality	2,200 - 2,600 sq. ft.
Fashion Interior Design	2,200 - 2,600 sq. ft.
Health and Medical Sciences	2,400 - 2,800 sq. ft.
Human Services	2,400 - 2,800 sq. ft.
Marketing	1,000 - 1,400 sq. ft.
Technology Education	2,400 - 2,800 sq. ft.
Technical Drawing and Design	1,400 - 1,800 sq. ft
Trade and Industrial Education - Could Include: Automotive Services, Aviation, Construction Services, Machining, Manufacturing, Industrial Maintenance	2,400 - 2,800 sq. ft.

OCHS - CTE SPACE NEEDS

Programs and Courses	Facility Needs

Agriculture Education	• Classrooms: 3
	• Labs:
	  ◦ Shop Space
	  ◦ Virtual "Clean Lab" Space
	  ◦ Welding
	  ◦ Greenhouse
	  ◦ Animal Science Lab
	  ◦ Outdoor Space

Business and Information Technology	• Classrooms: 4
Communications - Includes Communications, Graphic Communications, and Video and Media Technology (Broadcasting)	• Classrooms: 2 • Labs: 1 Broadcasting Lab
Culinary Arts, Food Sciences & Hospitality	• Classrooms: 1 • Labs: 1
Early Childhood Education and Services	• Classrooms: 1 • Labs: 1
Family and Consumer Sciences	• Classrooms: 1 • Labs: 1
Fashion Interior Design	• Classrooms: 1 • Labs: 1

Health and Medical Sciences	• Nursing:
	  ◦ Classrooms: 2
	  ◦ Labs: 2
	• Sports Medicine/Athletic Training
	  ◦ Classrooms: 1
	• EMT
	  ◦ Classrooms: 1
	  ◦ Labs: 1

Human Services	• Cosmetology:
	  ◦ Classrooms: 1
	  ◦ Labs: 1

OCHS - CTE SPACE NEEDS, CONTINUED

Programs and Courses	Facility Needs
Human Services	- Cosmetology: - Classrooms: 1 - Labs: 1
Information Technology - Includes: Networking, Cybersecurity, Computer Science, Game Design, etc.	- Classrooms: 2 - Labs: 2
JROTC	- Classrooms: 2 - Labs: - Armory - Firing Range - Drill Area - Storage/Uniforms, etc
Marketing	Classrooms: 1
Technology Education	- Classrooms: 4 - Labs: "Fabrication Lab" - Robotics Lab - Shop - Video and Media Lab
Trade and Industrial Education - Could Include: Automotive Services, Aviation, Construction Services, Machining, Manufacturing, Industrial Maintenance	- Classrooms: 3 - Labs: - Automotive - Electrical - HVAC - Plumbing - Carpentry

CLASSROOM/LAB EXAMPLES

Not to Scale

Orange County Public Schools
CTE Expansion
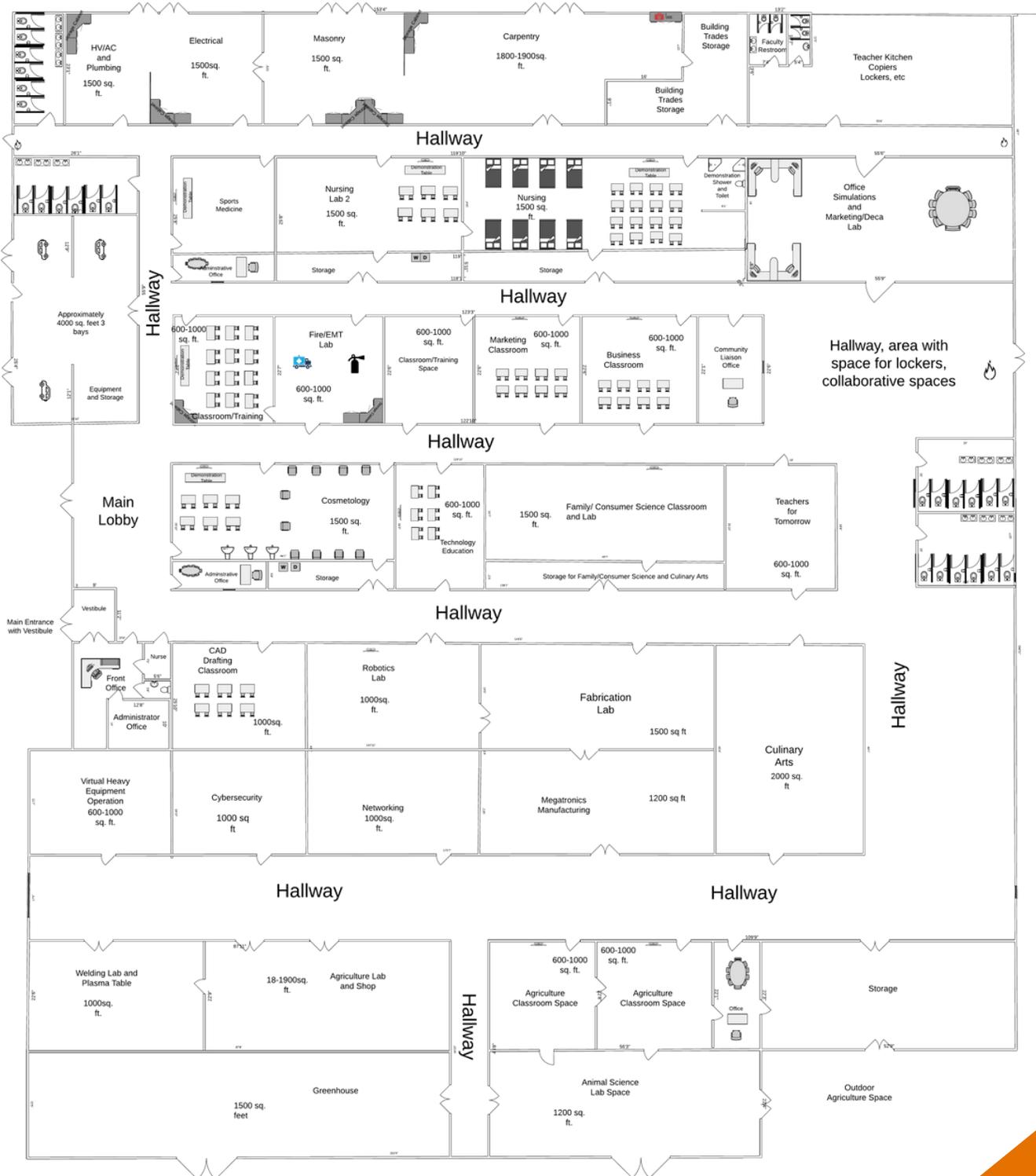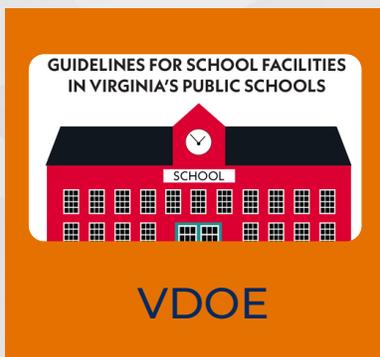
Supporting Documents

The following documents, which were previously shared, are provided as references. Use the URL or scan the QR code above for access.
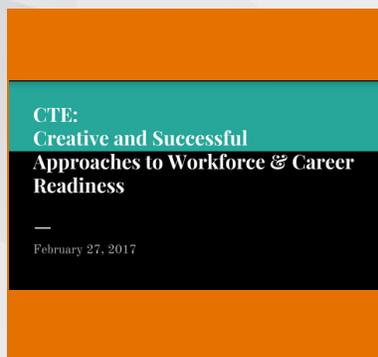

VDOE

VDOE Guidelines for School Facilities in Virginia's Public Schools - https://bit.ly/3R0ISbR

Parent Information Night Presentation https://bit.ly/3cp1zac

Parent Information Night Presentation Recording - 5/2/22 https://bit.ly/3cp1zac

Business Advisory December 2021 https://bit.ly/3R0ISbR

School Board Briefing Feb. 2019 https://bit.ly/3AWCSeE