

CAREER TECHNICAL EDUCATION **MASTER PLAN**

RE-ENVISIONING CAREER TECHNICAL EDUCATION

JOBSKILLS



FALL 2023





Vision of the Boulder Valley School District

BVSD develops it's children's greatest abilities and makes possible the discovery and pursuit of their dreams which, when fulfilled, will benefit all. BVSD provides a comprehensive and innovative approach to education and graduates successful, curious, lifelong learners who confidently confront the great challenges of their time.

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Thank you to all contributing BVSD Leadership, Administration, Counselors, and Students.

Please see below for an abbreviated list of key contributors and district stakeholders.

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CTE MASTER PLAN TIMELINE



The CTE Master Plan process was launched in February of 2023 and is organized in five phases of design that will position the Boulder Valley School District for long-term success. The master plan is a living document that will guide future ready learning and Career Technical Education (CTE) in Boulder County.

Pre-planning efforts preceded the master plan in the spring of 2022 and program planning will continue following completion of the master plan through 2023.

2022

Pre-Planning

PATHWAYS EQUITABLE ACCESS WORK-BASED LEARNING SPRING 2023

DISCOVER

SYNTHESIZE REPORT RECOMMEND

LAUNCH

CTE Master Plan

2023 BVSD CTE Project Specific Implementation is Launched

SUMMER

CONTINUED PROGRAM PLANNING



RE-ENVISIONING CTE

A comprehensive Vision and Plan for college and career programming ("Re-envisioning CTE") must convey a sense of purpose, people, and place by informing key decision-making, providing a sustainable framework for capital improvements, maximizing opportunities for funding, supporting community partnerships, and elevating the human experience. The fivephase master plan approach provides opportunities for the incorporation of fresh insights which are reflective of changing dynamics impacting the continuum of education from both a local and national perspective.

PROCESS

MASTER PLAN REAL RELEVANT AUTHENTIC DRIVERS OF CHANGE Throughout all phases of the CTE Master Plan, the design team met and collaborated regularly with district leadership and a BVSD CTE Advisory Committee. It is important to note that this group included industry voice with representation from the Boulder Chamber. The following phases informed the master plan's project work plan and methodology:

DISCOVER

Develop process for engagement and project timeline/ schedule. Study current pathways, curriculum, partnerships, and facilities. Tour existing facilities and interview school leadership across the district.

LAUNCH

Execution of strategic collaboration with district leadership, students, staff, industry partners, and key stakeholders. Engagement organized in workshops and focus groups.

SYNTHESIZE

Study data to inform understanding/development of challenges, opportunities, aspirations and goals. Develop preliminary concept plans and cost estimates. Preliminary development of a district identity for CTE spaces.

REPORT

Review, vet, and further refine master plan findings into alternate scenarios that represent slow, moderate, and high levels of intervention. Continued development of a district identity for CTE spaces.

RECOMMEND

Adoption and implementation of final review, comments, and recommendations and completion of graphic materials and supporting collateral.

COLORADO CTE 2019-2024 STRATEGIC PLAN



COLORADO STRATEGIC CTE VISIONING PROCESS

From October 2018 to April 2020, Colorado CTE worked through a visioning process to develop a strategic plan for Career Technical Education across the state. Organized in four phases, (Discover, Dialogue, Direction, and Deployment) the group's work engaged a wide variety of stakeholders, identified goals, priorities and performance measures for tracking progress, and helped to build consensus. The result of the two year effort was a "state strategic vision and plan for CTE that considers the unique landscape and opportunities in Colorado over the next five years."¹

VISION COLORADO CAREER AND TECHNICAL EDUCATION

Colorado Career and Technical Education (CTE) leverages workforce and education systems so that each learner has quality CTE experiences leading to lifelong career success.

MISSION COLORADO CAREER AND TECHNICAL EDUCATION

CTE ensures a thriving Colorado economy by providing relevant and rigorous education that is connected, responsive, and real.

¹ http://coloradostateplan.com/ ^{IMAGE} http://lucidpractice.com/129-destination-boulder-colorado-usa/ "CTE ENSURES A THRIVING COLORADO ECONOMY BY PROVIDING RELEVANT AND RIGOROUS EDUCATION THAT IS CONNECTED, RESPONSIVE, AND REAL."

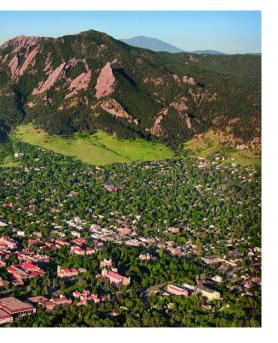
CTE 2019-2024 Strategic Plan





Colorado Career Clusters

Expanding pathways from high school to postsecondary opportunities is essential for preparing students for success after high school. CTE programs help students develop the knowledge, skills, and abilities necessary to be postsecondary and workforce ready.¹



This BVSD CTE Master Plan has thoughtfully reviewed Colorado CTE's 'Colorado CTE Career Cluster Map' and has made strategic effort to overlay the career cluster and pathway recommendations within the master plan to the clusters and courses outlined in the state guidelines. *The overall goal/outcome of Colorado CTE is to provide quality educational programs emphasizing core academic content, Postsecondary and Workforce Readiness (PWR) competencies, technical skills, and seamless transition to further education or employment and better prepare students, including special populations to meet challenges of the workforce, economic development, and emerging occupations.*¹

Colorado CTE programs are divided into six industry sectors:

- 1. Agriculture, Natural Resources and Energy
- 2. Engineering, Technology, and Media Arts
- 3. Skilled Trades and Technical Sciences
- 4. Health Science, Criminal Justice, and Public Safety
- 5. Hospitality, Human Services, and Education
- 6. Business, Marketing, Entrepreneurship, Finance and Public Administration

Colorado Career Clusters include:

- Agriculture, Food & Natural Resources
- Energy
- Management & Administration
- Marketing
- Finance
- Government & Public Administration
- Hospitality & Tourism
- Human Services

- Education & Training
- Health Sciences
- Transportation, Distribution & Logistics
- Architecture & Construction
- Manufacturing
- STEM
- Arts, A/V Technology & Communication
- Information Technology

BVSD CTE MASTER PLAN PRE-PLANNING

In the Spring of 2022, BVSD leadership finalized working group proposals addressing the Creation of Career and College Pathways, Equitable Access to Career Exploration, and Work-Based Learning Opportunities. This established pre-planning laid the groundwork for commitment to the CTE Master Plan and a more centralized model of industry connections. The objectives and strategies outlined in the pre-planning proposals have informed the exploration and recommendations of the master plan.

CREATION OF CAREER AND COLLEGE PATHWAYS

Career and college pathways provide students with the academic, technical, and real world knowledge, skills and experience they need to be prepared for a variety of career options. Pathways give students the skills, knowledge, and experience necessary for career and college readiness to allow for personalized and hands-on exploration of different career fields. This proposal will outline strategies to create clear career and college pathways throughout BVSD.

OBJECTIVE ONE

OBJECTIVE TWO

OBJECTIVE THREE

Align current coursework to establish a true pathway (Grad+: Overall Infrastructure) Identify new pathways to meet the postsecondary needs of students (Grad+: Overall Infrastructure) Reduce disparity in access to pathways across the district (Grad+: Overall Infrastructure, College Before Graduation)





IMAGES Boulder TEC Instagram

EQUITABLE ACCESS TO CAREER EXPLORATION

We want all students in BVSD to engage in a multi-year process that intentionally guides students and families in the exposure and exploration of career, academic and postsecondary opportunities. With the support of adults, students develop the awareness, knowledge, attitudes, and skills to create their own meaningful and powerful pathways to Postsecondary and Workforce Readiness. This proposal will outline strategies and structures that can be used to create opportunities for equitable access to career exploration.

OBJECTIVE ONE

OBJECTIVE TWO

Consistent and authentic plan for implementation of ICAP (Grad+: Overall Infrastructure) Develop recommended structures for common implementation of ICAP district wide (Grad+: Overall Infrastructure)

INCREASE WORK-BASED LEARNING OPPORTUNITIES

Work-based learning (WBL) programs are instrumental in quality career pathways in that they expose and encourage exploration of different industry sectors while also enabling students and job seekers to secure industry-relevant skills, certifications, and credentials and advance to higher levels of education and employment. This proposal will outline strategies to increase WBL opportunities throughout BVSD.

OBJECTIVE ONE

Increase WBL opportunities for all students (Grad+: WBL, Overall Infrastructure) **OBJECTIVE TWO**

(Grad+: WBL)

Increase and diversify the number of Community Partners who are working with BVSD to provide WBL opportunities.

OBJECTIVE THREE

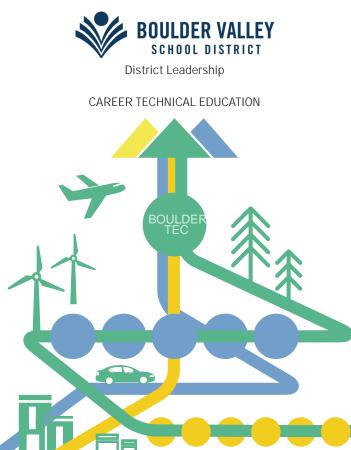
Increase opportunities for building awareness and exploration of careers in PK-8 in addition to high school. (Grad+: Overall Infrastructure & WBL) A CENTRALIZED APPROACH TO BVSD CTE PROGRAMMING WILL SUPPORT THE CREATION OF EQUITABLE STUDENT EXPERIENCES ACROSS THE DISTRICT AND REALIZE PROGRAM EFFICIENCY IN THE TRANSITION TO EXPANDED PROGRAMMING AND BROADER INDUSTRY CONNECTION.

> IMAGE University of Colorado Boulder Ann and H.J. Smead Aerospace Engineering Sciences Laboratory Facility https://www.colorado.edu/aerospace/admissions

CENTRALIZED OR DECENTRALIZED PLANNING

DISTRICT PROGRAMMED AND SCHOOL IMPLEMENTED

Throughout the master planning process, as scenarios for growth and/or change were considered, district leadership and the design team reflected on the potential for BVSD CTE programming to adopt either a centralized or decentralized approach. A strictly centralized approach means that all CTE teachers across the district would come together to inform the development of programs at the individual schools. This would provide each individual school with less autonomy but would significantly expand access to resources and industry partners. A strictly decentralized approach would empower smaller groups to be decision makers and might reinforce some existing programming, but with the potential to jeopardize the commitment, brand, and vision of the larger BVSD CTE network.



BVSD's current decentralized model does not support the continuity needed to strongly develop pathways with commitment to the brand and vision of the larger BVSD CTE network. As such, the master plan recommends a hybrid approach, leveraging centralized planning with local implementation, that is district programmed and school implemented. In this model, a centralized framework will support district programmed pathways and intensive tech programs across the district and each high school, in a de-centralized fashion, will be responsible for specialized, pathway specific coursework.

It is important to note that DLR Group's practice and research across the country has found that centralized programming leads to more cohesive adaption, success, and sustainability of this work. For the successful growth and implementation of CTE across the BVSD network, overarching centralized planning will reinforce strong organization, connections, oversight, continuity of curriculum, and successful development of pathways.

Within the career cluster framework outlined in the master plan, there are recommendations for pathway specific programs at each high school. That said, every high school does not have the same capacity for infrastructure growth based on existing conditions or site constraints. Within the master plan, all planning, design, phasing, and cost studies have taken this into consideration and are structured to best leverage existing facilities, programming, and associated potential for growth.

HIGH SCHOOLS

MIDDLE SCHOOLS

BVSD CTE A SCAFFOLDED APPROACH

Colorado's boundaries encompass some 66.6 million acres, or over 104,000 square miles. Within this area, the type and extent of natural vegetation is determined by many factors, including elevation, climate, soils, disturbance patterns, and the ecological history of the landscape. Each change from lowland plain to mountain range to broad valley creates both habitat opportunities and barriers for plant species. The heterogeneity of the landscape provides the setting for a diversity of plant communities not possible in more uniform regions.¹

An ecotone is an area that acts as a boundary or a transition between two ecosystems, between a lowland plain and it's neighboring mountain range. Because the area is a transition between two ecosystems or biomes, it contains a large variety of species and is influenced by both the bordering ecosystems.²

Ecotones are of great environmental importance because 'they can act as buffer zones offering protection to the bordering ecosystems,' and they 'serve as a bridge of gene flow from one population to another.'²

'Ecotones are where you can see change.'3

Applied within the context of this master plan, reflection on ecotones within schools reinforces the great potential for learning and growth that happens at key times of transition throughout a student's academic career, from elementary school to middle school, middle school to high school, and so on. Sixth graders are closely influenced by both 5th and 7th graders alike and will experience what is ecologically referred to as the edge effect, rather the changes in population or community structures that occur at the boundary of two habitats.² The *heterogeneity of the landscape*, or natural overlap in student population, learning, and development that occurs from middle school through high school, and beyond, supports reasoning for strategic and innovative intervention—Career Technical Education.

BVSD's CTE Master Plan adopts a scaffolded approach to learning, meaning that 'instructional scaffolds,' or career clusters, pathways, and coursework, will support students in finding interests and passions they typically could not on their own. As students are exposed to different industry pathways, they will recognize their own potential and through BVSD, will be afforded the opportunity to explore that potential across ecotones, from middle school to high school, and at Boulder TEC.

Middle School CTE engagement will help students who are interested in pursuing CTE long term, but also support students as standard curricula in general preparation for high school.

Middle school Career Technical Education (CTE) has the power to expose students to college and career options and equip them with the transferable skills they need to plan for and succeed in high school and beyond. Middle school CTE adds relevancy to students' learning experiences by exposing them to real-world options and connecting academics to career and college options. CTE in middle school can also serve as a key dropout prevention strategy, mitigating many of the challenges students face as they transition into high school, such as disengagement or lack of preparation.⁴

 $^{{}^{1}\} https://cnhp.colostate.edu/download/documents/EcolSystemsEcologicalSystemsofColorado2020.pdf$

² https://byjus.com/free-ias-prep/ecotone/

³ https://palmdesert.ucr.edu (Ecotones are where you can see change.)

⁴ https://cte.careertech.org (Expanding Middle School CTE to Promote Lifelong Learner Success October 2028)

Beyond the natural progression from middle school to high school, BVSD CTE and Boulder TEC afford opportunity for expanded scaffolding through third-party industry partners and rich opportunities for work-based learning experiences.

The BVSD's district led approach to Career Technical Education will support students to see beyond their current abilities and steadily build their sense of agency—their 'capacity to influence their own thoughts and behavior, and have faith in their ability to handle a wide range of tasks and situations.'

Decision making throughout the master plan process was fueled by a desire to positively change opportunities for BVSD students by empowering them to own their learning experiences through engagement. Applied learning, as facilitated by Career Technical Education, connects students to the world around them and challenges them to engage through dedicated hands-on doing and problem solving.

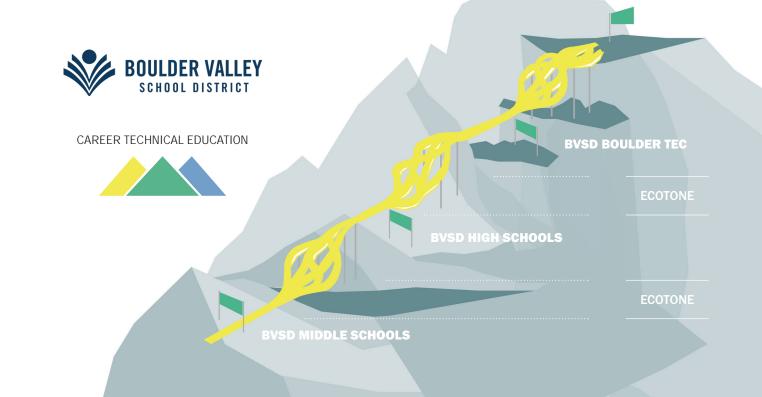
¹https://cte.careertech.org (Expanding Middle School CTE to Promote Lifelong Learner Success October 2028) As forward-thinking districts across the country embrace the alignment of middle school and high school CTE for student success, the following messaging will guide impactful programming:

CTE is about career exploration and students finding their passion. Middle school CTE is extremely flexible.

Middle school CTE is about developing real-world skills that will help students in high school (and at Boulder TEC) in postsecondary education and beyond.

Middle School CTE helps students prepare for college AND careers.

CTE learners and their parents are more satisfied with their education than those not involved in CTE. 1



RE-ENVISIONING CTE BOULDER VALLEY SCHOOL DISTRICT

INTRODUCTION

Across the country, in school districts of varied size, shape, and setting, a cultural transformation fueled by the push and pull of industry and student entrepreneurialism is occurring. The workforce economy is ever-changing and amidst the change, students are asking to be advocates for their own learning—engaged and empowered to chart their own pathways to advancement.

Embracing this shift toward a student-centric approach to education presents four key benefits:

1. Collaboration

Learning how to work collaboratively with others is an invaluable skill in the classroom and the workplace.

2. Knowledge Sharing

Knowledge sharing supports continuous innovation, strengthens connections, and leads to improved collective performance.

3. Learning by Doing

Hands-on activities, supported through simulation labs and work study experiences, make learning relevant.

4. A Talent Pipeline

Internships and externships can help to connect students and faculty with industry partners that are vital to the local economy.



16



IMAGE Boulder TEC Instagram

The Boulder Valley School District's focus on the development of CTE programming will prepare students for the future by connecting secondary education with college expectations and labor market demands, thereby connecting students, principals, the Technical Education Center, central office, and industry partners.

Students

Embracing the push of students for a talent pipeline.

Principals

Articulating the pathway of excellence at their schools.

Technical Education Center Connecting all pathways to the local economy.

Central Office

Mandating Grad+/pathways is an integral part of every student's curriculum.

Industry

Identifying what they need as the pull of industry.



CTE Pathways in BVSD are defined by a sequence of courses that align to the Colorado CTE Career Cluster model. Courses that are eligible should become part of a state approved CTE program. Where applicable, this will include middle level programs. CTE Pathways in BVSD will:

- Provide access to multiple high demand, high wage, and high growth careers.
- Provide access to higher education and industry partners.
- Align to priority grade level content standards that include Concurrent Enrollment (CE) and industry certification opportunities.
- Consist of at least four semester courses, wherein at least two must be level two or higher as defined by the Colorado Community College System (CCCS).
- Be taught by a CTE credentialed teacher.
- Lead to completion of one or more of the four quadrants of the Grad+ Framework.

MAKING LEARNING Scalable

Observation across the nation demonstrates that students crave relevance. They desire meaningful connection, not just with their peers and teachers, but with community members, elected officials, university professors, and civic and business leaders. They want authentic relationships with mentors who will guide them along their learning paths.

Today's students want to be immersed in rigorous coursework with real-world experiences. And most importantly, they want to take on the local and global challenges that exist around them. For these reasons and more, Boulder Valley School District leaders are rethinking the conventional views of education that permeate traditional brick and mortar schools. BVSD has committed to creating systems and environments that will help catalyze broader approaches to relevant instruction and create expanded opportunities for students.

Boulder Valley School District's re-envisioning of their CTE programming will afford students opportunity to advocate for and lead their own pathways of discovery in ways that are meaningful to them. BVSD students will work alongside peers and industry experts in their areas of interest to collaborate, share knowledge, and learn by doing.

THE POWER OF CTE In Colorado

Schools across Colorado are exploring work based learning.

The Colorado Department of Education and their Postsecondary Workforce Readiness team partner closely with state CTE colleagues to support CTE education in the state.

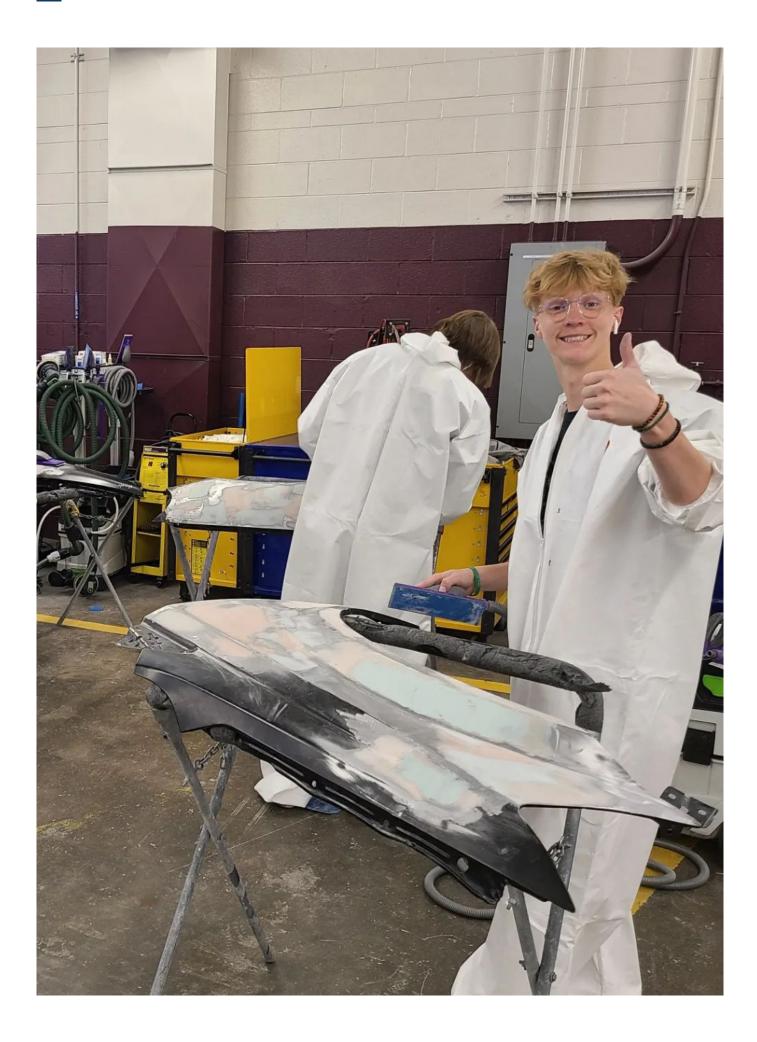
As adopted from the Colorado Department of Education's website, "Expanding pathways from high school to postsecondary opportunities is essential for preparing students for success after high school. CTE programs help students develop the knowledge, skills, and abilities necessary to be postsecondary and workforce ready."¹

¹ https://www.cde.state.co.us/postsecondary/cte ^{IMAGE AT RIGHT} Boulder TEC Instagram (Spring 2023)

276,290

K-12 STUDENTS IN COLORADO ARE ENROLLED IN CTE

401 PARTICIPATING HIGH SCHOOLS



APPLIED LEARNING AS AN ECONOMIC DRIVER

"Career and technical education as we know it today has its roots in the founding of the United States. From the start, a strong knowledge base and skill set for citizens were considered important.

Evolving from early apprenticeships and schools specializing in workforce training, the first manual training school was established in St. Louis, Missouri in 1879. Following World War I, the movement expanded and spread as technical skills were needed for defense purposes."¹

Adapting over time, CTE/applied learning programs in the United States have focused on equipping students with technical and life skills to help them become productive citizens. More than a century after the 'emergence of the vocational education age,' as supported by strategic legislation, CTE/applied learning curricula, internships, and dual enrollment programs continue to be needed to ensure the strength and economic viability of the U.S. workforce, global competitiveness, and the economic health of the nation. SEEING KIDS AS WHICH ALL AND WHO THEY CAN GROW TO BECOME.

Students are at the center!

¹ https://www.acteonline.org/history-of-cte/ ^{IMAGE} Boulder TEC Instagram (Spring 2023) The built environment impacts student engagement. The more that students perceive that their school values creativity, critical thinking, and collaboration, the higher their academic engagement is likely to be. This CTE Master Plan studies BVSD programming within a framework of classroom activities and modalities to consider a facility's impact on time and on tasks, to ultimately afford an approach that celebrates pathways able to demonstrate their value through collaboration and connection to industry.



BVSD's investment in the master plan initiative demonstrates commitment to embedding BVSD learners in project-based learning (PBL) that is both relevant and authentic. Teaching and learning in BVSD will inspire exploration beyond secondary education and encourage students to become lifelong learners. CTE programming will expand beyond standard offerings in English, Math, and Social Studies and provide real-world benefits to students by offering industry connections, civic engagement, leadership development, dual enrollment, peerto-peer and student-to-teacher collaboration, and lab experience where theoretical practice is translated directly into practical application with potential for internships and industry certifications.

Emergency Medical Service at Boulder TEC

"It's a great day to save lives... especially when it's your teacher! EMR students continue to prep for their certification tests."

Construction at Boulder TEC



[&]quot;The boat building continues in Construction!"

ECONOMIC VITALITY IN BOULDER COUNTY

Boulder County is one of nine counties that sit within the Metro Denver Region.

The Metro Denver region has all the things businesses need to flourish, including a young, healthy, highly educated workforce, an affordable cost of doing business, and a multimodal transportation system that will take Boulder County years into the future.

Boulder County has among the nation's most educated population, one of the highest concentrations of advanced technology workers, world-class research facilities including the state's flagship university, the University of Colorado Boulder, and more than a dozen major federal research facilities. Located in the northwest Metro Denver area, the county includes a wide range of urban, suburban, and rural settings and offers a diverse range of business locations. Major industries in Boulder County include aerospace, biotech, information technology, manufacturing, natural and organic products, outdoor recreation, professional and technical services, renewable energy, and tourism.¹

> ¹ https://www.metrodenver.org/do-business/communities/ boulder#:~:text=Major%20industries%20in%20Boulder%20 County,%2C%20renewable%20energy%2C%20and%20tourism.



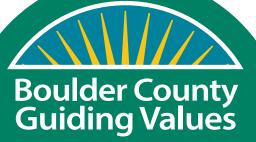
BOULDER COUNTY			
329,513 Population	38.2 Median Age		
95.1% High school gra	ad or higher.		

(62.5% Bachelor's degree or higher.)

Boulder County supports ten incorporated towns and cities, in addition to unincorporated areas comprised of some rural, mountainous, and plains communities.

The following towns and cities reside in Boulder County:

City of Boulder, Town of Erie, Town of Jamestown, City of Lafayette, City of Longmont, City of Louisville, Town of Lyons, Town of Nederland, Town of Superior, and Town of Ward.



Inclusion.

We value, respect, and support all individuals by being an inclusive, culturally responsive county government.

Stewardship.

We honor our county's past and work in partnership with our community to ensure a thriving, healthy quality of life for present and future generations.

Service.

We work with passion and integrity in a supportive, positive environment to ensure accountability, responsiveness, efficiency, and justice.

Engagement.

We listen to and provide opportunities for all community members to actively collaborate and engage with us in order to continually improve our services.

Sustainability.

We are committed to environmental, social, and economic sustainability and build partnerships to help make the broader community more sustainable.

Innovation.

We are motivated, progressive, and visionary. We continually challenge ourselves to lead with innovation, collaboration, and creativity.

Resilience.

We plan for the future and forge strong partnerships that allow us to adapt quickly to challenges and manage community impacts.

From visionary open space, land use and sustainability policies to forward-thinking public service programs, Boulder County government helps foster a vibrant, healthy and active community.

Major priorities and focus areas for Boulder County include Environmental Sustainability, Open Space Conservation, Supportive Community Programs, and Transportation Services.¹

To provide the very best in public service, Boulder County's organization and staff follow specific guiding values; Inclusion, Stewardship, Service, Engagement, Sustainability, Innovation, and Resilience.

In addition to the values listed above, there are specific areas in which the Boulder County organization takes special care in supporting. Boulder County Commissioners, along with other elected officials and leadership in the organization have made it clear through the passing of multiple resolutions that Boulder County is an open, welcoming, and inclusive community.²

¹ https://bouldercounty.gov/government/about-boulder-county/ ² https://bouldercounty.gov/government/about-boulder-county/vision-statement/



BVSD IN BOULDER COUNTY

Within Boulder County, BVSD has 56 schools in 11 different communities. These communities include Boulder (32), Broomfield (6), Erie (1), Gold Hill (1), Jamestown (1), Lafayette (8), Louisville (6), Nederland (3), and Superior (2).

BVSD's wide catchment area and connection across multiple communities affords strategic opportunity for the development of CTE partnerships across Boulder County. Outlined below are brief introductions to six of the communities BVSD serves with dedicated observation of the major industry/work present in each community. Following this introduction, there is a detailed and expanded introduction to Boulder, the largest municipality in Boulder County and also the county seat.





Broomfield

Rated as one of the top 25 best places to live in the United States and the fastest growing community in Colorado, Broomfield is a place where community, culture and creativity matter...businesses present today in Broomfield range from global headquarters to small family-owned businesses.¹

Lumen (Level 3) is a Fortune 500 company with headquarters in Broomfield.²



Erie

Erie is a community which recognizes the importance of conserving and enhancing its historic small town character, the roots from which it grew, preserving the natural environment in which it resides...a balanced community with a diverse range of housing, employment, educational, shopping and recreational opportunities.³

Major area employers include UC Boulder, Lumen/Century Link, JBS, St. Vrain Valley SD, Ball, Boulder Valley SD, Banner Health, Medtronic, Vestas, and Greeley-Evans SD.⁴



Lafayette

Lafayette offers a small town atmosphere with the convenience of easy access to a major metropolitan area—just ten miles east of Boulder. Lafayette's location, accessibility, and high quality of life combine to make it a desirable location for residential, commercial, and light industrial development.⁵

*Key target industries in Lafayette are Health Care and Social Assistance, Professional, Scientific, and Technical Services, Manufacturing, Accommodations and Food Services, and Retail Trade.*⁶

² https://choosecolorado.com/doing-business/major-employers/

¹https://www.broomfield.org/247/Economic-Vitality

³ https://www.erieco.gov/235/About-Erie

⁴ https://www.erieco.gov/ArchiveCenter/ViewFile/Item/4154

⁵ https://www.lafayetteco.gov/109/Economic-Development

⁶ https://app.powerbigov.us/ (Lafayette Community Profile)





Louisville

Louisville is a city that blends small town warmth with a progressive, modern outlook. Main Street retains the nostalgic charm of yesteryear in the midst of a vibrant business community featuring a wide variety of companies, including high tech and alternative energy.¹

The largest employers in Louisville include Avista Adventist Hospital, Balfour Senior Living, Fresca Foods, City of Louisville, Design Mechanical Inc., Medtronic Navigation Inc., Global Healthcare Exchange, Centennial Peaks Hospital, JumpCloud Inc., Sierra Space, Synnex Corporation, CableLabs, Lockheed Martin, Vaisala, and Allen Company.²

Nederland

Just 15 miles from Boulder, the town of Nederland has a presence that seems as though it is much farther off the beaten path. This character adds a unique dimension to the fabric of Boulder County and Colorado as a whole.³

Nederland's most recent strategic plan cites commitment to sustainability in their mountain community, with direct relation to transportation, local food production, and tourism. Ongoing community projects include the Fisherman's Lot Wetlands Creation Project, Transportation Improvement Program, and US Solar Community Garden.⁴

Superior

Superior is an expanding and innovative community with both new development opportunities and established neighborhoods. Future development plans include commercial development, retail development, multi-family residential units, and single family homes.

Superior's history is one of coal mining. After Superior's Industrial Mine closed in 1945, the town evolved into a ranching and farming community.⁵



¹ https://louisvillechamber.com/about-us/

² https://www.louisvilleco.gov/doing-business/economic-development/community-profile

³ https://nederlandco.civicweb.net/document/31342/

⁴ https://townofnederland.colorado.gov/community-projects

⁵ https://www.superiorcolorado.gov/about-us/about-superior

ECONOMIC VITALITY IN BOULDER COUNTY

Key industries and companies when partnered with educational institutions, advanced study, and research initiative serve to create fertile ground for innovation clusters. As adopted from the 2015 issue of California Management Review, innovation clusters are "global economic hot spots where new technologies germinate at an astounding rate and where pools of capital, expertise, and talent foster the development of new industries and new ways of doing business."¹

¹ https://en.wikipedia.org/wiki/Clusters_of_Innovation#cite_note-engel-1 ² https://www.sba.gov/local-assistance/regional-innovationclusters#:~:text=Regional%20Innovation%20Clusters%20are%20 networks,compete%20on%20a%20larger%20scale ³ https://bouldereconomiccouncil.org/boulder-economy/ "Regional Innovation Clusters are networks of businesses and other organizations that work together to maximize their strengths and resources, allowing them to compete on a large scale."² Academically, this innovation cluster framework aligns with BVSD's desire/need to create systems and environments in the district that inspire expanded approaches to relevant instruction.

What if BVSD CTE was an integral partner within several of Boulder County's key innovation clusters, or network hubs?

To explore this realm of thinking relative to BVSD, the master plan first synthesizes a study of local asset availability in Boulder County, with focus on Boulder.



SPOTLIGHT ON BOULDER

"Home to a world-class research university, a diverse mix of key industry clusters, major government research facilities, visionary entrepreneurs and the nation's most highly educated population, Boulder's economy is truly unique in size and diversity.

Boulder's economic development leaders strive to advance a strong local economy and sustain this rare ecosystem, supporting new businesses to start up and succeed and established businesses in key industries to innovate and expand."³

RESEARCH ECONOMY

With world-class research facilities and sustained investment supporting innovation, Boulder is a global leader in research and development and the commercialization of new technologies.³

TOURISM ECONOMY

Boulder's picturesque physical environment and desirable quality of life attract artists, scientists, celebrated chefs, competitive athletes, students, performers, and other innovators who bring their own unique qualities to the culture of the community.³

INNOVATION ECONOMY

Boulder is an epicenter of innovation and entrepreneurship, enhanced by the collaboration between its research university, federal research laboratories, and industry.³

BOULDER INDUSTRY CLUSTERS

*As outlined on Chamber website Spring 2022.

Boulder features a diverse mix of industries driving local, national and global economies. There is a high concentration of employment in several key industry clusters including:



Boulder (population 106,000) is home to a top research university and 17 federally-funded research labs. Nationally recognized as a center of entrepreneurship and innovation, Boulder offers an impressive choice of art, cultural, dining, and entertainment options, as well as excellent schools, high-quality healthcare, and sustainable environmental policies.¹

AEROSPACE

The aerospace industry is deeply rooted in Boulder, and the city now has 5.2 times the national average in aerospace companies and entities that support the industry.

CLEANTECH

Clean and environmentally friendly, Boulder is an ideal location for renewable energy and energy efficiency industries.

NATURAL PRODUCTS

Natural and organic product companies; Boulder has the highest per capita consumption of organic foods in North America.

BIOSCIENCE

Bioscience industry from research conducted at the University of Colorado Boulder Pharmaceuticals, Biotechnology and Medical Devices.

IT/SOFTWARE

Due to a highly-educated workforce and strong entrepreneurism, the Boulder area has one of the nation's largest concentrations of IT employment; 4.5 times the US average.

OUTDOOR REC

A destination for active lifestyles and outdoor recreation, Boulder is home to a high concentration of businesses involved in the industry.

While small businesses and start-ups continue to represent the majority of the 7,000 employers in Boulder, several Fortune 500 corporations diversify employment opportunities and fuel the economy, including Cisco, General Electric, Google, IBM, Microsoft/Bing, and Twitter.

Boulder supports 7,000 employers with five or more employees. While approximately 96% of the 7,000 employers in Boulder have fewer than 50 employees, employers with 100 or more employees (1.6% of total) employ 48.4% of the workers.

*All Boulder statistics adopted from the Boulder Economic Council website. 2023

¹ https://bouldereconomiccouncil.org/boulder-economy/ ^{IMAGES} https://online.publicationprinters.com/html5/reader/production/ default.aspx?pubname=&edid=bfdfab03-577c-4e82-b71f-cb9c7474497b

ECONOMIC VITALITY IN BOULDER COUNTY

DEMOGRAPHICS IN BOULDER

Reflecting the presence and impact of University of Colorado Boulder, Boulder's population is proportionally younger than surrounding areas. Additionally, demographic studies reveal that Boulder residents have a higher level of education than most, as compared to Boulder County, state, and national averages.

AGE

The 2021 median age of City of Boulder residents was 29.2. This compares to a median of 38.2 for Boulder County, 37.6 for Colorado, and 38.8 years for the nation. An estimated 33.6% of the adult population in Boulder is in the 15-24 age category. This is nearly three times the percentage for the state and national population (12.9% and 13%, respectively), highlighting the effect of the University on city demographics.¹

EDUCATION

Nearly all city residents age 25 or older have a high school diploma or higher (95.7%). Just over three-quarters of the population (75.6%) have earned a bachelor's or advanced degree compared to 35% for the nation, 44.4% for the state, and 62.5% for Boulder County.

¹ https://reports.mysidewalk.com/68c349311c ² https://reports.mysidewalk.com/717f9e7410

HOW OLD?

2021 American Community Survey

Under 5 years old: 1.9% Boulder County, CO, U.S. (4.0%, 5.3%, 5.6%)

18 years or older: 88.3% (81.9%, 78.6%, 77.9%)

65 years or older: **12.4%** (15.9%, 15.1%, 16.8%)

ACADEMIA

CU-Boulder is home to five Nobel laureates, four National Medal of Science winners and more than 50 members of prestigious academic academies.

132 companies have been created using CU intellectual property, of which 89 still have an operational footprint in Colorado today. The ability for students to achieve an early understanding of the choices Boulder County offers allows them to embrace a future that reflects their personal passions.

Boulder's diverse and unique economy paired with a "research and development ecosystem that fuels innovation and entrepreneurship"2– supported by a concentrated presence of highly educated and creative people reinforces the potential for an exciting synergy between Boulder businesses and the BVSD.

¹ https://bouldereconomiccouncil.org/boulder-economy/innovation-venture/# ² https://bouldereconomiccouncil.org/living-boulder/



Hiking Chautauqua Trail Flatirons

300+ RESTAURANTS

30+ ART GALLERIES

4 MUSEUMS Settled at the base of the Rocky Mountains, Boulder is surrounded by the scenic beauty and recreational opportunities afforded by over 45,000 acres of open space and 150 miles of biking and hiking trails.²

Early on, Boulder's residents made clear a deep love for their land. In 1967, Boulder became the first city in the United States to tax itself for funds to be used specifically for the acquisition and management of open space. Around the same time, county wide residents approved the use of public lands for agriculture, seeing value in the care and use of public land by farmers. Today, about 25,000 acres of the county's public lands are leased to farmers.³

The University of Colorado is one of the West's largest, most stunning and most prestigious public universities--and a cornerstone of Boulder's unique character. CU is home to the Museum of Natural History, CU Art Museum, Fiske Planetarium and the renowned Conference on World Affairs.

Creativity is around every corner in Boulder–with street performers on Pearl Street, plein air artists on mountain trails, coffee-shop musicians and many more impromptu artistic outpourings throughout town. Major arts events such as Boulder Arts Week, Boulder International Film Festival, Colorado Music Festival and the Colorado Shakespeare Festival bring new perspectives each year.

A CENTER OF INNOVATION

Boulder attracts well-educated, skilled, and talented people. Those sparking innovation and entrepreneurship have greater access to research and capital investing, leading to one of the most desirable places to live in the US.¹

¹ https://bouldereconomiccouncil.org/boulder-economy/innovation-venture/# ² https://bouldereconomiccouncil.org/living-boulder/ ³ https://assets.simpleviewinc.com/simpleview/image/upload/v1/clients/boulder/ eBrochure_FarmTrail_2022_v07_46382e0d-ea68-4f40-bbc2-c7a2a5bdbffa.pdf ^{IMAGE} https://www.bouldercoloradousa.com/things-to-do/must-see-boulder/



In addition to the six key industry clusters in Boulder (Aerospace, Bioscience, Cleantech, IT/Software, Natural Products, and Outdoor Recreation) key industries that provide economic impact to Boulder are tourism and research.

As a smaller, compact city, Boulder encourages an unusually collaborative community of people with diverse backgrounds, educations, capabilities and interests.





LOCKHEED MARTIN













UCAR WELLS FARGO



MAJOR BOULDER COUNTY Employers

BOULDER COUNTY ENJOYS A DIVERSE AND ROBUST ECONOMY.





MAGE University of Colorado Boulder BEEM Lab College of Engineering and Applied Science https://www.colorado.edu/lab/whiting/2021/05/01/parabolic-flights-completed

MASTER PLAN VISIONING INTRODUCTION

The Boulder Valley School District and DLR Group facilitated a series of workshops to inform the development of master plan recommendations, engage a diverse audience, and align initial master plan efforts with the interests, beliefs, and passions of the BVSD community.

The visioning workshops organized strategic engagement to establish expectations for equitable CTE experiences throughout the BVSD and a foundation for decision making in the master plan. The values and aspirations identified in conversations about teaching and learning informed recommendations for the type of space, programming, and industry partners needed to diversify the BVSD's offerings and best respond to the varied needs and talents of its students.

The workshops were organized to support engagement with a diverse group of stakeholders, organized in three key groups, a steering committee, students, and industry partners.

BVSD CTE Steering Committee:

A mixed group of 30+ BVSD educators, district leadership, and industry partners.

BVSD Students:

A diverse group of 48 students, representing all five BVSD high schools, with varying levels of exposure to existing CTE programming.

Industry Partners:

A robust group of 43 professionals, representing six industries, with varying levels of exposure to BVSD/ student engagement.



Industry Partner Workshop I April 2023

The objectives of the Visioning Workshops were to:

1. Validate the district's pre-planning efforts with focus on the creation of career and college pathways, equitable access to career exploration, and work-based learning.

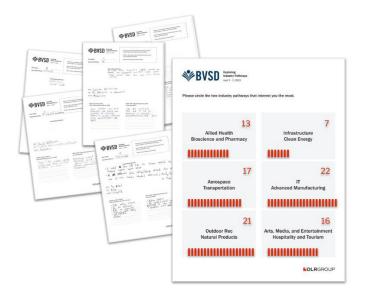
2. Explore CTE education across BVSD's existing campuses and identify strategies/locations for expanded programming and infrastructure.

3. Facilitate student and industry connections that reinforce the potential for shared growth and learning.

Throughout master plan visioning, there were nine workshops; three steering committee workshops, four student workshops, and two industry partner workshops. The following summary outlines key findings, organized by group.

STUDENT WORKSHOPS

"GETTING MORE RESOURCES AND HANDS-ON ACTIVITIES...EXPERIENCE, INTERNSHIPS...UPPER LEVEL CTE COURSES FOR DEEPER CONTENT..."



Captures of student work completed during the workshops. The numbers associated with each pathway represent the number of times that pathway was selected. IT I Advanced Manufacturing received the most picks (22) and Infrastructure I Clean Energy received the least (7).

Student engagement was organized in four separate workshops. During each workshop, after referencing a list of proposed pathways, students were asked to choose their top ranked pathway and then complete an exercise to explore the related activities, skills, and training needed to be successful.

Group dialogue throughout the sessions presented the following recurring themes:

Need to build better awareness around CTE.
Boulder TEC is perceived as a big commitment.
Desire for more crossover between pathways and connection to industry partners/mentors.
Desire for earlier exposure and to 'discover.'
Desire for expanded programming/accessibility. (Shop/Climate/Hands-on Learning)
Expressed interest in certifications and college credit.
Messaging from community and schools:

College is the only choice.

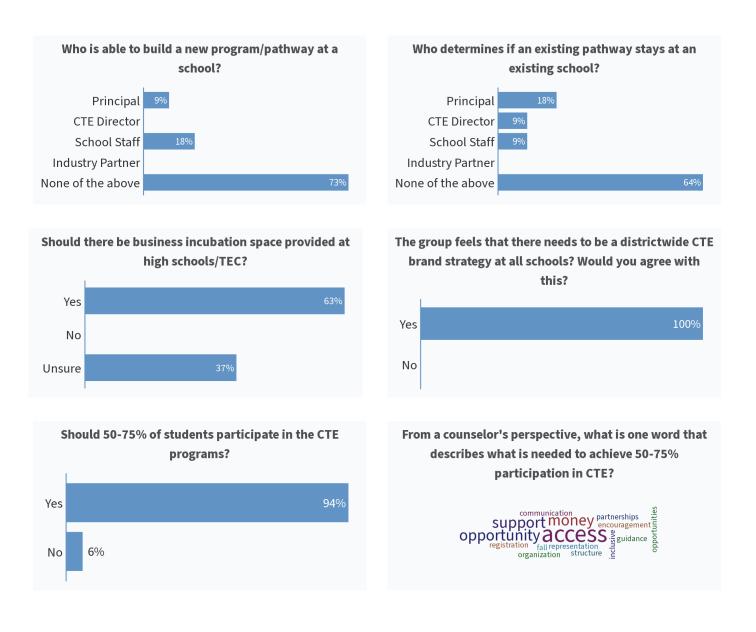






INDUSTRY PARTNER AND STEERING COMMITTEE WORKSHOPS

Industry partner engagement was organized in two separate workshops. These workshops were structured to introduce attendees to the outcomes of the district's pre-planning efforts, validate and explore proposed pathways, and collaboratively identify the strengths, weaknesses, opportunities, and threats facing BVSD and industry partners. Steering Committee engagement was organized in three workshops. Content reflected that of the industry partner workshops, but with expanded context and group dialogue. The questions and responses below are from the Steering Committee. The SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis on the following page synthesizes feedback from both the steering committee and industry partner groups. Feedback within the SWOT analysis has been organized by recurring themes: people, partners, programming, resources, etc.



CTE MASTER PLAN | BVSD

Strengths

PEOPLE

-People who care!
-High quality of partners.
-Young professionals.
-BVSD parent/community involvement.
-Highly talented and driven students/community.
The kids are integrated!
-Educated and
entrepreneurial community.

PARTNERS

-Proximity of partners/ resources. (University of Colorado Boulder) -The number of businesses to partner with/career exploration. -Access. -Scale is small enough to feel inclusive -Wealth of High-Ed.

INDUSTRY

-Up and coming location for biotec. -Biotec and pharma (Active organizations) -PTech availability.

RESOURCES

-Bond passed- ability. -Financial opportunities (grants, etc). -Able to teach across industries for business/ entrepreneurial/finance, and marketing.

IMAGE

-Stigma of CTE: "Blue Collar.' (CTE vs. Career) -District (CTE) Identity. -Brand. -Perceived lack of training for specialty fields. -CTE: Career path vs. College path. -"Boys Adrift, Girls on Edge." (Leonard Sax)

RE-ENVISION

Activate the "square pegs."
-Create "applied"
experiences with industry.
-Expose students to handson learning.
-Change perceptions through experience.
-Start earlier.
-Let the kids explore.
-Brand the experience.
-Stigma (Scaffolded Learning)

VISION

-Lack of parent awareness, understanding value of CTE.
-Perception of CTE as entry level.
-Job vs. career: developing strategies for life.
-Online education.
-Globalization as workplace alternative.
-Future change in workforce with Al.

EXPOSURE

-Early CTE teaching/ training.
-Parent Talks (Industry Introductions)
-Not being able to meet the demand for "spots"/ especially for the underserved.
-Size of district. (Schools as islands.)
-Equity of opportunities beyond those that are parent driven.

CONNECT

-Set the stage for CTE connections. -Look at peer districts. -Mentorship (Industry Mentors and Peer Mentors). -Industry Partners (Establish bandwidth/ choices for engagement.) -Showcase alumni. -Grow city awareness. -District commitment to industry partners.

COMMITMENT

 -Long term commitment for change.
 -Need to get partnership on board for more robust engagement.
 -Finding the right "folks"/ instructors.
 -Staffing shortages. (Short and long term.)
 -Career path once you get there.
 -Need for mentorship.

PROGRAMMING

-Awareness of and responsiveness to industry trends. -Paths that are career oriented. -Spectrum of options. (Design Thinking, Climate...)

RESOURCES

-Pay/Insurance for specialty instructors. (Externships) -Internships (Insurance) -Time -Marketing

PROGRAMMING

 Partnerships/Internships.
 -Dual/Concurrent Enrollment
 -Summer STEM classes sponsored by industry.
 -After school activities.
 -Expansion of "career days" into case studies/ assignments.
 -Creation of capstone projects for college or career.

PLANNING

-Person specific vs. district driven. ("Standardize" Curriculum)
-Logistics.
-Overplanning.
-Short term vs. long term.
-Curriculum development.
(Industry not in education.)
-Time sensitivity of core classwork.

RESOURCES

\$81M in CTE grant funding available now.
-Tuition reimbursement at industry level.
-Workforce centers, tuition, etc.
-Aerospace actively hiring associates.

RESOURCES

-Cost of living in Boulder-"living wage."
-Competition among schools and other organizations.
-Financing.
-Lots of organizations doing this.
-State opportunities.
-Entry opportunities and connections.

INDUSTRY PARTNER WORKSHOPS

BOULDER VALLEY SCHOOL DISTRICT MASTER PLAN





Industry professionals reviewed each pathway to validate clusters, identify missing careers, potential industry partners, and required skills. Feedback is outlined below.

Consider...

- Rename to Life Sciences and
- Biotechnology, Pharmaceutical, and Manufacturing.
- Shift Health to be within the broader pathway
- Expand rehabilitative care to include physical therapy and occupational therapy
- Add Pharmacy
- Add Mental Health and Counseling

Potential Partners:

• Boulder Medical Center, Boulder Community Health, Physical Therapy Centers (North Boulder PT), Medtronic, Cigna (Denver), Boulder Innovation Group

Consider...

- Rename to Aerospace, Aviation, and Transportation
- Change 'aviation' to aerospace
- Rename 'airlines' to commercial aviation
- Define 'marine' further to specify transportation or biology
- · Rename 'road and rail' to truck and rail
- Add Commercial Pilot

Potential Partners:

Aerospace: Ball Corporation, Lockheed Martin Corporation,

- Raytheon Technologies
- Engineering: Ball Corporation
- Thermodynamics: United Launch Alliance, Revive Staffing Solutions
- Inc., Aeatia Global Solutions
- Air Freight/Logistics: FedEx, Amazon
- Commercial Aviation: Frontier, United, and Southwest Airlines
- Marine: Denver Aquarium, Colorado Custom Marine
- Truck and Rail: BNSF Railway, Regional Transportation District
- (Denver), Union Pacific
- Infrastructure: Kimley-Horn Planning and Engineering
- Space Tourism: Ball Corporation
- Commercial Pilot: Space Force, U.S. Air Force Academy

Consider...

- · Expand 'product design' to include engineering
- Add entrepreneurship
- Add audio/video production
- Add agrivoltaics
- Add Arborist Apprenticeship

Potential Partners:

• Vail Resorts, Sage Hospitality Group, CSU Spur, Jack's Solar Garden, National Renewable Energy Laboratory (NREL), Namaste Health Center, Techstars Boulder Accelerator, Crocs, University Corporation for Atmospheric Research (UCAR), National Center for Atmospheric Research (NCAR), Bureau of Land Management (BLM), Colorado Department of Wildlife and Parks, National Park Service, Arborist and Forest Services, Sea to Summit, Farmers Markets







Consider...

- Rename to Clean Energy/Environment
- · Shift Infrastructure to be within the broader pathway
- Add Engineering/Manufacturing
- Add Environmental Health
- Expand on Green Economy (Battery/Solar/Wind)
- Add Urban Planning (Roads/Transportation)
- Add Mapping
- Add Environmental Engineering

Potential Partners:

• Local Solar Companies: Xcel Energy, Eco-Cycle, Northern Water, University of Colorado Boulder, University Public Health, FEMA (Emergency Networks), National Center for Atmospheric Research (NCAR), County/City Government (Local Municipalities, Sustainability Mangers, City Managers), Wind Research Facility, CSU Cooperative Extension, Natural Resource/Conservation Groups, Bureau of Land Management, Manufacturers of Eco Products, Local Farmers, Wild Lands Restoration Volunteers

Consider...

- Rename 'IT' to Computer and Design Technology Manufacturing
- Embed 'Design' in the pathway title.
- Sustainability in manufacturing.
- Add Mechanical Engineering and Robotics
- Add Internet of Things (IOT)
- Add Al/Data
- Add Automated Manufacturing

Potential Partners:

• Automotive/Assembly: ASE Education Foundation, Parts manufacturers (GM, Ford, etc).

Consider...

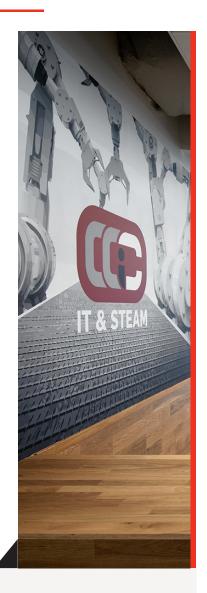
- NRA certifications/apprenticeships
- Add design/management
- Add graphic design
- Add music
- Add teaching
- Add television
- Add set design
- Add video/audio editing/recording
- Add marketing/advertising

Potential Partners:

• Vail Resorts, Sage Hospitality Group, University of Colorado Boulder Chautauqua Park, CFA Society Colorado, Denver Performing Arts, Dinner Theater, Arcade Performing Arts, Dairy Center, Breweries, Big Red F Restaurant Group, Local TV/News/Radio/Podcast, Local Museums, City Parks, City and County Services, 1st Bank, Libraries

ESTABLISHING A CTE BRAND

ESTABLISHING A CTE BRAND FOR THE BOULDER VALLEY SCHOOL DISTRICT



BRANDING

Schools should employ a recognizable brand identity to communicate pride and a strong, positive perception of BVSD's reenvisioned CTE programming.

What is Branding?

For BVSD's re-envisioned CTE programming, it is important to convey a consistent name, logo, and message that aligns with its core purpose. Having a cohesive visual identity system or "branding" in place, will give the BVSD community a recognizable connection across its programming.

The power of good branding is that it helps people quickly identify and build trust in an organization by reflecting its strengths, values, and mission with a clear voice across multiple platforms.

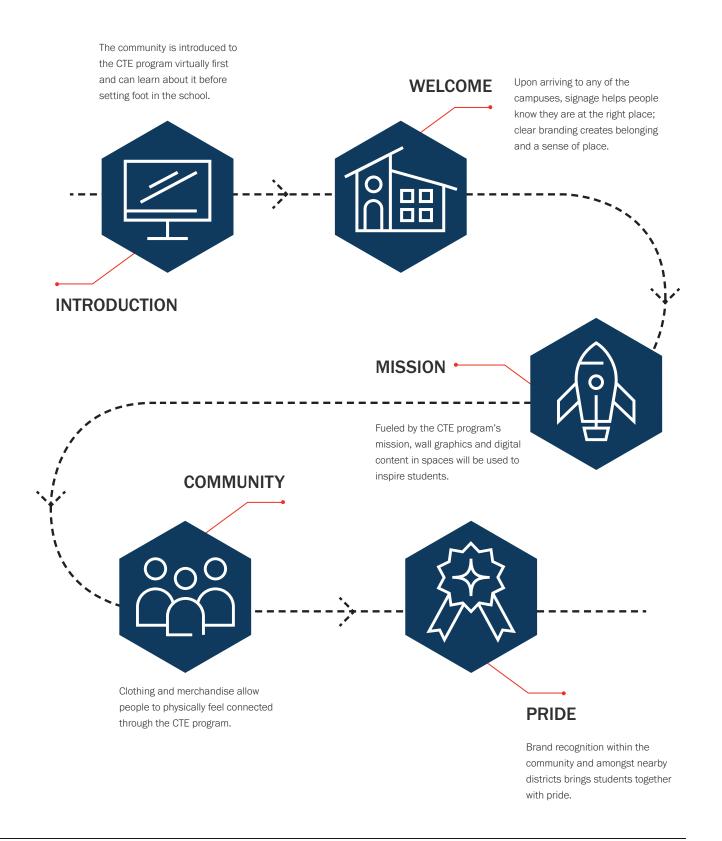
Final branding recommendations will be provided in a future appendix.



IMAGES Cherry Creek Innovation Campus (Centennial, CO)







BRANDED EXPERIENTIAL GRAPHICS

The CTE brand should be reflected at every point of engagement with the community to ensure a continuous experience that always links back to the program's mission. Additionally, graphics or murals can be used in a creative way to inspire curiosity while reflecting the goals and values of the CTE program.

























ESTABLISHING A CTE BRAND

INSPIRING CREATIVE THINKING IN BVSD'S CTE BRANDING DISCOVERY SESSION.







PUSH AND PULL INDUSTRY& STUDENT ENTREPRENEURIALISM

As the pull of an ever-changing economy connects with a push from students striving to create their own pathway toward advancement, school districts of all shapes and sizes are experiencing a cultural transformation. The one-size-fits-all mindset that once permeated our education system is steadily being replaced with personalized learning programs, allowing for a more student-centric approach that supports success and encourages engagement. The Boulder Valley School District has committed to elevating teaching and learning by harnessing the push of BVSD students and the pull of industry; the district is creating new and exciting ways for students to understand and connect with local, regional, and global business and industry through the creation of career and college pathways.

INDUSTRY PATHWAYS

Career and college pathways focus academic, technical, and real world knowledge, skills and experience in a sequence of courses developed to connect a student's passion to their coursework, industry certifications and/ or a career. Career and college pathways help students become career and college ready by giving them the skills, knowledge, and experience necessary for personalized, hands-on exploration of different careers. Pathway curricula will develop a broad understanding of an industry or discipline and can result in Advanced Placement (AP), International Baccalaureate (IB), Concurrent Enrollment, Work-Based Learning (WBL), Seal of Biliteracy, and/or industry certification. Pathways should:

- Be accessible to all students.
- Align coursework to establish a true pathway.
- Create structures to remove barriers that prevent students from having equitable access and choice.
- Increase options that fulfill graduation requirements and maintain the integrity of BVSD standards and curriculum.
- Support focus on demonstration of competency rather than content seat time.

- Identify new ways to meet the post-secondary needs of students.
- Promote the benefits of industry certifications and work-based learning opportunities.
- Promote exploration of the various directions that can stem from a path of study. (Example: Construction to Engineering, to Architecture, to Drone Operations)
- Reduce the impact of equity barriers such as financial, transportation, language, family obligations, etc.

CONNECTING COLLEGE EXPECTATIONS AND LABOR MARKET DEMANDS

IMAGE Boulder TEC Instagram (Spring 2023)

PUSH GENERATION ALPHA

Generation Alpha are defined as those born from 2010-2024. More than 2.5 million are born globally every week... when they have all been born (2025) they will number almost 2 billion—the largest generation in the history of the world. Generation Alpha began being born in 2010, the year the iPad was launched, Instagram was created, and App was the word of the year...with the increase in screen and technology, there's no doubt that Generation Alpha will feel this influence in their schooling.

For many, their childhood likely involved doing things that were new experiences, like taking piano lessons, playing sports with friends or reading books. These experiences helped shape them because they were engaging and gave opportunities to learn. While this is likely to happen still, the way Gen Alpha learn involves technology and has become more advanced and accessible through devices such as smartphones and tablets.¹



63% of Gen Alpha prefer to work somewhere helping to save the planet.² 59% of Gen Alpha want to work in a job that saves lives in some way.²

Applied learning and CTE programming give students the opportunity to do things that are new experiences. These experiences will help shape who they become. Given Generation Alpha's intrinsic connection/ attachment to technology, the opportunities for hands-on learning afforded through CTE will expand their thinking in a big way. CTE can provide the stepping stones for students looking to save the world.

¹ https://mccrindle.com.au/article/topic/generation-alpha/generation-alpha-defined/

- ² https://www.wundermanthompson.com/insight/generation-alpha-2019
- ³ Understanding Generation Z Report: McCrindle

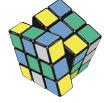
IMAGE Boulder TEC Instagram (Fall 2022)

GENERATION Z

Generation Z are defined as those born from 1995-2009. Gen Z are the those who find importance in work/life balance, team focus, empowerment, support, flexibility, involvement, creativity, innovation and a global working atmosphere. Gen Z identifies with 'Work as the Third Place.' Separate from home and workplace, work is now 'also about social needs, self-actualization and the contribution one can make to their community...workers today look to have multiple needs met at work...it's about achieving task outcomes and receiving financial rewards. But it's also about social connection, training, personal development, greater fulfillment and even environmental sustainability.

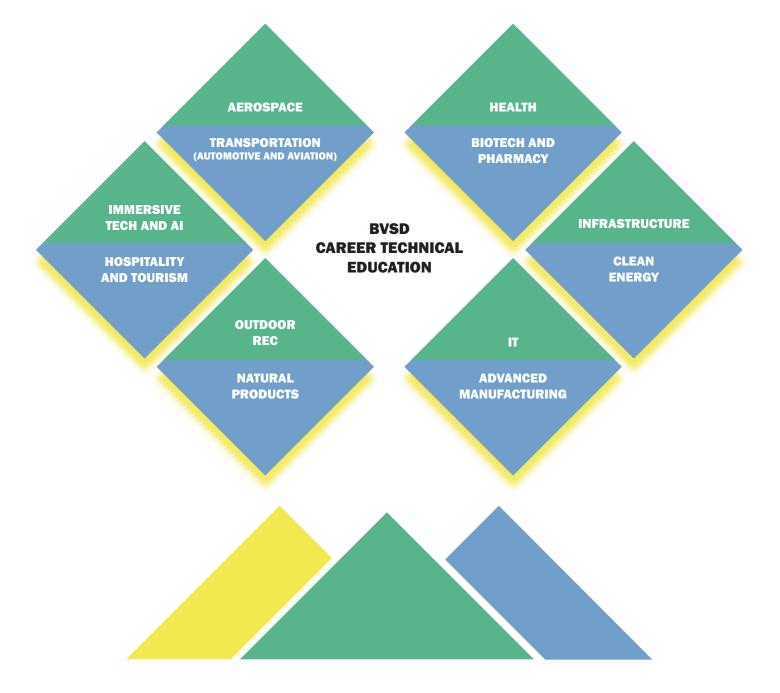
Gen Z's focus on work/life balance, flexibility, flat structures, social environment, fun culture, and access to information reveals permanent priorities.³

The push of Generations Alpha and Z will require a re-envisioned focus on how students can define their passions to develop soft and hard skills that can propel them into careers supported by a lifelong passion for learning.



BVSD CTE PATHWAYS

The career clusters have been developed strategically to pair impactful programs for synergy across pathways. Students should be empowered to explore various avenues of coursework to best align their interests and goals.



PULL INDUSTRY

Leveraging data from Lightcast, a global leader in labor market analytics, the district has identified twelve industry pathways, supporting six career clusters, on which to build a framework for a re-envisioned CTE program in the Boulder Valley School District. These industry pathways have been selected based on their influence and capacity for growth in Colorado.

PROFESSIONAL Skills

Within each career cluster, there is pathway specific coursework that will elevate a more focused understanding and proficiency specific to one course of study. That said, there are many courses that are ubiquitous in their ability to support the development of professional skills across multiple career clusters and/or pathways.

These courses might include Business Entrepreneurship, Communications, Management, Finance, Marketing, Public Speaking, Negotiation, Emotional Intelligence, Analytics, Leadership and Influence, Professional Brand, etc.

These courses are all connected in their attention to and strategic development of professional skills.

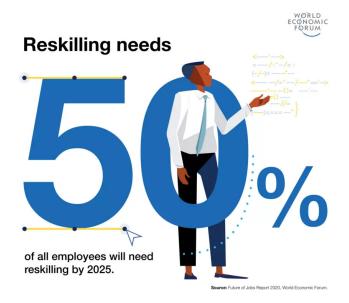
"Professional skills, or durable skills, include a combination of how you use what you know – skills like critical thinking, communication, collaboration, and creativity – as well as character skills like fortitude, growth mindset, and leadership.

Analysis of 80 million job postings from 2020-2021 reveals that 7 of the 10 most-requested skills are Durable Skills. And, the top 5 Durable Skills were requested in job postings 4.7 times more often than the top 5 hard skills. In short, Durable Skills are in demand for jobs across the workforce, regardless of educational attainment level, industry sector, or geography."¹

According to the World Economic Forum's Future of Jobs Report (third edition), 50% of all employees will need reskilling by 2025, "as the double-disruption of the economic impacts of the pandemic and increasing automation transforming jobs takes hold...greater adoption of technology will mean in-demand skills across jobs change over the next five years*, and skills gaps will continue to be high.

Critical thinking and problem-solving top the list of skills that employers believe will grow in prominence in the next five years. But newly emerging this year are skills in self-management such as active learning, resilience, stress tolerance and flexibility."²

*Article published October 21, 2020.



¹ https://americasucceeds.org/policy-priorities/durable-skills ² https://www.weforum.org/agenda/2020/10/top-10-work-skills-oftomorrow-how-long-it-takes-to-learn-them/



Top 10 skills of 2025

The World Economic Forum estimates that by 2025, 85 million jobs may be displaced by a shift in the division of labour between humans and machines.

But even more jobs – 97 million – may emerge that are more adapted to the new division of labour between humans, machines and algorithms.¹



Analytical thinking and innovation



Active learning and learning strategies



Complex problem-solving



Critical thinking and analysis



Creativity, originality and initiative



Leadership and social influence



Technology use, monitoring and control



Technology design and programming



Resilience, stress tolerance and flexibility



Reasoning, problem-solving and ideation

Source: Future of Jobs Report 2020, World Economic Forum.

¹ https://www.weforum.org/agenda/2020/10/top-10-work-skills-oftomorrow-how-long-it-takes-to-learn-them/

Type of skill

- Problem-solving
- Self-management
- Working with people
- Technology use and development

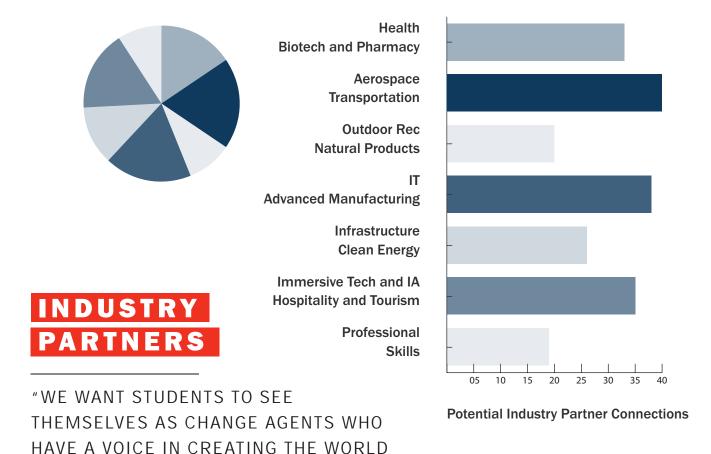


POTENTIAL FOR INDUSTRY PARTNERSHIPS

BVSD's existing CTE programming has developed an extensive list of industry partners who have supported the district at various levels of engagement to date.

Per this CTE Master Plan, BVSD's new approach to career clusters and pathways will substantially expand the district's current offerings and provide opportunity for new industry connections that reinforce potential for hands-on-learning, work-based learning, and internships/externships. Industry partners will now have increased opportunity to connect with and recruit young talent. Referencing those companies with representation in BVSD's CTE 2022-2023 Advisory Committee, and other prominent businesses as identified by the Boulder, Eerie, Lafayette, and Louisville Chambers of Commerce, the BVSD has an incredible collection of 155 different businesses/organizations to explore development of CTE partnerships with.

The following graphics explore these companies as organized with generic association to a specific career cluster.



-Industry Partner Workshop Participant

THEY WANT."

RESEARCH-DRIVEN DATA-INFORMED

To better understand the current industry landscape in Boulder and along the Front Range, the master plan incorporates and responds to Boulder Economic Council Data and Lightcast Industry Reports.



Lightcast is a global leader in labor market analytics; their products provide the world's most detailed information about occupations, skills in demand, and career pathways, providing labor market insight to employers, educational institutions, and government agencies.¹ The reports referenced in this CTE Master Plan were based on Q1 2023 Data Sets analyzed across eight Colorado counties:

Adams County, CO Arapahoe County, CO Boulder County, CO Broomfield County, CO Denver County, CO Jefferson County, CO Larimer County, CO Weld County, CO

WHAT IS LIGHTCAST DATA?

Lightcast data is a hybrid dataset derived from official government sources such as the US Census Bureau, Bureau of Economic Analysis, and Bureau of Labor Statistics. Leveraging the unique strengths of each source, the Lightcast data modeling team creates an authoritative dataset that captures more than 99% of all workers in the United States. This core offering is then enriched with data from Online social profiles, resumés, and job postings to provide a complete view of the workforce. Lightcast industries include Education, Enterprise and Staffing, Economic Development, Workforce Development, and Real Estate.

Lightcast data is frequently cited in major publications such as The Atlantic, Forbes, Harvard Business Review, The New York Times, The Wall Street Journal, and USA Today.

Lightcast's mission in education is to provide data and analytics that help educators: Optimize program offerings, Connect students to programs and careers, and Communicate outcomes and impact.²



The content in each Lightcast report translates into relevant careers, skills, and companies applicable for the growth and visioning of CTE in the Boulder Valley School District.

Reports studied included:

- Aerospace Product and Parts Manufacturing
- Arts Entertainment and Recreation
- Computer Systems Design Services
- Electric Power Generation
- Food Manufacturing
- Health Care and Social Assistance
- Motion Picture and Video Production
- Research and Development in the
 - Physical Engineering and Life Sciences

For each of the reports identified above, Lightcast report parameters included the following:

- Industry
- Counties
- Class of Worker
- Workforce Map
- Executive Summary
- Supply (Jobs)
- Demographic Details
- Demand
- Top Skills Being Posted For
- Gross Regional Product

All of the Lightcast data, in conjunction with other sources including but not limited to Boulder economic forecasts, workforce analysis, and state durable skills reports, was used to develop industry dashboards that illustrate the research-informed, data-driven rationale informing the revisioning of applied learning in BVSD CTE.

The industry dashboards are aligned to BVSD's twelve industry pathways (six career clusters) and include:

- Health
- Biotech and Pharmacy
- Aerospace
- Transportation
- Outdoor Rec, Natural Products,

and Hospitality and Tourism

- IT and Advanced Manufacturing (Computer System)
- IT and Advanced Manufacturing (Manufacturing)
- Infrastructure and Clean Energy
- Arts, Media, and Entertainment

(Arts, Entertainment, and Recreation)

• Arts, Media, and Entertainment (Media)

Each dashboard identifies types of professionals in the associated field, career opportunities, technical and professional skills, and industry growth and hiring competition (supply, earnings, and demand).





HEALTH

Health professionals include registered nurses, caregivers, medical assistants, dental hygienists, dietitians, occupational and physical therapists, radiographers, medical accountants, etc.

Industry Snapshot Report Health Care and Social Assistance

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Registered Nurses, Caregivers, Medical Assistants, Licensed Practical Nurses, Care Caregivers

Careers accessible out of High School:

Nursing/Home Healthcare, Medical Product Distribution, Health and Medical Insurance **Careers accessible with Post-Secondary study:** General Medical/Surgical Healthcare, Exercise and Nutrition, Athletic Training/Sports Medicine Rehabilitative Care, Life Science/EMT/EKG

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

UC Health, HCA Healthcare, Centura Health CareInHomes, Denver Health

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is not a hotspot for this kind of talent. The national average for an area this size is 253,711 employees, while there are 200,335 here."



EARNINGS PER JOB

"Earnings per job are about the same as the national average. The national average salary...in an area this size is \$73,073, while in your area it is \$76,679."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 6,023 job postings/mo, while there are 9,724 here."



PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

Resources

Personal andProfessional BoundariesCoordinates Team

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

TOP 15 Technical Skills

Posted Aug 2022 - Oct 202

Top Technical skills that employers are posting for in eight Colorado Counties in the Health Field.

Skill Identified Across Multiple Pathways





CO JOB POSTINGS REQUEST

PROFESSIONAL

SKILLS

Percentages of CO job postings (2020-2021) that required at least three professional skills.¹

¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

- Leadership Character Collaboration Communication Creativity
- Critical Thinking Metacognition Mindfulness Growth Mindset Fortitude

45%

19%

SUPPORT

HEALTHCARE

LIFE. PHYSICAL.

AND SOCIAL SCIENCE

- 1 Nursing 2 CPR
- •
- 3 Medical Record Keeping
- 5 Billing
- 6 Life Support

Caregiving

- 7 Acute Care
- 9 Direct Patient Care
 10 Home Health Care
 11 Vital Signs
 12 Care Coordination
 13 Nursing Process
- **14** Patient / Family Education
- 15 Patient / Family Education
- 8 Nursing Care

CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Health Science

55%

5,575 300 Job Openings 3,079,800 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Individual and Family Services Home Health Care Services Outpatient Care Centers Offices of other Health Practitioners Other ambulatory health care services

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Nurse practitioners Home health and personal care aides Physical therapy assistants Medical and health services managers Physician assistants Speech-language pathologists

BIOTECH AND PHARMACY

Bioscience and Pharmacy professionals include systems engineers, mechanical engineers, laboratory technicians, environmental scientists, biological photographers exercise therapists, geneticists, oceanographers, pharmacologists, veterinarians, etc.

Industry Snapshot Report

Research and Development in the Physical, Engineering, and Life Sciences

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Satellite Systems Engineers, Mechanical Engineers, Laboratory Technicians, Software Engineers, Ground Systems Engineers

Careers accessible out of High School:

Animal Technician, Laboratory Assistant, Clinical Research Associate, Compliance Specialist **Careers accessible with Post-Secondary study:** Pharmaceutical Scientist, Pharmacist, Molecular Biologist, Research and Development, Manufacturing, Regulatory Affairs

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

General Atomics, Eurofins, Cortex, Somalogic, Southwest Research Institute

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is a hotspot for this kind of talent. The national average for an area this size is 9,934 employees, while there are 13,109 here."



EARNINGS PER JOB

"Earnings per job are below the national average. The national average salary...in an area this size is \$193,955, while in your area it is \$166,088."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 204 job postings/mo, while there are 249 here."



PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

Resources

Personal and Professional BoundariesCoordinates Team

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

TOP 15 Technical Skills

Posted Aug 2022 - Oct 202

Top Technical skills that employers are posting for in eight Colorado Counties in the Biotech and Pharmacy Field.

Time Skill Identified Across Multiple Pathways



CO JOB POSTINGS REQUEST

PROFESSIONAL

SKILLS

REQUEST 45% LIFE, PHYSICAL, AND SOCIAL SCIENCE

Percentages of CO job postings (2020-2021) that required at least three professional skills.¹

<mark>5 2 %</mark> & COMPUTER MATHEMATICAL

¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

- Leadership Character Collaboration Communication Creativity
- Critical Thinking Metacognition Mindfulness Growth Mindset Fortitude

- 1 Chemistry
- 2 Python (Programming)
- **3** Biology
- 4 Auditing
- 5 Electronics
- 6 Computer Science 🔺
- 7 Spacecraft
- 8 Milestones (Project Management)

9 New Product Development 10 Technical Engineering 11 Systems Engineering 12 Systems Design 13 Test Planning 14 Technical Presentations

- 4 Technical Presentations
- 15 Project Management
- CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Health Science

55%

5,575 300 Job Openings 3,079,800 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Individual and Family Services Home Health Care Services Outpatient Care Centers Offices of other Health Practitioners Other ambulatory health care services

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Occupational therapy assistants Physical therapy assistants Medical and health services managers Physician assistants Substance abuse, behavioral disorder, and mental health counselors

AEROSPACE

Aerospace professionals include software engineers, launch engineers, aircraft manufacturers, flight inspectors, electrical and mechanical engineers, etc.

Industry Snapshot Report Aerospace Product and Parts Manufacturing

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Systems Engineers, Software Engineers, Payload Engineers, Embedded Software Engineers, Systems Requirements Engineers

Careers accessible out of High School:

Air Freight/Logistics, Aircraft Structural Repairer, Mechanical Designer, Electrical Designer **Careers accessible with Post-Secondary study:** Aviation/Airlines, Engineering/Thermodynamics, and Space Tourism

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

Lockheed Martin, Woodward, Boeing, Blue Origin, Maxar Technologies

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is a hotspot for this kind of talent. The national average for an area this size is 6,054 employees, while there are 7,943 here."



EARNINGS PER JOB

"Earnings per job are above the national average. The national average salary...in an area this size is \$139,839, while in your area it is \$187,885."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 247 job postings/mo, while there are 702 here."



PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

- Personal and
 Professional Boundaries
 Coordinates Team
 - Resources

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

TOP 15 TECHNICAL SKILLS

Top Technical skills that employers are posting for in eight Colorado Counties in the Aerospace Field.





CO JOB POSTINGS REQUEST

PROFESSIONAL

SKILLS

Percentages of CO job postings (2020-2021) that required at least three professional skills.¹

COMPUTER & MATHEMATICAL

¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

Leadership Character Collaboration Communication Creativity

Critical Thinking Metacognition Mindfulness Growth Mindset Fortitude

45%

LIFE, PHYSICAL,

AND SOCIAL SCIENCE

1	Systems Engineering	*
2	Agile Methodology	*
3	Software Engineering	
4	Python (Programming)	*
5	Systems Integration	*
6	Spacecraft	
7	MATLAB	
8	Computer Science	*

📕 Lightcast 9 Software Development 10 C++ (Programming) **11** Electrical Engineering 12 Physics 13 Linux 14 Automation

15 Project Management

CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Science, Technology, Engineering, and Mathematics

22%

710,900 Job Openings 157,300 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Computer systems design and related services Management, scientific, and technical consulting services Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Operations research analysts Information security analysts Data scientists and mathematical science occupations

TRANSPORTATION

Transportation professionals include logistics analysts, import/export clerks, commercial pilots, ramp agents, flight attendants, marine engineers, railroad engineers, highway engineers, etc.

Industry Snapshot Report Air Transportation

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Ramp Agents, Customer Service Agents, Flight Attendants, Pilot Recruiters, Airport Operations Supervisors

Careers accessible out of High School:

Air Freight/Logistics, Road and Rail/Infrastructure, Installation, Maintenance and Repair, Collision Technology

Careers accessible with Post-Secondary study: Aviation/Airlines, Engineering/Thermodynamics, Marine, Space Tourism

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

Frontier Airlines, United Airlines, United Launch Alliance, Southwest Airlines, United Air Lines

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is a hotspot for this kind of talent. The national average for an area this size is 6,051 employees, while there are 17,762 here."



EARNINGS PER JOB

"Earnings per job are about the same as the national average. The national average salary...in an area this size is \$130,475, while in your area it is \$142,788."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 49 job postings/mo, while there are 115 here."

<image>

PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

Resources

Personal andProfessional BoundariesCoordinates Team

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

Lightoget

TOP 15 Technical Skills

Posted Aug 2022 - Oct 202

Top Technical skills that employers are posting for in eight Colorado Counties in the Transportation Field.

Skill Identified Across Multiple Pathways





CO JOB POSTINGS REQUEST

PROFESSIONAL

SKILLS

EQUEST 8% TRANSPORTATION & MATERIAL MOVING

COMPUTER &

Percentages of CO job postings (2020-2021) that required at least three professional skills.¹

three professional skills.¹ MATHEMATICAL ¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

- Leadership Character Collaboration Communication Creativity
- Critical Thinking Metacognition Mindfulness Growth Mindset Fortitude

1	Systems Engineering	*	ç
2	Software Engineering		1
3	Agile Methodology	*	1
4	Python (Programming)	*	1
5	Computer Science	*	1
6	MATLAB		1
7	Spacecraft		1
~			

8

			5 L
*	9	C++ (Programming)	*
	10	Software Development	*
*	11	Physics	
)	12	Electrical Engineering	
*	13	Automation	*
	14	Linux	
	15	Space Flight	

CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Transportation, Distribution, and Logistics

Systems Integration

27%

5,575 300 Job Openings 3,079,800 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Couriers and messengers

Computer systems design and related services Management, scientific, and technical consulting services Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Operations research analysts Information security analysts Data scientists and mathematical science occupations

OUTDOOR REC AND NATURAL PRODUCTS

Industry Snapshot Report Food Manufacturing

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Certified Pharmacy Technicians, Grocery Clerks, Front End Supervisors, Bakers, Maintenance Technicians

Careers accessible out of High School: Environmental Tourism/Hospitality, Agriculture, Culinary Arts, Food Production

Careers accessible with Post-Secondary study: Product Design, Green Economy

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

King Soopers, Leprino Foods Company, Danone, Lamar's Donuts, Champion Petfoods Lp

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is a hotspot for this kind of talent. The national average for an area this size is 20,706 employees, while there are 19,551 here."



EARNINGS PER JOB

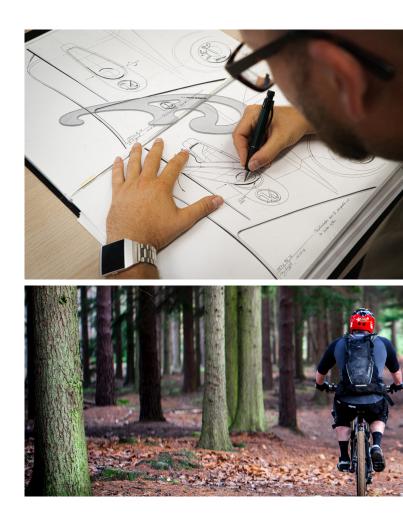
"Earnings per job are about the same as the national average. The national average salary...in an area this size is \$69,475, while in your area it is \$74,179."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 232 job postings/mo, while there are 450 here." Outdoor Rec professionals include forestry technicians, wildlife or fisheries biologists, camp directors, commercial guides, gear testers, etc.

Natural Products professionals include agricultural and food scientists, certified pharmacy technicians, bakers, natural resource specialists, GIS technicians, water resources engineers, biologists, air quality engineers, environmental policy analysts, etc.



PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

Resources

Personal and Professional BoundariesCoordinates Team

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

TOP 15 TECHNICAL Skills

Posted Aug 2022 - Oct 202

Top Technical skills that employers are posting for in eight Colorado Counties in the Outdoor Rec and Natural Products Field.

Time Skill Identified Across Multiple Pathways



CO JOB POSTINGS REQUEST

PROFESSIONAL

EST 19% FARMING, FISHING, & FORESTRY

51%

SALES &

RELATED

SKILLS

Percentages of CO job postings (2020-2021) that required at least three professional skills.¹

¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

- Leadership Character Collaboration Communication Creativity
- Critical Thinking Metacognition Mindfulness Growth Mindset Fortitude





CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Agriculture, Food, and Natural Resources

9%

8123,600 Job Openings -81,000 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Forestry Support activities for mining Other educational services Animal food manufacturing Metal ore mining

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Cooks, restaurant Animal caretakers Statisticians Operations research analysts Information security analysts

IT AND Advanced Manufacturing

IT professionals include web developers, software engineers, computer support specialists, information security analysts, etc.

COMPUTER SYSTEM

Industry Snapshot Report

Computer Systems Design Services

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Software Engineers, Network Engineers, Project Managers, Business Analysts, DevOps Engineers

Careers accessible out of High School:

E-Commerce, Web Design and Development (UX/UI) **Careers accessible with Post-Secondary study:** Big Data/Software, Cloud Computing, Artificial Intelligence, Automotive/Assembly/Aerospace/ Defense, Advanced Electronics/Building Technology

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

Accenture, CACI International, Environmental Systems Research, Excelacom, Nleague Services

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is a hotspot for this kind of talent. The national average for an area this size is 13,981 employees, while there are 26,860 here."



EARNINGS PER JOB

"Earnings per job are above the national average. The national average salary...in an area this size is \$154,707, while in your area it is \$173,929."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 348 job postings/mo, while there are 599 here."



PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

Resources

Personal and
 Professional Boundaries
 Coordinates Team

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

📕 Lightcast

Software Development

JavaScript (Programming)

Project Management

Marketing

Scripting

DevOps

TOP 15 TECHNICAL SKILLS

Top Technical skills that employers are posting for in eight Colorado Counties in the IT and Advanced Manufacturing Field.

Skill Identified Across Multiple Pathways



CO JOB POSTINGS REQUEST

PROFESSIONAL

SKILLS

Percentages of CO job postings (2020-2021) that required at least three professional skills.¹

¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

- Leadership Character Collaboration Communication Creativity
- **Critical Thinking** Metacognition Mindfulness Growth Mindset Fortitude

52%

COMPUTER

71%

& MATHEMATICAL

MANAGEMENT

1	Agile Methodology 🔶 🔶	9	Softw
2	Computer Science 🔶	10	JavaS
3	Authorization (Computing)	11	Linux
4	SQL (Programming)	12	Projec
5	Amazon Web Service	13	Marke
6	Python (Programming) 🔺	14	Script
7	Automation 🔶	15	DevO

8 Java (Programming)

CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Information Technology



1,231,800 Job Openings 647,100 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Software publishers

Computer systems design and related services Management, scientific, and technical consulting services Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Data scientists and mathematical science occupations Information security analysts Data scientists and mathematical science occupations

IT AND Advanced Manufacturing

Advanced Manufacturing professionals include machinists, automotive designers, robotics technicians, mechatronics engineering technicians, software engineers, systems engineers, etc.

MANUFACTURING

Industry Snapshot Report Manufacturing

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Software Engineers, Systems Engineers, Principal Systems Engineers, Maintenance Technicians, Machine Operators

Careers accessible out of High School:

E-Commerce, Web Design and Development (UX/UI) **Careers accessible with Post-Secondary study:** Big Data/Software, Cloud Computing, Artificial Intelligence, Automotive/Assembly/Aerospace/ Defense, Advanced Electronics/Building Technology

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

Lockheed Martin, Raytheon Technologies, Ball Aerospace, King Soopers, Northrop Grumman

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is not a hotspot for this kind of talent. The national average for an area this size is 156,948 employees, while there are 118,042 here."



EARNINGS PER JOB

"Earnings per job are above the national average. The national average salary...in an area this size is \$97,393 while in your area it is \$107,260."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 3,378 job postings/mo, while there are 5,108 here."

PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

Resources

- Personal andProfessional BoundariesCoordinates Team
- Leadership
 - Delegates
 Responsibility

111

Role Model

Problem Solving

Liahtcast

TOP 15 TECHNICAL SKILLS

Top Technical skills that employers are posting for in eight Colorado Counties in the IT and Advanced Manufacturing Field.

Skill Identified Across Multiple Pathways



CO JOB POSTINGS REQUEST

52% COMPUTER &

MATHEMATICAL

ENGINEERING

51%

Percentages of CO job postings (2020-2021) that required at least ARCHITECTURE & three professional skills.¹

¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

Leadership Character Collaboration Communication Creativity

PROFESSIONAL

SKILLS

Critical Thinking Metacognition Mindfulness **Growth Mindset** Fortitude



9	Automation	*
10	Software Development	*
11	Software Engineering	*
12	Auditing	*
13	Marketing	*
14	Finance	*
15	Warehousing	

Supply Chain

CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Manufacturing

11%

3,077,100 Job Openings 360,000 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Computer systems design and related services Management, scientific, and technical consulting services Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Derrick operators, oil and gas Rotary drill operators, oil and gas Roustabouts, oil and gas Data scientists and mathematical science occupations

INFRASTRUCTURE AND CLEAN ENERGY

Industry Snapshot Report Electric Power Generation

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties) Appointment Setters, Electrical Apprentices, Journeyman Linemen, Project Managers, Sales Representatives

Careers accessible out of High School:

Energy/Water/Utilities, The Green Economy/ Emergency Services, Mechatronics and Manufacturing Design, Construction/Welding **Careers accessible with Post-Secondary study**:

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

Xcel Energy, Blue Raven Solar, AES, Solve Agency, Tri-State Generation and Transmission Association Inc.

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is not a hotspot for this kind of talent. The national average for an area this size is 1,763 employees, while there are 472 here."



EARNINGS PER JOB

"Earnings per job are about the same as the national average. The national average salary...in an area this size is \$189,248, while in your area it is \$194,424."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 99 job postings/mo, while there are 205 here." Infrastructure professionals include civil engineers, electricians, journeyman linemen, truck drivers, warehouse workers, etc. Advanced Manufacturing professionals include machinists, automotive designers, robotics technicians, mechatronics engineering technicians, etc. Clean Energy professionals include wind turbine technicians, solar photovoltaic installers, atmospheric scientists, materials engineers, hydropower engineers, etc.



PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

- Personal and
 Professional Boundaries
 Coordinates Team
 - Resources

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

Lightoget

TOP 15 TECHNICAL SKILLS

Top Technical skills that employers are posting for in eight Colorado Counties in the Infrastructure and Clean Energy Field.

Skill Identified Across Multiple Pathways



CO JOB POSTINGS REQUEST

59% **BUSINESS &**

FINANCIAL OPERATIONS

71%

SKILLS

PROFESSIONAL

Percentages of CO job postings MANAGEMENT (2020-2021) that required at least three professional skills.¹

¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

- Leadership Character Collaboration Communication Creativity
- **Critical Thinking** Metacognition Mindfulness Growth Mindset Fortitude



	Lightcust
9	Procurement
10	Construction
11	Regulatory Compliance
12	Marketing
13	Continuous Improvement Process
14	Technical Support 🔶

15 Data Analysis

Supply Chain

CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Science, Technology, Engineering, and Mathematics



710,900 Job Openings 157,300 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Grantmaking and giving services and social advocacy organizations

Computer systems design and related services Management, scientific, and technical consulting services Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Wind turbine service technicians Solar photovaltaic installers Forest fire inspectors and prevention specialists Data scientists and mathematical science occupations

IMMERSIVE TECH AND AI AND HOSPITALITY AND TOURISM

ARTS, ENTERTAINMENT, AND RECREATION

Industry Snapshot Report Arts, Entertainment, and Recreation

Hospitality and Tourism professionals include sports center managers, food truck owners, pastry chefs, resort managers, catering managers, etc.

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Dishwashers, Group Fitness Instructors, Front Desk Associates, General Managers, Bartenders

Careers accessible out of High School:

Museums and Historical Sites, Recreation and Gambling/Amusements, Lodging/Food and Beverage/Travel

Careers accessible with Post-Secondary study: Performing Arts, Spectator Sports, Digital Media and Communication, Production and Managerial Arts

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

Vail Resorts, Steamboat Ski and Resort Corporation, 24 Hour Fitness, Wellbridge, Bowlero Corporation

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is about average for this kind of talent. The national average for an area this size is 27,617 employees, while there are 27,371 here."



EARNINGS PER JOB

"Earnings per job are above the national average. The national average salary...in an area this size is \$56,025, while in your area it is \$64,822."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is high in your area. The national average for an area this size is 346 job postings/mo, while there are 609 here."

<image>

PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

Resources

Personal andProfessional BoundariesCoordinates Team

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

TOP 15 TECHNICAL SKILLS

Top Technical skills that employers are posting for in eight Colorado Counties in the Arts, Media, and Entertainment Field.

The skill Identified Across Multiple Pathways





CO JOB POSTINGS REQUEST

49% PROFESSIONAL

ARTS, DESIGN,

SKILLS

ENTERTAINMENT, SPORTS & MEDIA 51% SALES &

RELATED

Percentages of CO job postings (2020-2021) that required at least three professional skills.1

¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

Leadership Character Collaboration Communication Creativity

Critical Thinking Metacognition Mindfulness **Growth Mindset** Fortitude

1	Marketing
2	Accounting
3	Restaurant Operation
4	Auditing
5	Finance
6	Machinery
7	



8 Sales Prospecting

CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

1

Hospitality and Tourism



7,575,300 Job Openings 1,740,200 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Museums, historical sites, and similar institutions Independent artists, writers, performers Office administrative services Software publishers Other personal services

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Operations research analysts Cooks, restaurant

📕 Lightcast

9	Membership Sales
10	Selling Techniques
11	Invoicing
12	Cooking
13	Point of Sale
14	Cash Handling
15	Agile Methodology 🔶 🔶
	11 12 13 14

IMMERSIVE TECH AND AI

Arts, Media, and Entertainment professionals include graphic designers, industrial designers, actors, museum curators, multimedia artists and animators, musicians, etc.

MEDIA

Industry Snapshot Report

Motion Picture and Video Production

CAREER OPPORTUNITIES

Top Job Titles (in 8 Colorado Counties)

Warehousers, College Interns, Guest Service Representatives, Parks Staff, Survey Interns

Careers accessible out of High School:

Museums and Historical Sites, Recreation and Gambling/Amusements, Lodging/Food and Beverage/Travel

Careers accessible with Post-Secondary study:

Performing Arts, Spectator Sports, Digital Media and Communication, Production and Managerial Arts

HIRING COMPETITION

Top Companies (in 8 Colorado Counties)

Disney, Lions Gate Entertainment, Responsive Media, Proof Agency, Lunar Outpost

*The values below were taken from the associated Lightcast Industry Snapshot Report and represent the national average adjusted for region size.



SUPPLY

"Your area is not a hotspot for this kind of talent. The national average for an area this size is 3,304 employees, while there are 1,069 here."



EARNINGS PER JOB

"Earnings per job are below the national average. The national average salary...in an area this size is \$137,030, while in your area it is \$92,361."



DEMAND (JOB POSTINGS)

"Competition from Online job postings is low in your area. The national average for an area this size is 52 job postings/mo, while there are 40 here."





PROFESSIONAL SKILLS

*Professional skills adopted from West-MEC collateral.

Communication

 Verbal, Non-Verbal, and Digital

Teamwork

Resources

Personal andProfessional BoundariesCoordinates Team

Leadership

- Delegates
 Responsibility
- Role Model

Problem Solving

 Anticipates and addresses problems and outcomes with persistence.

TOP 15 TECHNICAL SKILLS

Top Technical skills that employers are posting for in eight Colorado Counties in the Arts, Media, and Entertainment Field.

Skill Identified Across Multiple Pathways





CO JOB POSTINGS REQUEST

49%

ARTS, DESIGN, PROFESSIONAL ENTERTAINMENT, SPORTS & MEDIA

SKILLS

Percentages of CO job postings (2020-2021) that required at least three professional skills.¹

RELATED ¹ https://durableskills.org/wp-content/uploads/CO-America-Succeeds-FactSheet-19-20.pdf

Leadership Character Collaboration Communication Creativity

Critical Thinking Metacognition Mindfulness **Growth Mindset** Fortitude

1%

SALES &



🖡 Lightcast 9 C# (Programming) 10 SQL (Programming) 11 Software Development 12 Workflow Management 13 JIRA 14 **User Experience**

Debugging

8 Software Engineering

CAREER CLUSTER GROWTH

*National Data collated and synthesized by the Boulder Chamber. Projected 2012 - 2022.

Arts, Audio/Video 🧹 Technology, and Communications

11%

670,400 Job Openings 71,600 New Jobs

FASTEST GROWING INDUSTRIES

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Museums, historical sites, and similar institutions Independent artists, writers, performers Office administrative services Software publishers Other personal services

FASTEST GROWING OCCUPATIONS

*National Data collated and synthesized by the Boulder Chamber. Projected 2019 - 2029.

Operations research analysts

INDIVIDUAL PATHWAYS TO PASSION



The Boulder Valley School District's focus on the development of CTE programming will prepare students for the future by connecting secondary education with college expectations and labor market demands. In districts across the country, the transformation of teaching and learning as influenced by an intentional balance of theoretical and applied learning curriculum is fostering the continued growth of Project Based Learning (PBL), the Maker Movement, Career and Technical Education (CTE), STEM, and STEAM. Regardless of the name, applied learning is growing both in popularity and in its ability to engage and connect students to the real world.

BVSD CTE programming will support applied sciences, modern technologies, and career preparation and trade skills, offering students the unique opportunity to create their own pathway for future professional success. BVSD CTE programs will support those students who want to go to college, those who want to go right into the workforce or military after high school, and those who are unsure what they want to do post-secondary.

All students engaged in BVSD CTE will have the opportunity to develop their skill sets by structuring their coursework to align with their interests and passions. As their skills develop across pathways, with varying degrees of proficiency as supported by their study, each student will naturally create, or braid, their own individual pathway of passion.

BVSD CTE PROGRAM DEVELOPMENT WILL EMBRACE INCLUSIVE DESIGN AND PROGRAM MANAGEMENT AND WILL BE TARGETED TO EMPOWER ALL STUDENTS. Students who want to go to college. These students are looking for concurrent enrollment or dual enrollment opportunities to earn credit toward a college degree. These students could also be looking to learn a skill set or trade to help them pay for college.

Students who want to go right into the workforce or military after high school. These students want to learn a skill or trade that will make them more competitive for career preparedness.

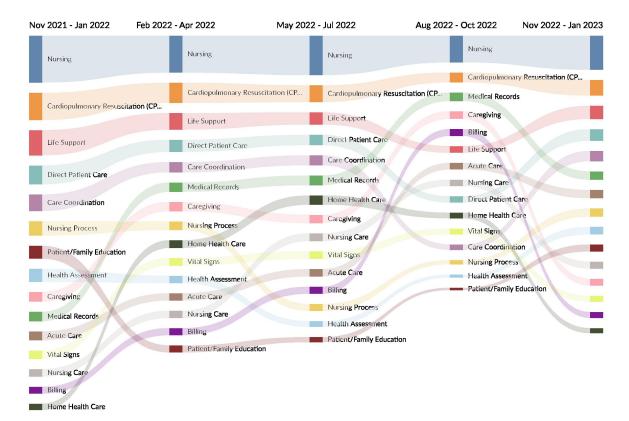
Students who are unsure of what they want to do after high school. These students want to further explore their interests and skill sets to enhance their college and career preparedness.

Industry Snapshot Report

These captures illustrate the natural weave, or braid, of skill sets that an industry pathway may require over time. More specifically, they show the top fifteen skills that were posted for in eight Colorado counties, relative to the identified industry.



HEALTH (Health Care and Social Assistance)

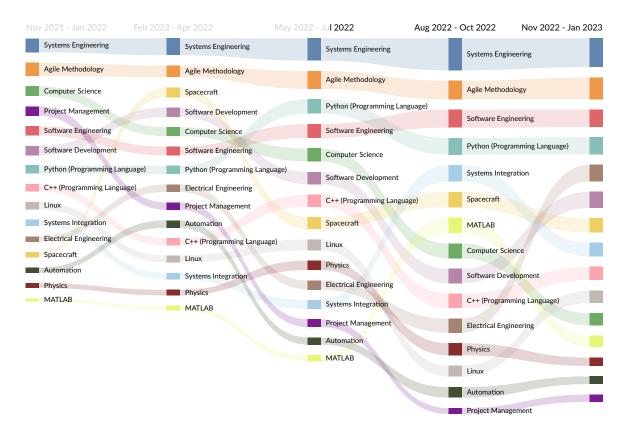


BIOTECH AND PHARMACY (Physical Engineering and Life Sciences)

Nov 2021 - Jan 2022 Feb 2	2022 - Apr 2022	May 2022 - J	lu l 2022	Aug 2022 -	Oct 2022	Nov 2022 - Jan 2023
Systems Engineering			Chemistry		Chemistry	
	Milestones (Project Man	agement)	Biology		Python (Progra	amming Language)
Test Planning			Auditing		Biology	
Milestones (Project Management)	spacecraft		Milestones (Project Manage	ment)	Auditing	
			Python (Programming Langu	Jage)	Electronics	
Technical Engineering	Systems Engineering	Computer Science		Computer Scie	nce	
Project Management			Systems Engineering		Milestones (Pr	oject Management)
Technical Presentations	Technical Engineering				Spacecraft	
lechnical Presentations	lechnical Engineering		Spacecraft		Project Manag	ement
New Product Development			Project Management		New Product	Development
Python (Programming Language)	Technical Presentations		Test Planning		Technical Engli	
			Technical Engineering		Systems Engin	
Spacecraft	Systems Design	_	New Product Development		Systems Desig	n
Systems Design	Test Planning	-	Systems Design		 Test Planning Technical Presentation 	antations
Computer Science			Electronics Technical Presentations		rechnical Fres	entations
Computer Science						
Electronics	Electronics					
Auditing	Project Management					
Biology	Python (Programming La	nguage)				
Chemistry	New Product Developm	ent				
	Chemistry					
	Biology					
	Auditing					
	Computer Science					
	compater contract					



AEROSPACE (Aerospace Product and Parts Manufacturing)



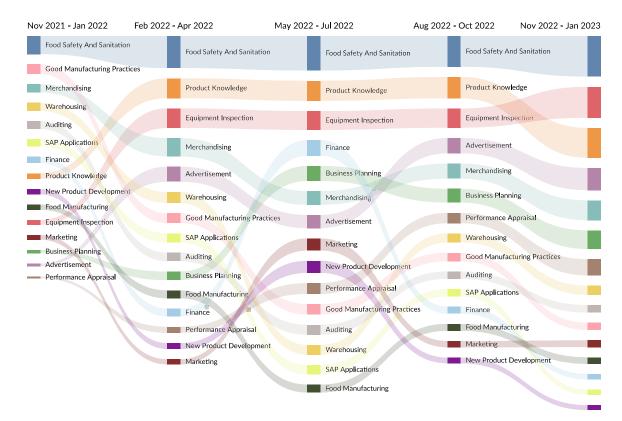
TRANSPORTATION (Air Transportation)

Dec 2021 - Feb 2022 Mar 2023	2 - May 2022 Jun 2022	2 - Aug 2022 Sep 202	22 - Nov 2022 Dec 2022 - Feb 2023
Federal Aviation Administration	Office Equipment	Federal Aviation Administration	Office Equipment
Office Equipment	Federal Aviation Administration	Office Equipment	Federal Aviation Administration
Auditing		Auditing	Auditing
Aircraft Maintenance	Auditing	Federal Aviation Regulations	Federal Aviation Regulations
Federal Aviation Regulations	Federal Aviation Regulations	Finance	Finance
Finance	Aircraft Maintenance	Accounting	Aircraft Maintenance
Process Improvement	Finance	Process Improvement	Marketing
Supply Chain	Accounting	Presentation Skills	Automation Operational Performance Manage
Warehousing	Operational Performance Manage	Data Analysis	Accounting
Accounting	Warehousing	Supply Chain	Data Analysis
Data Analysis	Process Improvement	Operational Performance Manage	Process Improvement
Operational Performance Manage	Data Analysis	Automation	Warehousing Presentation Skills
Presentation Skills	Presentation Skills	Warehousing	Supply Chain
Marketing Automation	Marketing Supply Chain	Marketing	
	Automation		

78



OUTDOOR REC (Food Manufacturing)

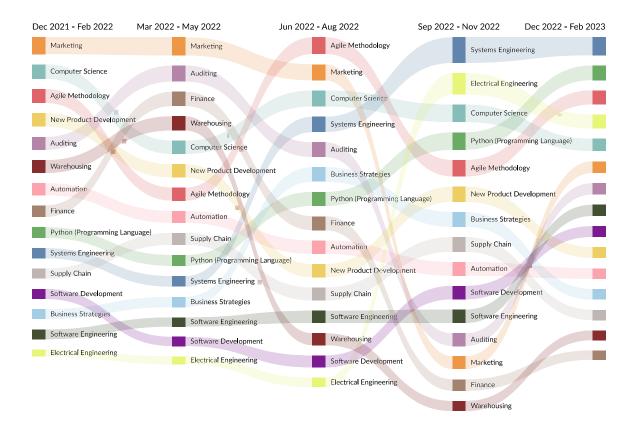


COMPUTER SYSTEM (Computer Systems Design Services)

Nov 2021 - Jan 2022 Feb 2022 -	- Apr 2022	May 2022 - Jul 2022	Aug 2022 - Oct 2022 Nov 2022 - Jan 2023
Agile Methodology	Agile Methodology	Agile Methodology	Agile Methodology
Computer Science	Computer Science	Computer Science	Computer Science
Authorization (Computing)	Authorization (Computing)	Automation	SQL (Programming Language)
Automation	Automation	Authorization (Computing) Amazon Web Services	Amazon Web Services Python (Programming Language)
SQL (Programming Language)	Amazon Web Services	Python (Programming Langua	Automotion
Software Development	SQL (Programming Language)	Software Development	Java (Programming Language)
Amazon Web Services	Software Development	SQL (Programming Language) JavaScript (Programming Language)
Project Management	Java (Programming Language)		Linux
Marketing Java (Programming Language)	Python (Programming Langua Project Management	ge) Scripting Java (Programming Language	Project Management
Python (Programming Language)	Scripting	Marketing	Scripting
Linux	Marketing	JavaScript (Programming Lan	guage) DevOps
JavaScript (Programming Language)	Linux	Project Management DevOps	
DevOps	DevOps		
Scripting	JavaScript (Programming Lang	guage)	

📕 Lightcast

MANUFACTURING

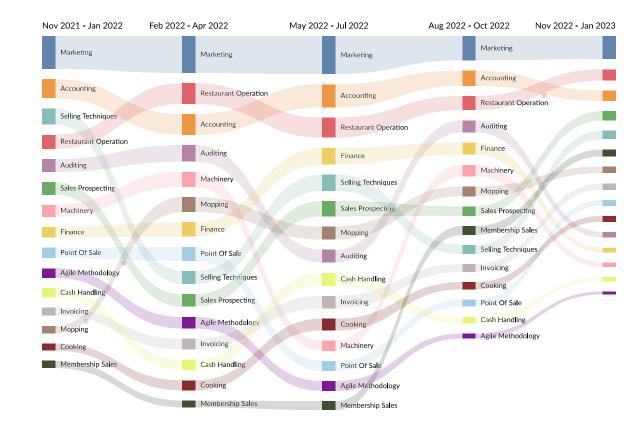


INFRASTRUCTURE I CLEAN ENERGY (Electric Power Generation)

Nov 2021 - Jan 2022	Feb 2022 - Apr 2022	May 2022 - Jul 2022	Aug 2022 - Oct 2022 Nov 2022 - Jan 2023
Accounting	Finance	Finance	Finance
Project Management	Project Management	Project Management	Project Management
Procurement	Accounting	Accounting	Accounting
Process Improvement	Auditing		Auditing
	Process Improvement	Process Improvement	Process Improvement
Finance	Marketing	Auditing	Business Process
Auditing	Construction	Business Process	Change Management
Marketing	Business Process	Construction	Supply Chain
Business Process	Data Analysis	Procurement	Procurement
Supply Chain	Regulatory Compliance	Procurement	Construction
Construction	Change Management	Change Management	Regulatory Compliance
Data Analysis	Technical Support	Data Analysis	Marketing
Technical Support	Continuous Improvement	Process Continuous Improvement	
Continuous Improvement P	rocess Procurement	Technical Support	Technical Support
Change Management	Supply Chain	Marketing	Data Analysis
Regulatory Compliance			
		Supply Chain	
		Regulatory Compliance	

80





ARTS, ENTERTAINMENT, AND RECREATION

MEDIA (Motion Picture and Video Production)

Nov 2021 - Jan 2022	Feb 2022 - Apr 2022	May 2022 - Jul 2022	Aug 2022 - Oct 2022 Nov 2022 - Jan 2023
Computer Science	Transferable Skills Analysis	Software Engineering Computer Science	Transferable Skills Analysis
Amazon Web Services	Computer Science	Marketing Amazon Web Services	Amazon Web Services
Software Development	Software Development	Workflow Management	Microsoft Azure
Agile Methodology	Workflow Management	C# (Programming Langu SQL (Programming Langu	
C# (Programming Language	Amazon Web Services	Agile Methodology	Automation Agile Methodology
User Experience	Debugging	Software Development Microsoft Azure	Software Engineering
JIRA 13	Agile Methodology	ge) User Experience JIRA — Debugging	C# (Programming Language) SQL (Programming Language)
Workflow Management	User Experience C# (Programming Language	Transferable Skills Analy	Workflow Management
SQL (Programming Languag	ge) Marketing Software Engineering		JIRA User Experience
Software Engineering	Microsoft Azure — Automation		Debugging
Debugging			
Microsoft Azure			
Automation Marketing			
— Transferable Skills Analysis			



RE-ENVISIONING SCHOOL

BVSD MIDDLE SCHOOL CTE

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	Louisville Middle School	118
	Manhattan Middle School	122
	Monarch PK-8 School	124
	Nevin Platt Middle School	126
	Southern Hills Middle School	128

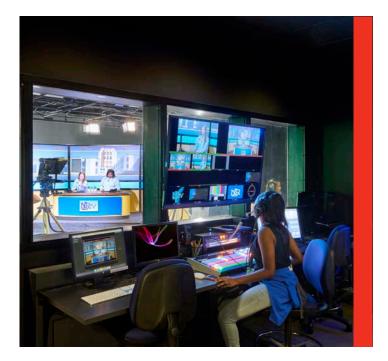
MIDDLE SCHOOL CTE CHALLENGES AND OPPORTUNITIES: YOUR LIFE-YOUR CAREER: CAREER AND COLLEGE READINESS

4444

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MIDDLE SCHOOL CTE Overview

BVSD's CTE Master Plan aims to outline a framework for programming that can engage students and their families in a multi-year process that intentionally guides exposure to and exploration of career, academic, and postsecondary opportunities. BVSD CTE programming will help students develop the awareness, knowledge, attitudes, and skills needed to create their own meaningful and powerful pathways to postsecondary and workforce readiness.



BVSD's CTE Master Plan builds upon the strategies and structures developed during strategic planning work completed in Spring 2022. Planning efforts focused on creating opportunities for equitable access to career exploration and ICAPs (Individual Career and Academic Plans) for all students. The master plan is intended to implement the framework for middle school development identified as part of the Spring 2022 planning. The plan seeks to balance and build a centralized approach to middle school CTE, with acknowledgment of opportunity and potential growth at each individual school.

IMAGES North Little Rock, High School (North Little Rock, AR)



BVSD MIDDLE SCHOOL CTE OBSERVATIONS EXISTING (CHALLENGES)

During the early Discovery and Explore phases of master plan development, with support from district leadership, the design team completed guided tours of all BVSD middle schools and high schools. Tours were not limited to review of existing CTE spaces, but inclusive of the whole facility to encourage creative thinking around potential for re-envisioned programming.

Observations about existing conditions were recorded with candor and are synthesized below:

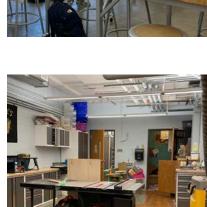
- Observation: In most cases, sufficient space was allocated to existing CTE programs.
- Observation: There did not appear to be a clear district wide program curriculum in place for the culinary or engineering programs which exist in many of the schools. They seemed to be driven by the individual teacher.
- Observation: In some locations, maker spaces were cannibalized into conference/meeting rooms. There was no evidence that district personnel knew what happened to the equipment originally in these spaces. (Assumption made that equipment was originally provided.) In some cases, it was expressed that the maker space had been a good idea.
- Opportunity: Retired maker spaces could be reinstated and used with incorporation of the maker space into the middle school CTE program.



- Observation: There is opportunity for expanded Technology and Life and Careers programming to be incorporated into existing spaces and curriculum; this would support a broader integration of the state of Colorado's six CTE career pathways.
- Observation: A clear and consistent curriculum should be established for middle school CTE. A potential goal of the program should be to connect students to CTE opportunities in high school and expose them to the concept of "careers" as a life endeavor. Cross teaching with core academics would be an excellent way to bring core subjects to life and instill real life understanding in students; it would also create opportunity for hands-on learning.
- A Middle School Career and Technology experience should be a part of every student's middle school experience—to include hands-on experiences and a focus on the broad pathways available to the student.



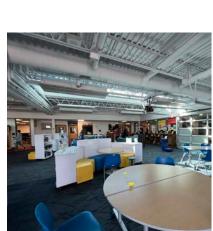


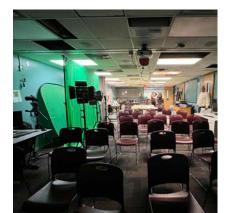












MIDDLE SCHOOL Career Exploration

BVSD is committed to provide students with opportunities to pursue their career and college interests through the expansion of Career and Technical Education (CTE) pathways in all high schools, including Boulder TEC. However, effective career exploration needs to begin much earlier in a student's academic career. At the middle school level, career exploration is critical for students as it can ignite a passion for learning both inside and outside of the classroom, help clarify a student's vision for how their learning may be directly applied to their future endeavors, and will likely inform their high school course selection.

One goal of CTE re-envisioning at middle schools is to ensure that each student is aware of how their career interests are supported within each high school. Historically BVSD has seen a significant percentage of students enrolling in high school based on programs and offerings, rather than location. This trend supports the need at each middle school to design and graphically represent the connections between career exploration and the available offerings at each BVSD high school and Boulder TEC.

Middle school students will experience career exploration throughout various "STEAM" (Science, Technology, Engineering, Arts, and Math) offerings. In addition to career exploration, BVSD will continue to support CTE middle school programs that are standards-aligned and meet students' interests.

IMAGE BVSD Instagram



CONNECT PROGRAMS FOR THE FUTURE

Recommended Middle School Programming: Over the course of their middle school tenure, 6th, 7th, and 8th grade students will participate in CTE programming that rotates six career clusters/twelve industries through all six semesters of middle school. With attention to their high school transition, students' final 8th grade semester will end with a capstone program where each student identifies their favorite industry and why. This approach will establish initial musings around an entrepreneurial mindset and CONNECT BVSD students to higher ed, Boulder industry, and the greater Boulder community by introducing them to the CTE/career pathways available to them in high school and at Boulder TEC (Technical Education Center).

BVSD's middle school CTE spaces will be branded, in alignment with a full district approach, through the use of color and experiential graphics to clearly articulate the CONNECTions between pathways and the potential for empowered student choice. BVSD CTE branding will embrace and celebrate the opportunity to help all students whether they are college bound, career bound, undecided, or somewhere in between.

The development of BVSD's middle school programming and branding will reinforce each school's specialty pathway(s). The reenvisioned program will allocate dedicated funding to CTE courses that connect to and align with local industry priorities and CTE curriculum will be supported by the creation of active spaces with pathway specific furniture and equipment.

BVSD's commitment to re-envisioned CTE will substantially elevate the middle school student experience to provide CONNECTions to high school and beyond.

EXISTING PROGRAMMING

CULINARY AND LIFE SKILLS

Independent Living Personal Finance Culinary Professional Skills/Actions

TECHNOLOGY EXPLORATION

Basic Coding Web Design Spreadsheets (Misc Programs) Video and Media

ENGINEERING

Robotics Manufacturing and Technology Aerospace Employment Trade Skills I Home/Self Skills Art of Building

ENERGY AND EARTH

Energy/Agriculture/Renewable Resources Outdoor Living Science and Biology

MIDDLE SCHOOL Design components

A DESIGN COMPONENTS APPROACH TO TRANSFORMATIONS AT THE MIDDLE SCHOOLS

After thoughtful synthesis and study of both existing and proposed CTE programming at the middle school level, the master plan proposes the following design components to strengthen and enhance connections between students and pathways.

The design components include:

- Brand Identification at the "front door" that celebrates a true connection between education and industry as described in BVSD's Grad+ initiative.
- Provision of Experiential Graphics that reflects the enhanced programs of each school within the overall context of the Boulder Valley economy.
- A centrally located "I-Commons" area that supports direct connections to learning on display.
- Enhancing existing spaces and places based on program clarification and curriculum development.
 (Each pathway space should be programmed to be flexible and adaptable for long term use.)
- Connecting pathways to circulation and core curriculum both visually and programmatically.



DESIGN METHODOLOGY CONNECTING STUDENTS AND PATHWAYS

BRANDING

Schools should employ wall graphics and digital display to communicate pride and a strong, positive perception of BVSD's reenvisioned CTE programming.



SPACE

Innovative CTE programming will be elevated with access to the following spaces: Outdoor Labs and Learning Spaces, Innovation Labs, Prototyping Labs, STEM Classrooms, Culinary Labs, and an I-Commons. **Outdoor Labs and Learning Spaces:** The presence of easily accessed outdoor learning spaces supports hands on learning and promotes self discovery while increasing movement.

Innovation Lab: This space promotes learner agency and the ongoing integration of hands on learning and demonstration. Activities in this space might include messy project creation and clean activities, ranging from crafts to robotics, in a variety of group sizes: individual, small group, and whole class learning. It is a highly flexible hub that creates learner driven space and is easily accessible by community members and business partners.

Prototyping Lab: This space is for students to foster learning relationships that are active and collaborative. The prototyping lab should help students with the fabrication and transformation of their ideas into working prototype models.

STEM Classroom: A flexible space that supports multi-modal learning and a range of activities and group sizes. The STEM Classroom should be easily reconfigurable with consideration for interdisciplinary and collaborative instruction.

Culinary Classroom: This is space where students can learn how to operate and collaborate in the kitchen while developing an appreciation for cooking as an art and science.

FURNITURE AND TECHNOLOGY

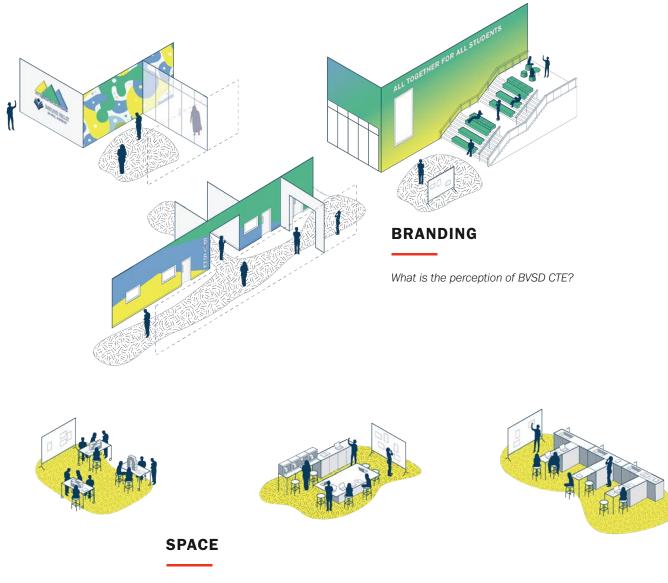
Furniture selections will promote a welcoming, comfortable, safe, and learner centered environment. Technology should be fluid and ubiquitous. Equipment will be industry driven so as to stimulate (not replicate) real world experiences.

ADJACENCIES THAT INFORM

Ample transparency between learning environments should allow for visible connections, passive supervision and learning on display. Physical connections will be further supported by strategic program/space adjacency.

MIDDLE SCHOOL Design components

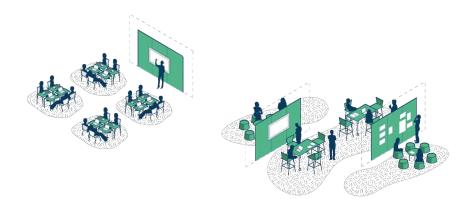
Collectively, the facility assessments, visioning workshops, and district and community feedback informed the design components methodology. The design components are built upon programmatic and built elements that align BVSD's pre-planning efforts and future-facing vision for CTE with aim to provide maximum functionality and support for innovative pathway development. Application of the design components will vary at each school but, universally, the design principles should be upheld. The master plan does not detail how the design components will be integrated at each school. This work will begin with project specific implementation through the Request for Proposal (RFP) process after completion of the master plan.



What spaces are needed to support inquiry based learning and CTE?

FURNITURE AND TECHNOLOGY

Do BVSD CTE spaces empower students to own their own learning?





How might learning on display change student and teacher engagement?

MIDDLE SCHOOL Design components



BRANDING

East Trails Middle School Lee's Summit, MO





West-MEC SW Campus Buckeye, AZ Cherry Creek Innovation Campus Centennial, CO



SPACE

Topeka Center for Advanced Learning and Careers Topeka, KS





Cherry Creek Innovation Campus Centennial, CO Missouri Innovation Campus Lee's Summit, MO



FURNITURE AND TECHNOLOGY



Turner Middle School Kansas City, MO



Kearney Middle School Kearney, MO



ADJACENCIES THAT INFORM

Lake Belton High School Belton, TX





Roosevelt Elementary Anaheim, CA Cherry Creek Innovation Campus Centennial, CO

MIDDLE SCHOOL **DESIGN COMPONENTS**

I-COMMONS (INNOVATION COMMONS)



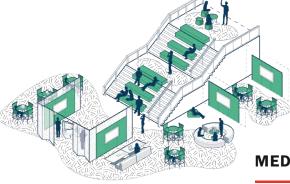
I-COMMONS

An I-Commons, or Innovation Commons, is a collection of coworking spaces that when shared between pathways can inspire entrepreneurial thinking and support direct connections and impactful collaboration.



I-Commons intervention created by leveraging furniture and technology to support flexible reconfiguration of space and presentation.

SMALL



MEDIUM

I-Commons intervention with dedicated presentation stairs and a mix of fixed and mobile walls and formal/informal gathering spaces.

LARGE

*These illustrations present three of countless possible iterations.

I-Commons intervention with presentation stairs that extend to a collaboration and display gallery, an adjacent lab/classroom space and several different co-working zones.

Spaces within an I-Commons might include: Learning Theater, Maker Space, Technology Stations, Learning Stair/Poster Gallery, Team Rooms, Collaboration Space, Dining and Social.

An I-Commons is composed of different space types assembled to collectively support a range of teaching and learning modalities, scaled from independent study to large groups. In addition to those space types listed above, additional space types might include small group rooms, collaboration areas, maker/lab spaces, interactive display zones, and/or presentation and performance zones. An I-Commons should provide dedicated presentation area where students can practice their skills in pitching new technologies and product development ideas to their colleagues and industry partners. The space is intended to stimulate collaboration between students and motivate a spirit of entrepreneurialism. The digitally enabled workspaces within an I-Commons should include technologies that support flexible learning and increase communication and team integration.

The master plan recommends that a key component of CTE programming across BVSD is the build out of I-Commons spaces that will reinforce learning on display as directly related to the pathways supported at each parent school, but across the district as well. I-Commons spaces should be catalysts for improved perceptions of CTE and connect programming from one school to another.

Across BVSD, the I-Commons can be scaled to accommodate various levels of infrastructure. In smaller settings, likely at the middle schools, furniture and technology can define place making to support the creation of different types of spaces that support flexible learning. In larger venues, at the high schools and at Boulder TEC, the addition of learning stairs, and/or full scale labs will elevate the potential for cross-pathway connections and increased student agency.

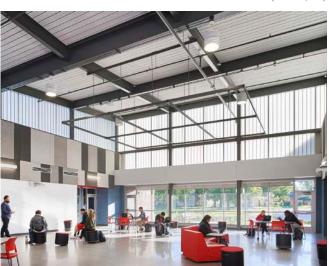
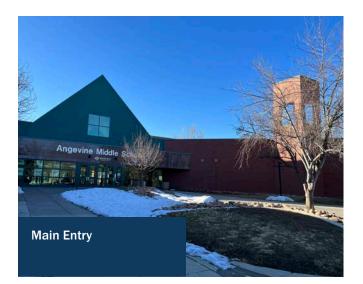


IMAGE Ottawa High School (Additions and Renovations) (Ottawa, KS)

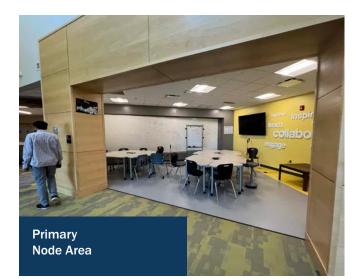




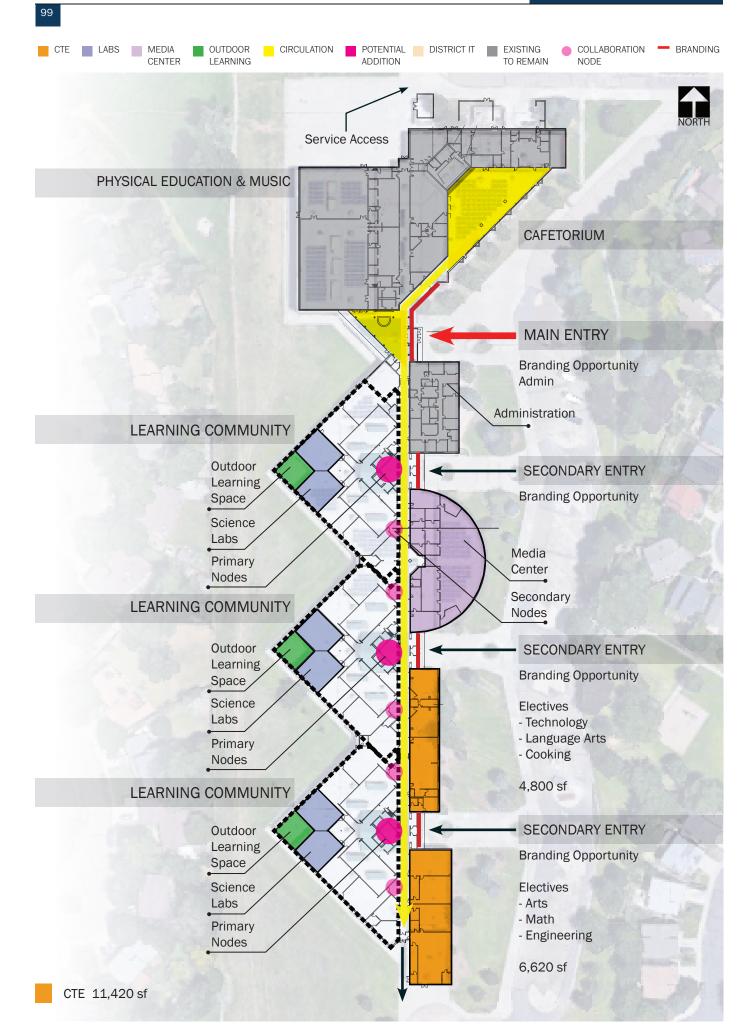


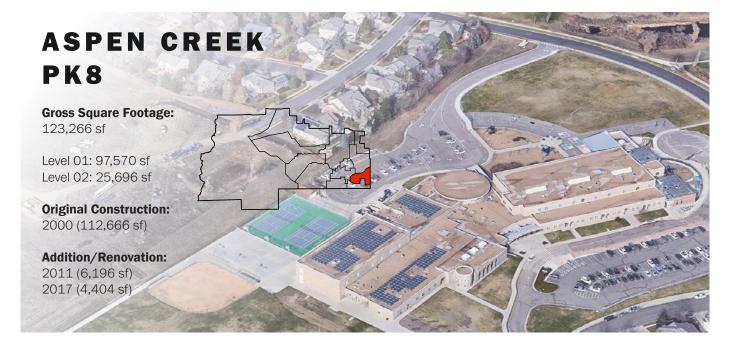




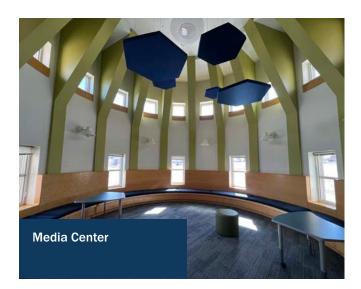




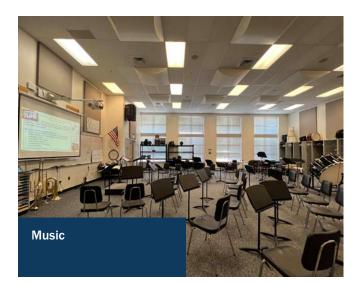


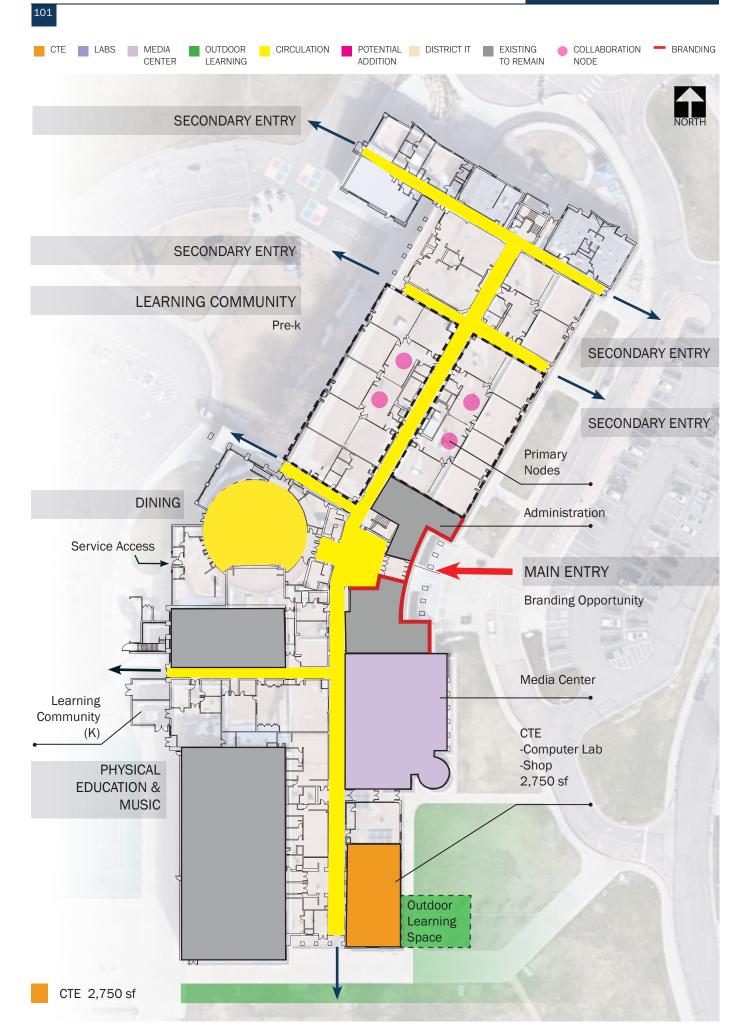


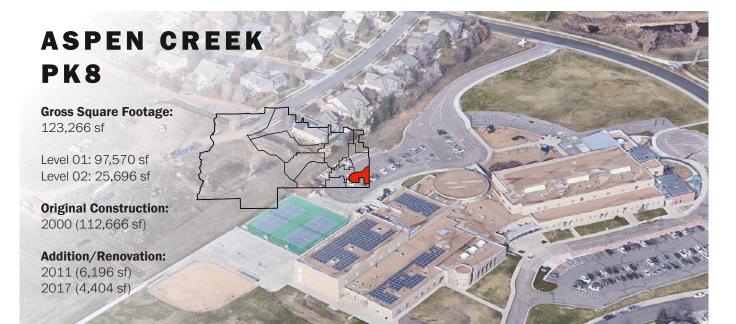




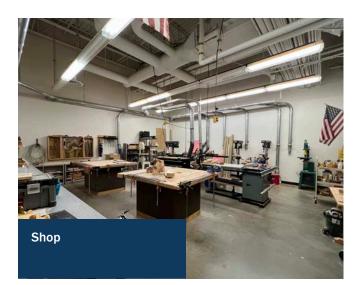


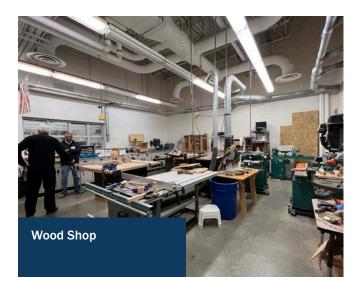




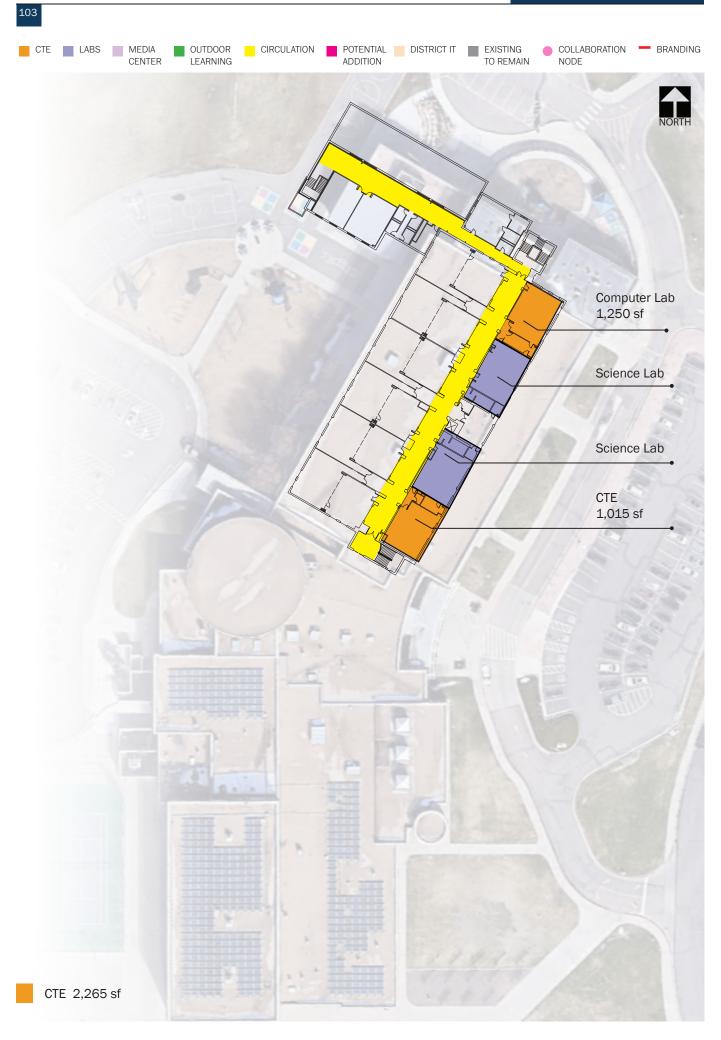












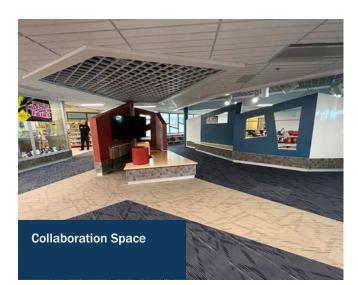
Gross Square Footage: 111,248 sf

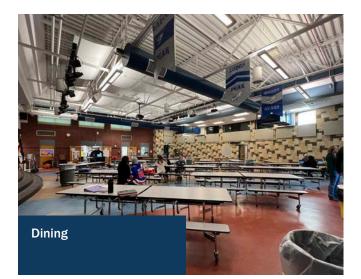
Garden Level: 26,061 sf Level 01: 84,095 sf Loft Level: 741 sf Control Booth: 351 sf

Original Construction: 1983 (107,078 sf)

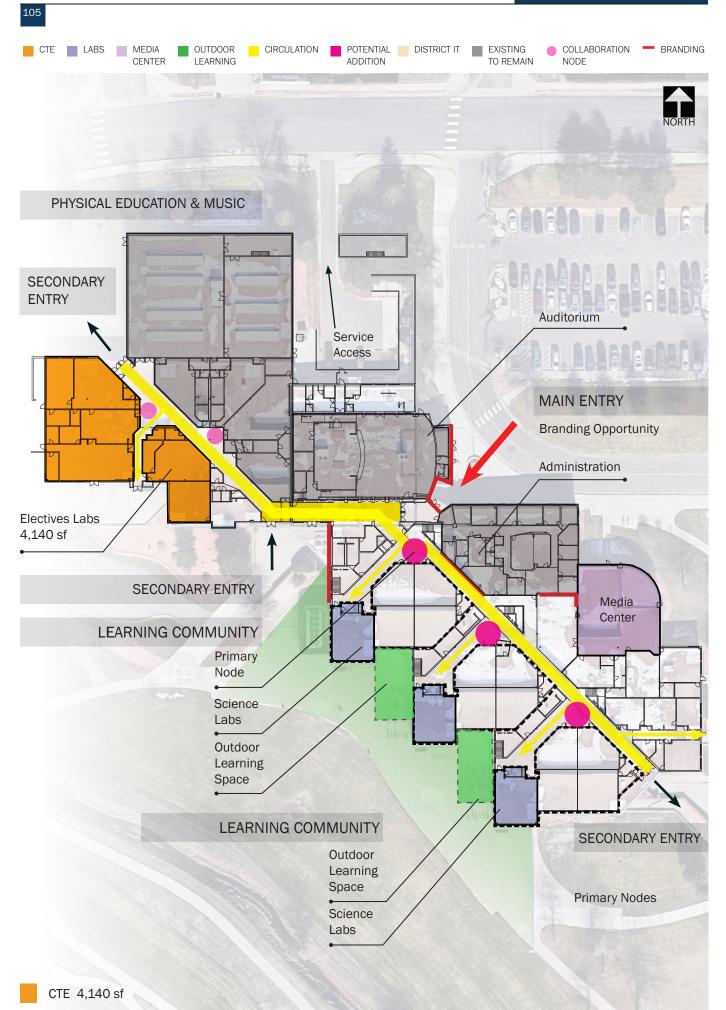
Addition/Renovation: 2011 (4,170 sf)









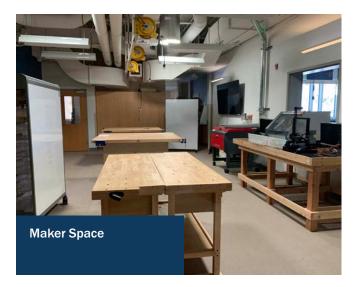


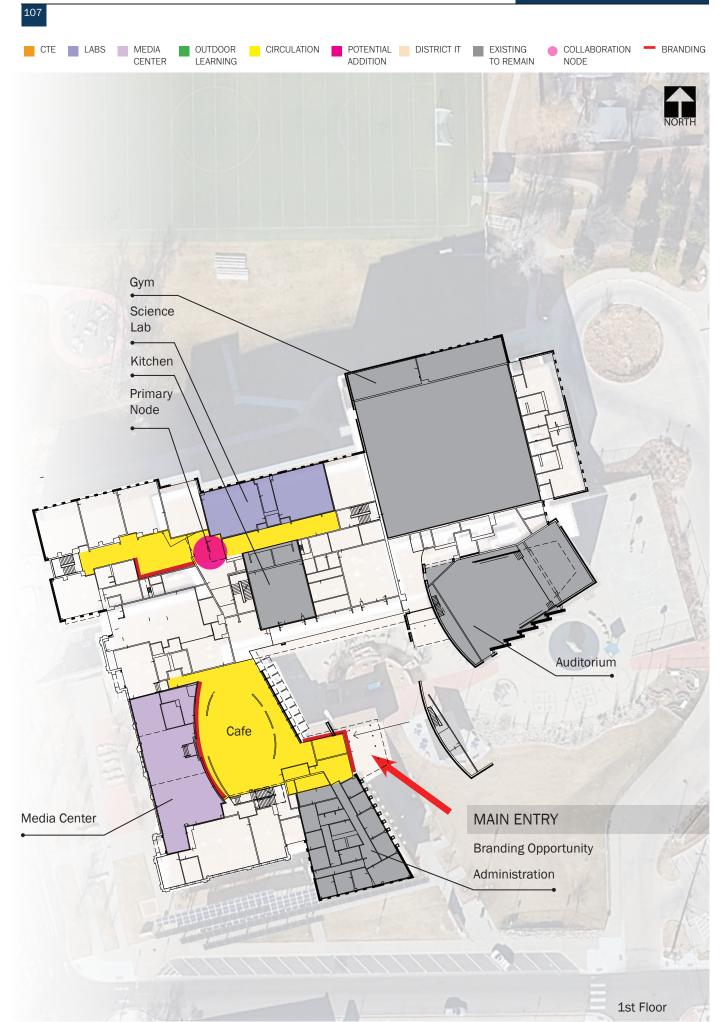


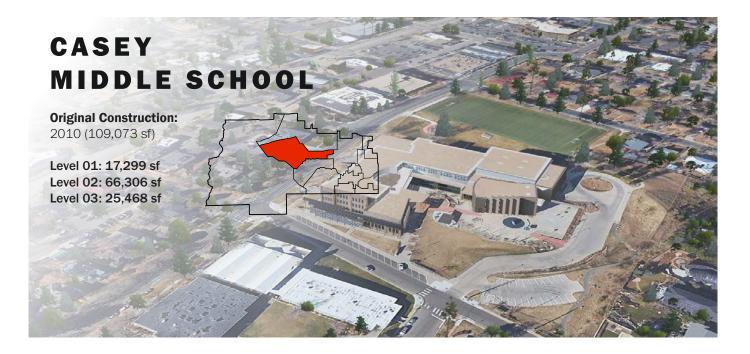










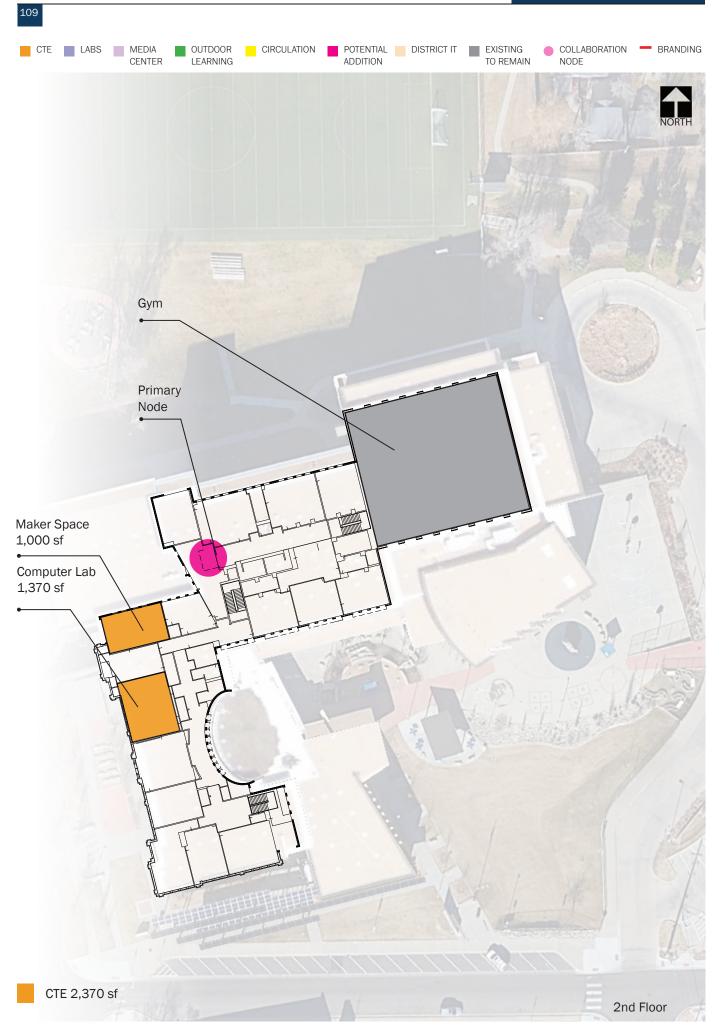


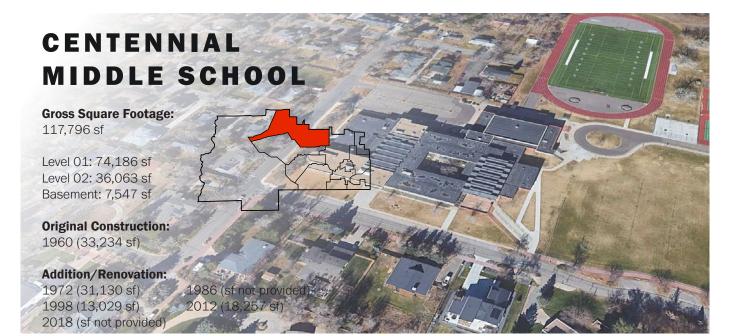


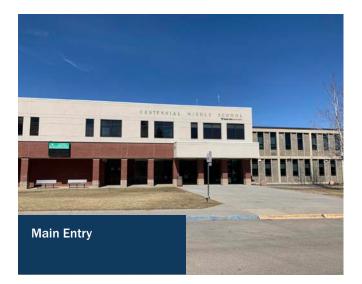






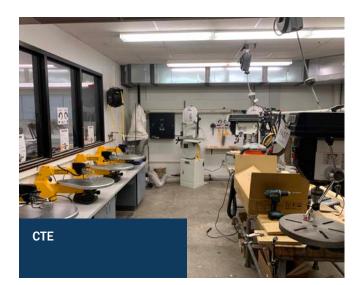


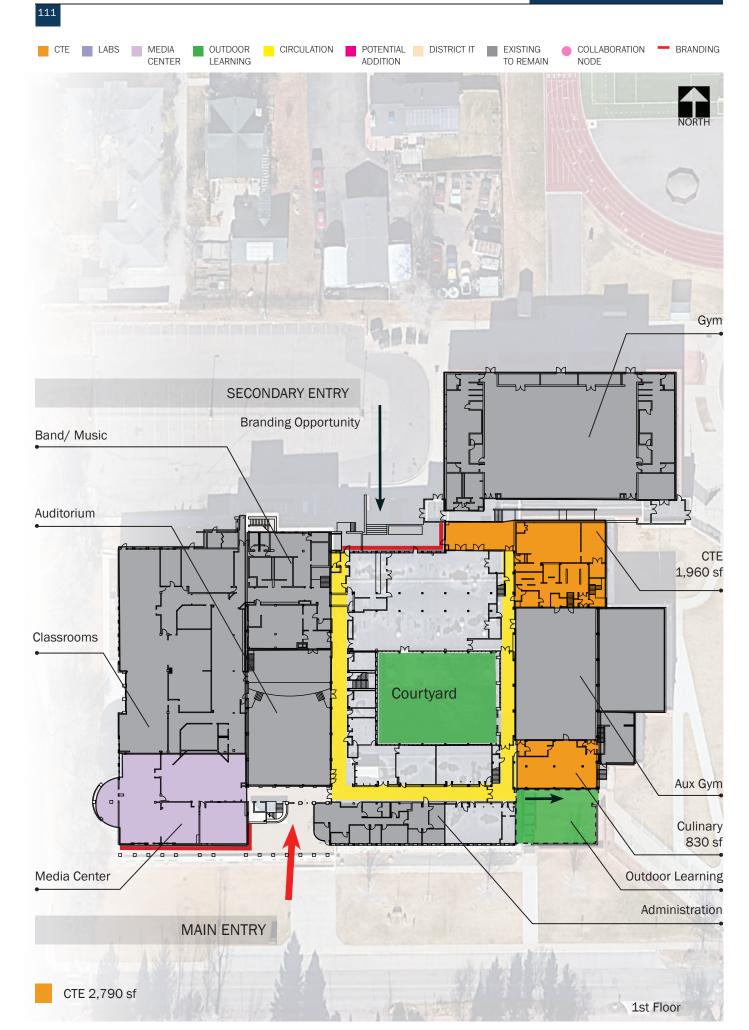








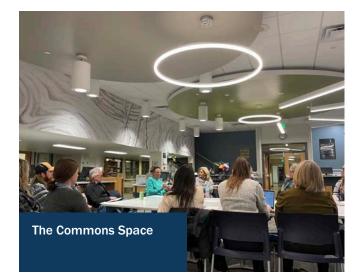




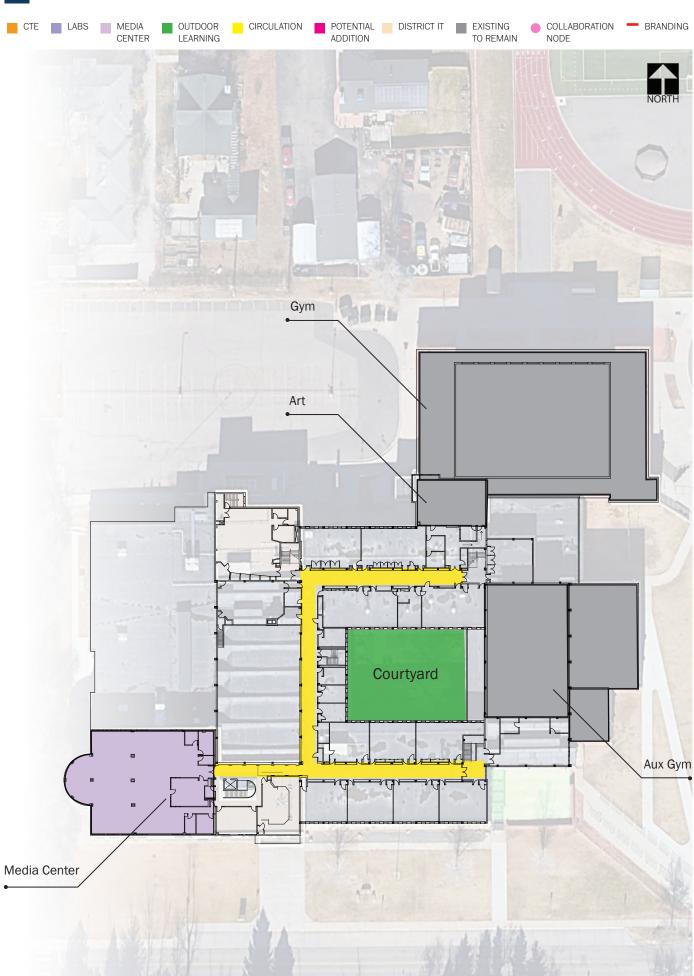












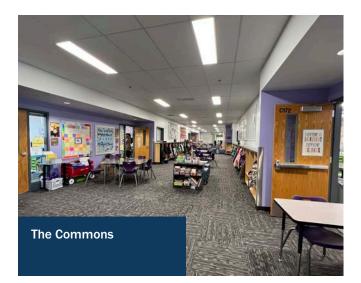
113

2nd Floor

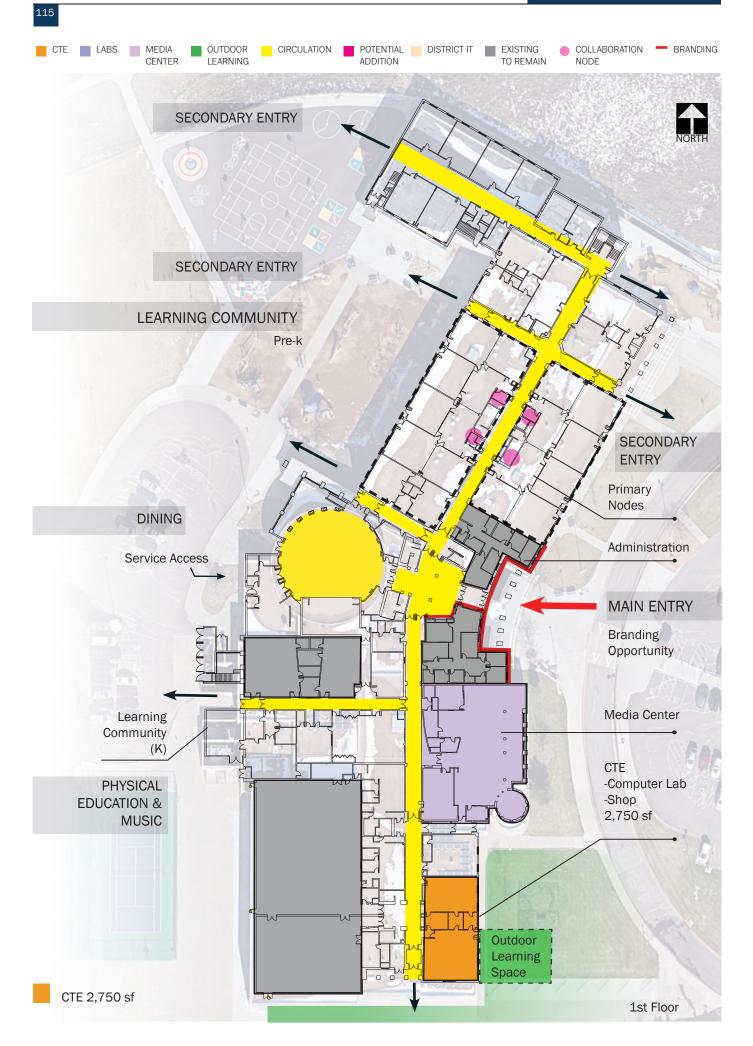




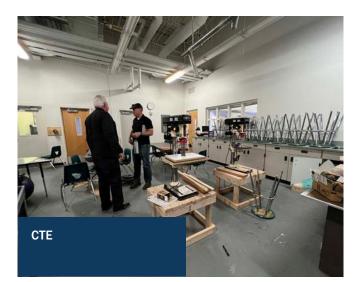








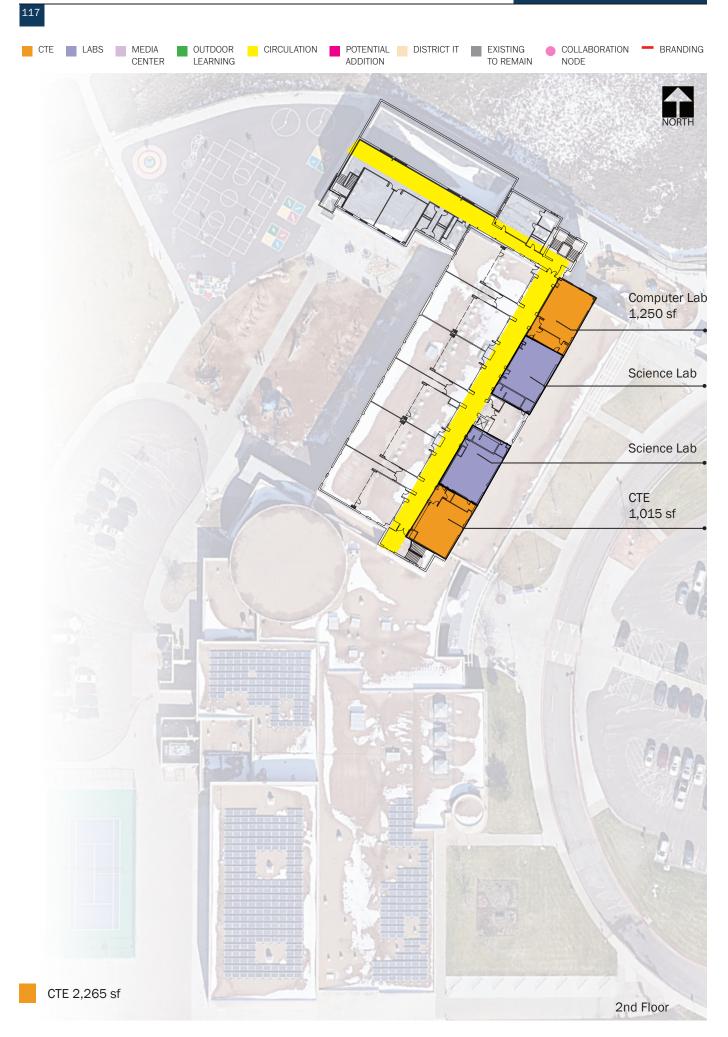












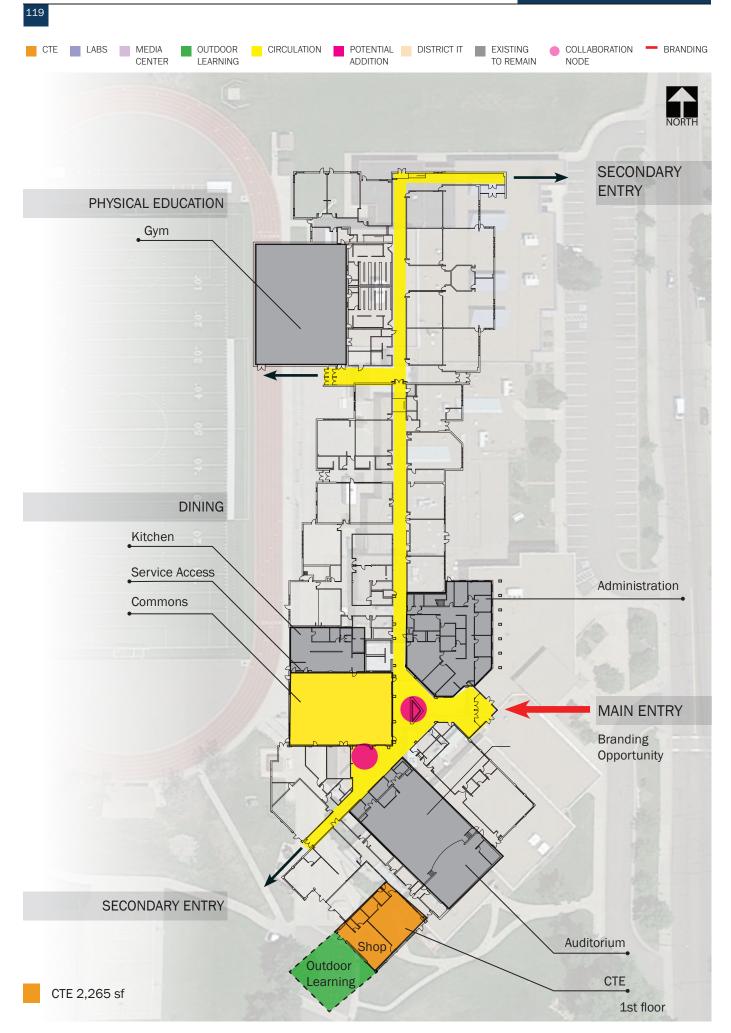












LOUISVILLE MIDDLE SCHOOL

Gross Square Footage: 101,483 sf

Level 01: 93,148 sf Level 02: 8,335 sf

Original Construction: 1939 (5,980 sf remaining)

Addition/Renovation:

1952 (Main floor - 910 sf removed 2009) 1964 (13,566 sf) 1971 (2,564 sf removed 2009) 1983 (9,253 sf) 1990 (25,468

2000 (4,099 sf

2009 (43,117

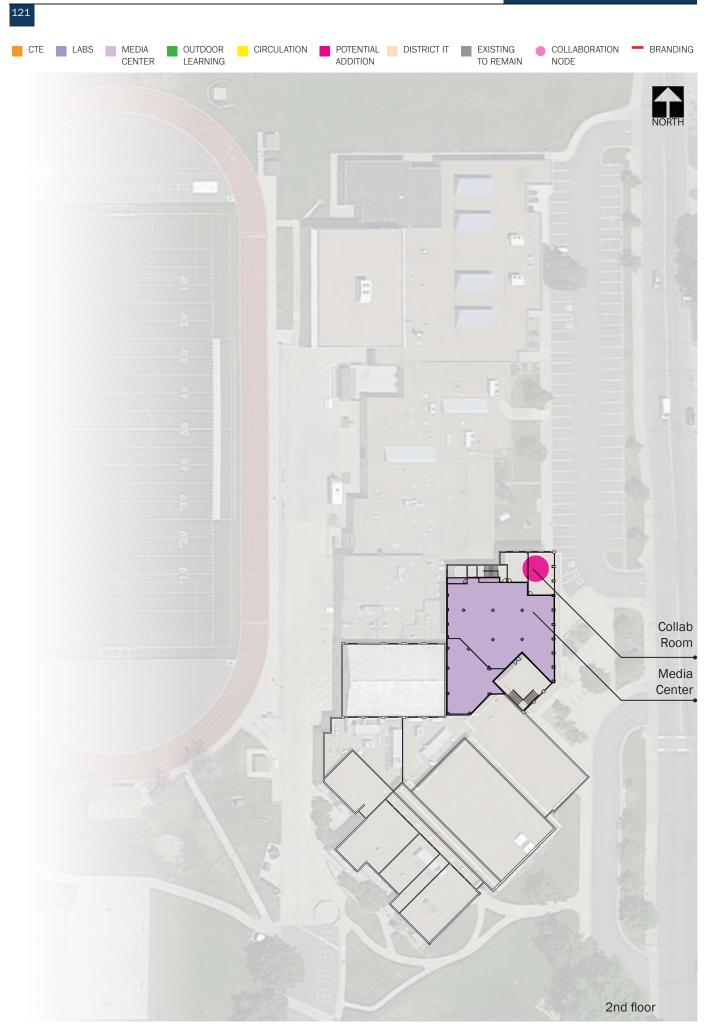
2017 (sf not provided)











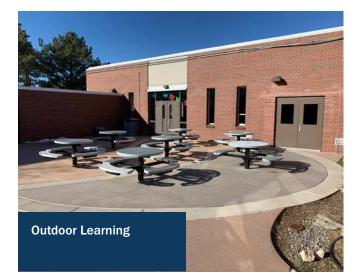
MANHATTAN MIDDLE SCHOOL

Gross Square Footage: 103,646 sf

Original Construction: 1695 (48,079 sf)

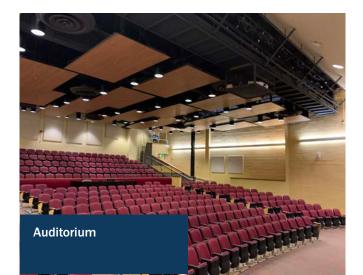
Addition/Renovation:

- (19,428 sf) 1972 (11,529 sf) 1973 (11,529 sf) 1984 (1,659 sf) 2009 (12,917 sf - excludes courtyard) 2017 (10,034 sf)

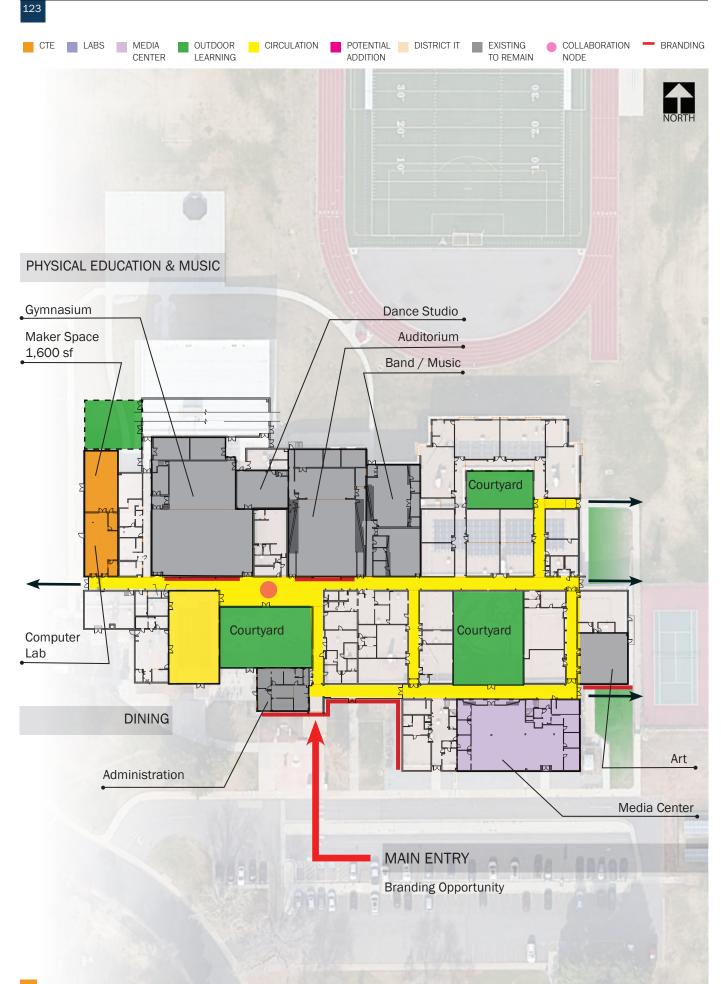




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MONARCH PK8

Gross Square Footage: (sf not provided)

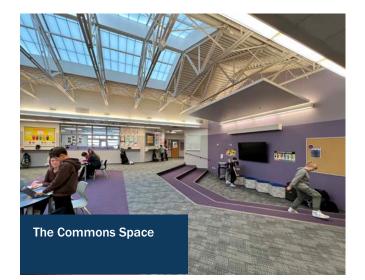
Original Construction: (sf not provided)

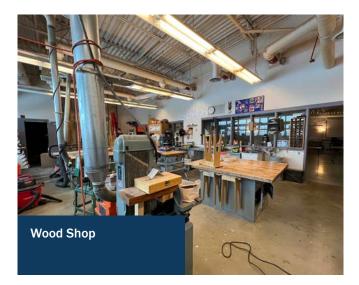
Addition/Renovation: 1998 (4,058 sf) 2011 (3,805 sf)

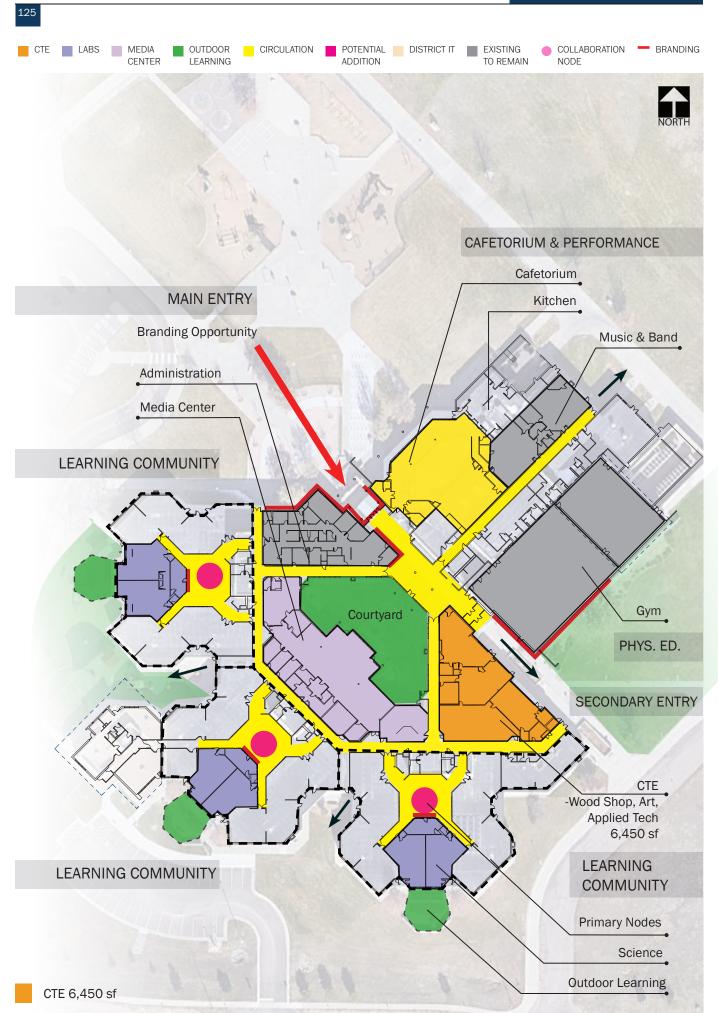












NEVIN PLATT MIDDLE SCHOOL

Gross Square Footage: 129,848 sf

Level 01: 121,848 sf (excludes courtyard) Level 02: 1,868 sf Basement: 6,496 sf

Original Construction: 1958 (69,094 sf) Addition/Renovation: 1963 (48,357 sf) 1969 (sf not provided) 1977 (sf not provided)



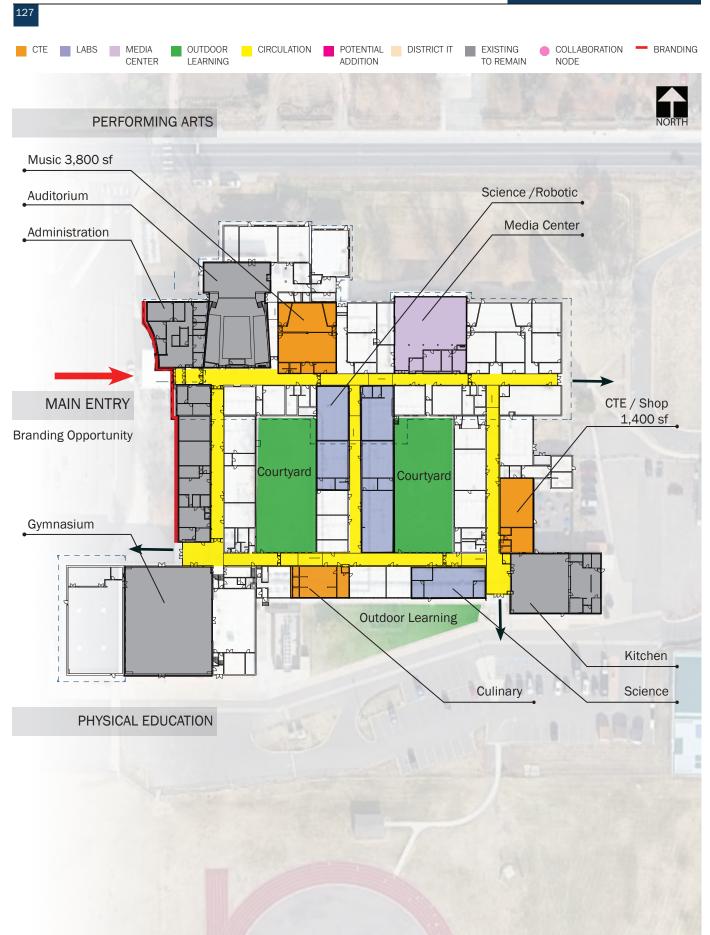
2011 (6,406 sf)

2018 (6,000 sf)







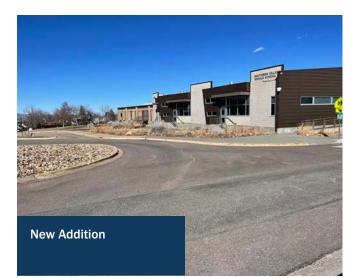


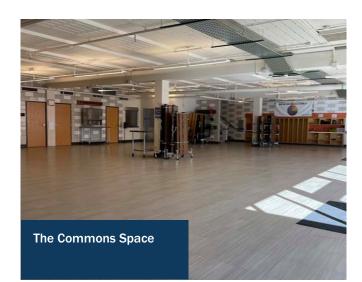
SOUTHERN HILLS MIDDLE SCHOOL

Gross Square Footage: (sf not provided)

Original Construction: (sf not provided)

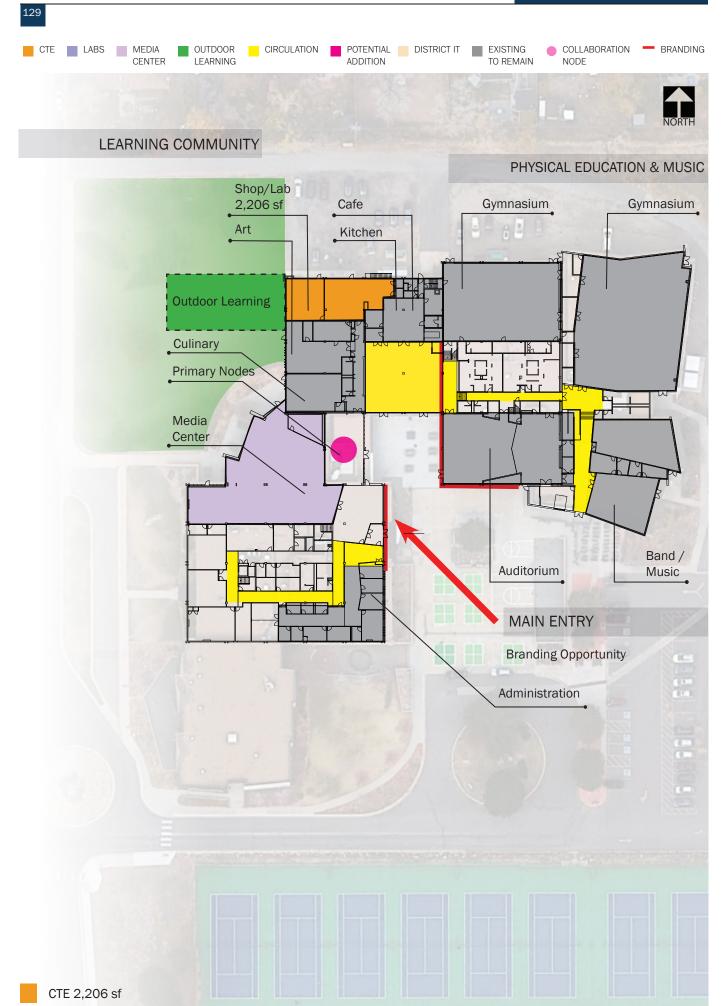
Addition/Renovation: (sf not provided)













MAGE Boulder TEC Instagram

RE-ENVISIONING **HIGH SCHOOL** CAREER TECHNICAL EDUCATION

BVSD HIGH SCHOOL CTE

l.	High School CTE: Challenges and Opportunities	134
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	Centaurus High School	162
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BVSD HIGH SCHOOL CTE CHALLENGES AND OPPORTUNITIES

Existing CTE programming across BVSD high schools presents a range of courses aligned with what would be considered work-based learning/CTE focused curriculum, as compared to a broader consideration of industry pathways.

With opportunity to re-envision the existing structure, in review of the courses offered, it is apparent that there are many existing and new programs that could be linked to industry partners/programs within a career cluster approach. Please note, this program shift and expansion would require policy change regarding how credits are tracked and/or connected to Boulder TEC as it's own programs expand.

WORK-BASED LEARNING IN BVSD

According to the Colorado Workforce Development Council, WBL is a continuum of activities that occur, in part or in whole, in the workplace, providing the learner with hands-on, real-world experience. It combines skill development with training opportunities and is a key strategy in Colorado for developing talent and preparing Coloradans for the workforce and evolving labor market.

Work-based learning (WBL) programs are instrumental in quality career pathways that enable students and job seekers to secure industry-relevant skills, certifications, and credentials and advance to higher levels of education and employment.¹

This CTE Master Plan outlines strategies to increase WBL opportunities throughout BVSD.

¹ https://cwdc.colorado.gov/strategies/work-based-learning ^{IMAGES} Boulder TEC Instagram



WORK-BASED LEARNING IN BVSD

This CTE Master Plan is intended to set an enhanced framework for high school development through the implementation of the current bond program, in an overall framework of now, near, and far.

Work-based learning happens in a wide variety of ways, but includes and is not limited to registered apprenticeships, internships, job shadowing, industry tours, mentorships, and informational interviews, etc. These opportunities allow students to both learn about the work and through the work. Key WBL objectives include:



CAREER AWARENESS AND EXPLORATION

Increase opportunities for building awareness and exploration of careers in PK-8 thru high school.



BRIDGE THE GAP

Implement a district-wide, interactive, career development platform that links recruitment, skill building, and career navigation to bridge the gap between classroom teachers, district support, and business partners.

BUSINESS PARTNERS

Extensive collaboration with County Chambers to identify and curate business partners who can offer WBL and provide support to those businesses working with students.

EQUITABLE PROGRAMMING

Consider solutions to help eliminate barriers for student participation by creating opportunities with better access.

PROFESSIONAL DEVELOPMENT

Develop teacher externship program which will provide career exploration opportunities for teachers to increase knowledge and understanding of careers in the region.

TRANSPORTATION

Develop systems and structures that afford equitable access to CTE resources and programming.



FLEXIBLE SYSTEMS

Implement a system that allows flexibility for students to participate in a wide variety of WBL opportunities that are planned through ICAP. Exploration should not be restricted by specific course codes and should be aligned to required credits.

APPRENTICESHIPS

Expansion of CareerWise apprenticeships in collaboration with County Chambers and other partners.

PBL IN WBL

Utilize current Project Based Learning (PBL) approach to integrate WBL into existing units, connecting with subject matter experts from businesses.

BVSD HIGH SCHOOL CTE PROGRAMS

PATHWAYS OF PASSION

Current BVSD CTE program offerings most often reflect introductory level program/certifications. This CTE Master Plan looks to utilize bond money to reinforce current programs at each high school through a "Design Components" approach that is programmed and developed as part of a Request for Proposal (RFP)/Architecture and Engineering (AE) process at every campus. In addition to the more vertical orientation of pathways per industry, there will be a focus on developing those programs that are common across industries, including but not limited to business/entrepreneurial, coding, public speaking, health and wellness, and so on.

This master plan has studied BVSD campuses that allow for potential additions that could expand CTE/ Industry Partnerships over time. The supporting campus studies (plan diagrams) show additions as incremental groupings of low and high density labs, and a breakout/commons area. These groupings are elaborated upon within the Design Components and phasing/pricing section of this master plan.

The following pages explore potential for pathway development at each high school campus, with alignment to the industry clusters and pathways outlined in this CTE Master Plan.

IMAGES Boulder TEC Instagram

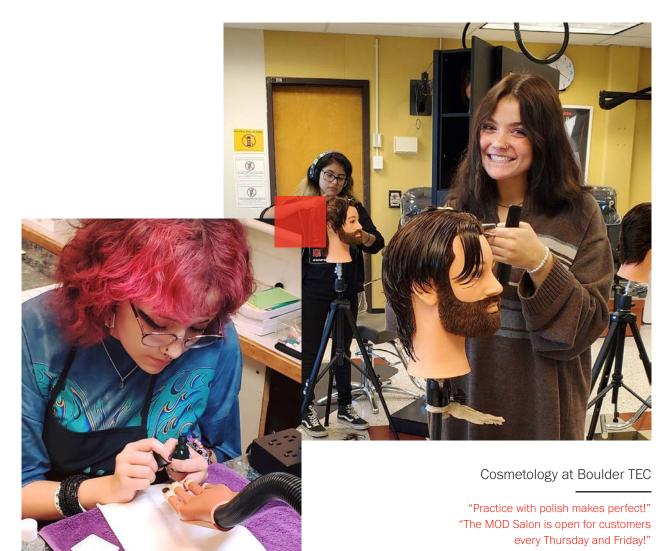
Automotive at Boulder TEC

"Another great week in the books!"

Video Production at Boulder TEC

"Video Production students have a new Instagram account. Give it a follow!"





Biomed at Boulder TEC

"Project Lead the Way with Biomed!"

Welding at Boulder TEC

"Happy Welding Wednesday! Students continue to sharpen their skills in the shop."



Emergency Medical Service at Boulder TEC

"Criminal Justice students took the big wheel and drunk goggles out for a spin as they finished up studying drunk

driving and DUIs."





BVSD Postsecondary partners

CONCURRENT ENROLLMENT

BVSD currently offers college-credit bearing courses across most CTE areas, including but not limited to business/ marketing, computer science, construction, criminal justice, and culinary arts. In recent years, BVSD has demonstrated great growth in this area, now offering opportunity for concurrent enrollment in a number of core academic courses wrapped into CTE pathways.

BVSD postsecondary partners include Front Range Community College, Aims Community College, Metropolitan State University of Denver, University of Colorado at Denver, and University of Colorado at Boulder. The overwhelming majority of concurrent enrollment credits are earned through Front Range Community College.



Front Range Community College has three physical campuses located in Boulder County, Larimer, and Westminster. FRCC offers 48 online programs, offering 28 degree and 18 certificate programs that can be completed fully online. FRCC is the top transfer institution for CU-Boulder, CSU, Colorado Mesa University and CSU Global.

Vision:

Our vision is that all students at Front Range Community College will accomplish their educational and career goals. We will be recognized for our singular focus on student success, our exceptional teaching, our strong commitment to diverse learners and communities, and our effective business and community partnerships. At Front Range Community College, we enrich lives through learning.





IMAGES Front Range Community College Facebook









AIMS COMMUNITY COLLEGE

As a two-year public college with multiple locations in Northern Colorado, Aims Community College recognizes the important role it plays in each student's academic and career success. By creating a thriving community built around inclusion and educational opportunity, the goal is for each student to receive an empowered experience that will prepare them for a successful future.



UNIVERSITY OF COLORADO DENVER

CU Denver is a diverse teaching and learning community that creates, discovers, and applies knowledge to improve the health and well-being of Colorado and the world. The university is committed to creating educational opportunity through their strategic priorities: Student Success, Scholarly Excellence, Community Asset, Inclusive Culture, and Financial Sustainability.



METROPOLITAN STATE UNIVERSITY OF DENVER

Community. Access. Diversity. Respect. Excellence.

MSU Denver is an engaged urban university that promotes mutual relationships between the University and the community, where the intellectual strength of their faculty and the energy of their students is applied to solve real-world problems. MSU Denver benefits from the economic health, cultural health and well-being of the community and promotes the public good through the transformation of urban communities in metropolitan Denver.



UNIVERSITY OF COLORADO BOULDER

University of Colorado Boulder's mission is to serve as the state of Colorado's comprehensive graduate research university with selective admission standards, offering a comprehensive array of undergraduate, master's and doctoral degree programs.

Their vision is to be a leader in identifying and addressing the humanitarian, social and technological challenges of the 21st century.



IMAGE Boulder Colorado: Visit Boulder

https://www.bouldercoloradousa.com/things-to-do/visiting-cu/things-to-do-at-cu/

HIGH SCHOOL Design components

A DESIGN COMPONENTS APPROACH TO TRANSFORMATIONS AT THE HIGH SCHOOLS

After thoughtful synthesis and study of both existing and proposed CTE programming at the high school level, the master plan proposes the following design components to strengthen and enhance connections between students and pathways.

Clarity of Context: Several BVSD high schools currently offer multiple classes/CTE certifications. At each high school, the development of a singular pathway versus multiple classes will need to be defined as project goals and objectives are outlined in the Request for Proposal (RFP) process. The master plan identifies potential interventions at each high school as part of an overall now, near, and far phasing study. For those high schools that have room to expand, the master plan shows an addition that reflects an efficient size incorporating a mix of low- and high-density labs with a commons/breakout space. Within the phasing study, these associated costs have been captured under the 'far'/long term pricing category.

The design components include:

- *Brand Identification at the "front door" that celebrates a true connection between education and industry as described in BVSD's Grad+ initiative.
- Provision of *Experiential Graphics that reflects the enhanced programs of each school within the overall context of the Boulder Valley economy.
- A centrally located "I-Commons" area that supports direct connections to learning on display.





TCALC Topeka, KS

DESIGN METHODOLOGY CONNECTING STUDENTS AND PATHWAYS

- Enhancing existing spaces and places based on program clarification and curriculum development.
 (Each pathway space should be programmed to be flexible and adaptable for long term use.)
- Connecting pathways to circulation and core curriculum both visually and programmatically.
- Strategic building expansions, where site allows, to thoughtfully extend CTE programming. As referenced in the master plan, this is a 'far' or long term goal.

*See the Branding Graphics portion of the master plan for an expanded summary of this scope of work.

BRANDING

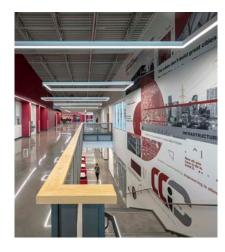
Schools should employ wall graphics and digital display to communicate pride and a strong, positive perception of BVSD's reenvisioned CTE programming.

FURNITURE AND TECHNOLOGY

Furniture selections will promote a welcoming, comfortable, safe, and learner centered environment. Technology should be fluid and ubiquitous. Equipment will be industry driven so as to stimulate (not replicate) real world experiences.

ADJACENCIES THAT INFORM

Ample transparency between learning environments should allow for visible connections, passive supervision and learning on display. Physical connections will be further supported by strategic program/space adjacency.







Cherry Creek Innovation Campus (Centennial, CO)



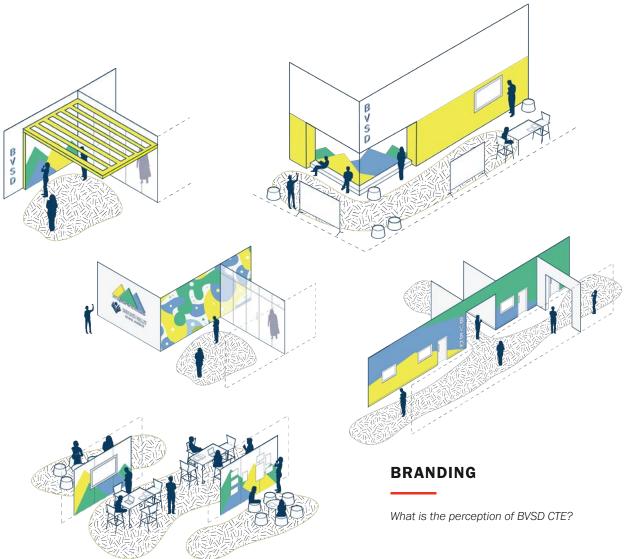




Missouri Innovation Campus (Lee's Summit, MO)

HIGH SCHOOL Design components

Collectively, the facility assessments, visioning workshops, and district and community feedback informed the design components methodology. The design components are built upon programmatic and built elements that align BVSD's pre-planning efforts and future-facing vision for CTE with aim to provide maximum functionality and support for innovative pathway development. Application of the design components will vary at each school but, universally, the design principles should be upheld. The master plan does not detail how the design components will be integrated at each school. This work will begin with project specific implementation through the Request for Proposal (RFP) process after completion of the master plan.





How might learning on display change student and teacher engagement?

HIGH SCHOOL Design components

A DESIGN COMPONENTS APPROACH TO TRANSFORMATIONS AT THE HIGH SCHOOLS



SPACE

Innovative CTE programming at BVSD's high schools should provide for Flexible Learning Spaces, Low-Intensity Labs, High-Intensity Labs, and an Innovation Commons. The space types that support CTE programming, for consideration in BVSD'S high schools, should include:

- Flexible Learning Space
- Low-Intensity Lab
- High-Intensity Lab
- I-Commons (Innovation Commons)

Flexible Learning Space

(High Flexibility I Easily Reconfigured)

The Flexible Learning Space is typically 120-700 sf and can support 4-24 students.



Low-Intensity Lab (Moderate Flexibility)

The Low-Intensity Lab is typically 900-1,400 sf and can support 20-24 students.





*This layout is from the "LearnLab" work done at Steelcase. The X configuration prevents a 'front of the room' condition and encourages eyeto-eye contact which perpetuates trust and a sense of belonging. Typically, these rooms have three presentation screens put in a triangular situation so viewing is easy.



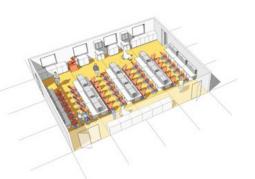


SPACE

Innovative CTE programming at BVSD's high schools should provide for Flexible Learning Spaces, Low-Intensity Labs, High-Intensity Labs, and an Innovation Commons.

High-Intensity Lab (Low Flexibility I Fixed Configurations)

The High-Intensity Lab is typically 2,500-7,500 sf and can support 20-24 students.





I-Commons (Innovation Commons) (Extension of Flexible Learning)

The Innovation Commons provides varied space types to support flexible learning. Spaces within an I-Commons might include:

- Learning Theater
- Maker Space
- Technology Stations
- Learning Stair/Poster Gallery
- Team Rooms
- Collaboration Space
- Dining and Social



RE-ENVISIONING CAREER TECHNICAL EDUCATION



AEROSPACE

TRANSPORTATION (AUTOMOTIVE AND AVIATION)

HEALTH

BIOTECH AND PHARMACY

IMMERSIVE TECH AND AI

HOSPITALITY AND TOURISM

INFRASTRUCTURE

CLEAN ENERGY

IT ADVANCED

MANUFACTURING

OUTDOOR REC

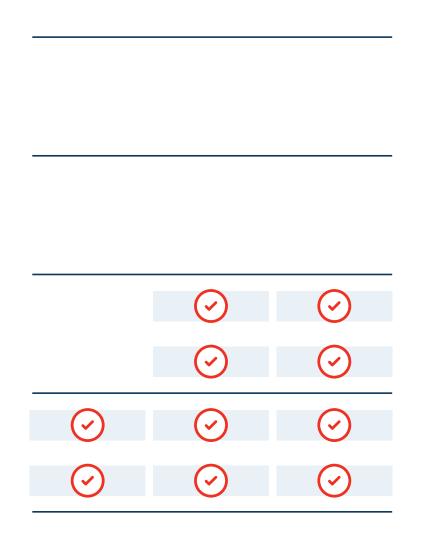
NATURAL PRODUCTS

CTE PATHWAYS IN BVSD

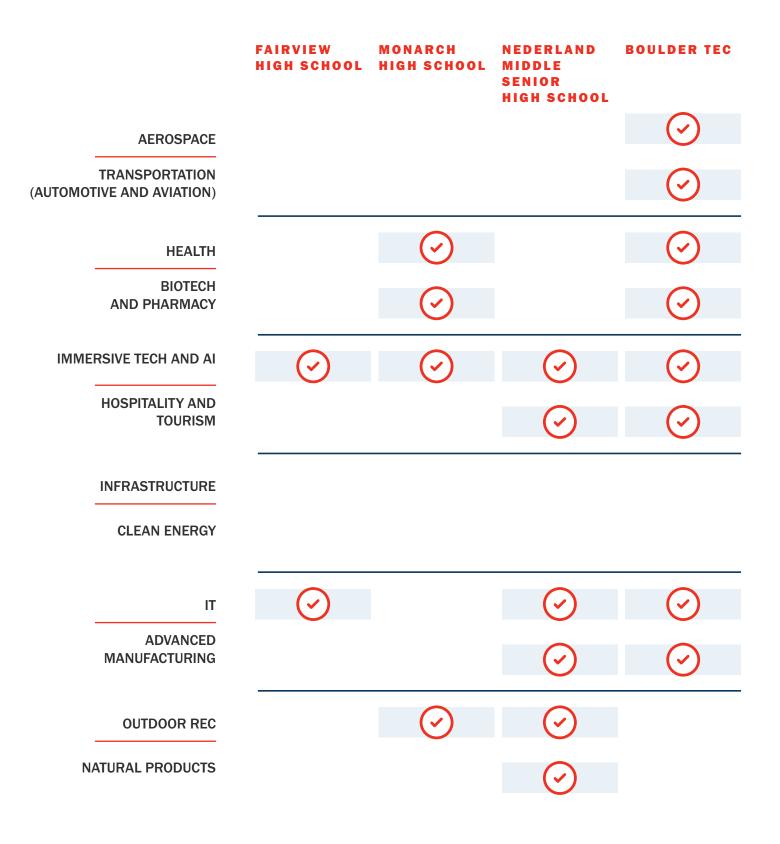
DISTRICT PROGRAMMED AND SCHOOL IMPLEMENTED

The following graphic includes the recommended CTE focus areas for each of BVSD's high schools and Technical Education Center. This is NOT a comprehensive list of all CTE coursework available at each school, but rather areas of focus for investment and industry partnership by location. For expanded rationale, see the community engagement process and industry pathway dashboards documented earlier in this document. (Summary does not include Boulder Valley Charter Schools.)

BOULDER BROOMFIELD CENTAURUS HIGH SCHOOL HIGH SCHOOL HIGH SCHOOL



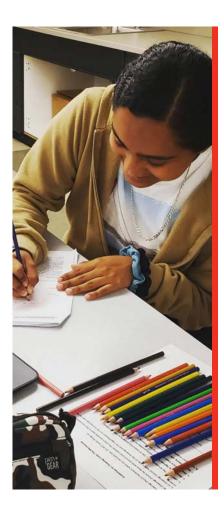
*Please note, the current pathway in development at New Vista High School is Agriculture, Food, and Natural Resources.





BOULDER HIGH SCHOOL

APPLIED DESIGN TECHNOLOGIES AND COMPUTER SCIENCE



POTENTIAL NEW PATHWAYS AT BOULDER HIGH SCHOOL

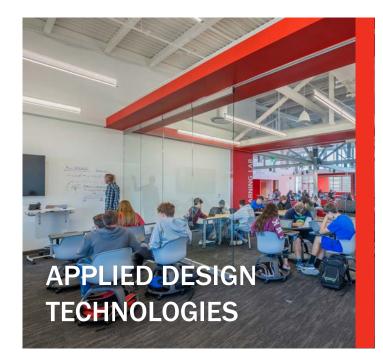
- Graphic Arts
- Skilled Trades

EXISTING CTE PROGRAMMING AT BOULDER HIGH SCHOOL

- Business
- Informational Technology
 and Computer Science
- Arts, Audio Visual Technology, and Communications
- Hospitality and Tourism

- Human Services
- Technology and Industry
- Energy
- Aviation

APPLIED DESIGN TECHNOLOGIES AND COMPUTER SCIENCE BOULDER HIGH SCHOOL



CAREERS

Architect
 Web Designer
 Social Media Specialist
 Manufacturing Designer

Network Manager User Experience Designer

INDUSTRY CERTIFICATIONS

- Adobe Certified Associate (ACA)
- Graphic Design Specialization
- UI/UX Design Specialization
- UX Design Professional Certificate

CAREERS

- Certified Internet Web
 Software Developer
- Computer Programmer
 Web Developer
 Mobile Application Designer

Technical Support Network Administrator

Cyber Security Consultant

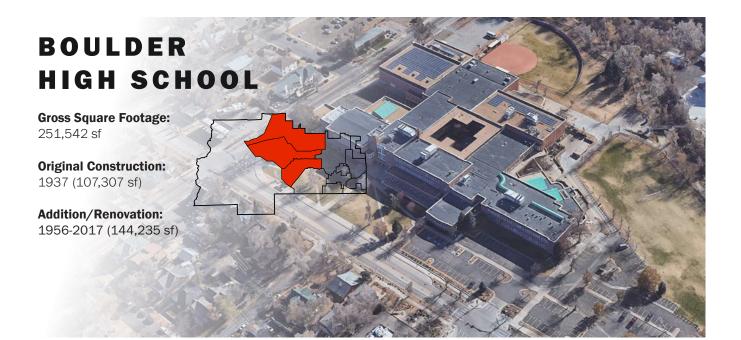
INDUSTRY CERTIFICATIONS

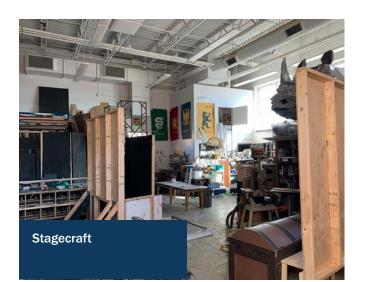
CODING

- Information Technology Specialist OD 306 HTML 5 (Obtainable after one year)
- Information technology Specialist OD 302 Java Script
 (Obtainable after year 2)
- IT Security
- Comp TIA A+
- Comp TIA Security+
- Comp TIA Network+ (or CCNA)
- Testout Office Pro
- Testout Linux Pro
- Testout Client Pro



Supports pathway to a four-year degree.

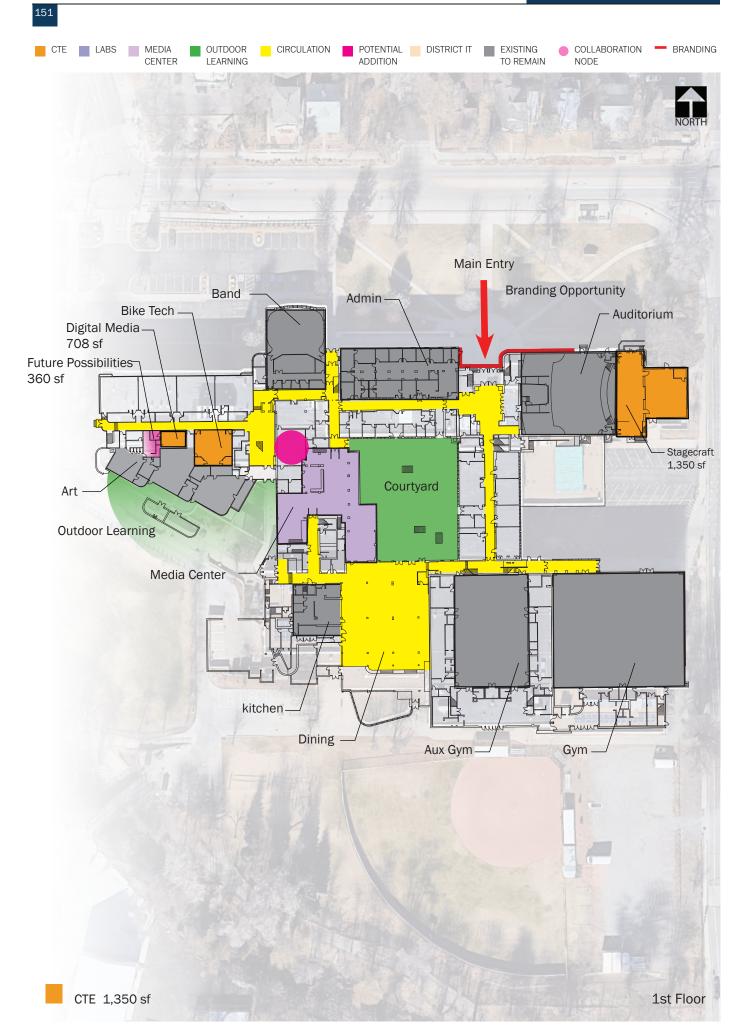


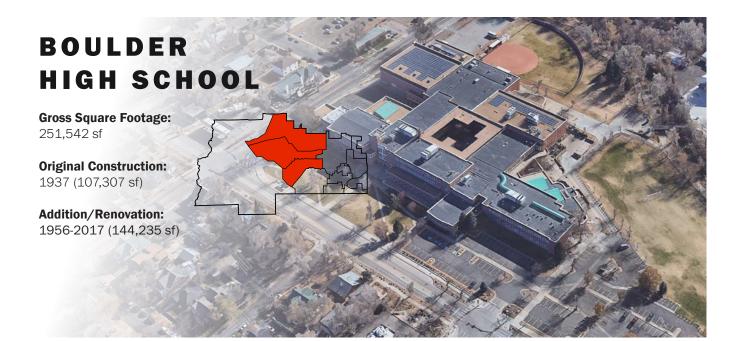










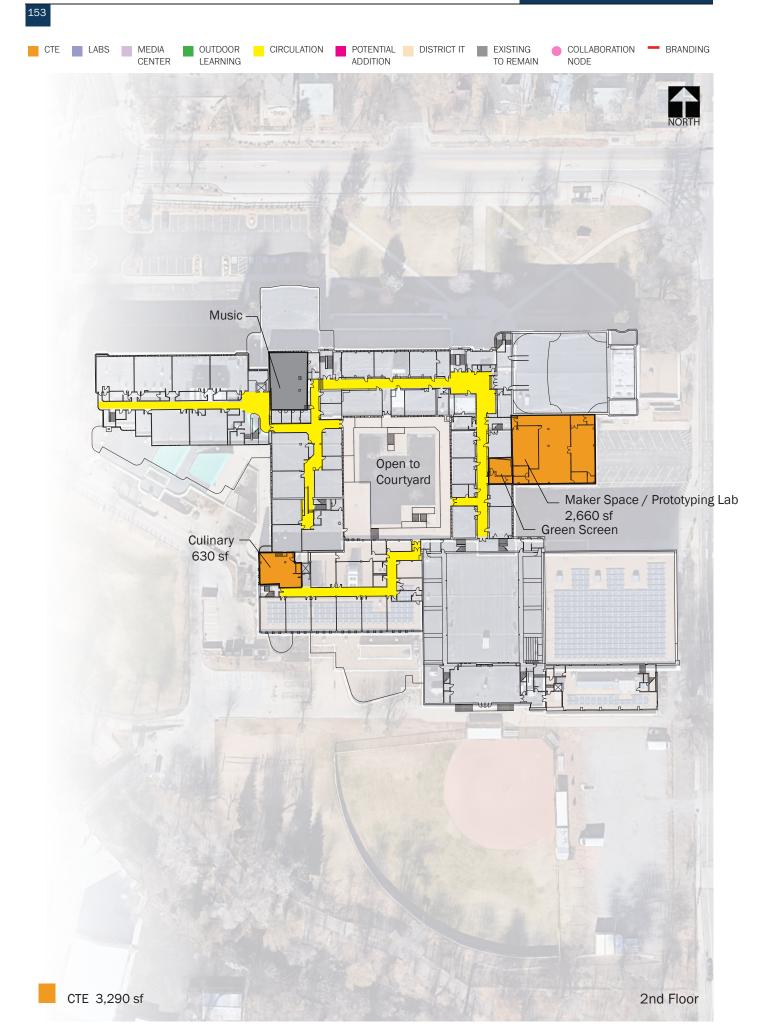


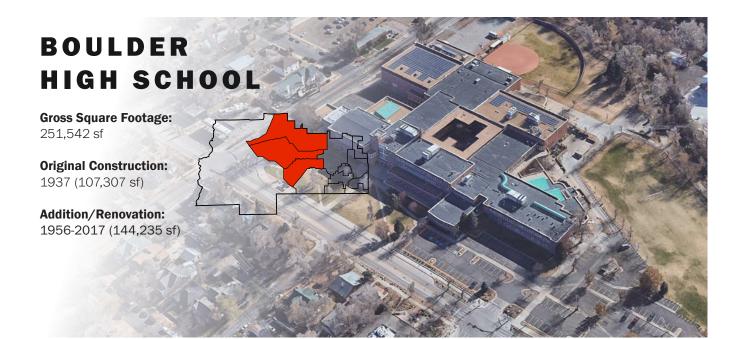








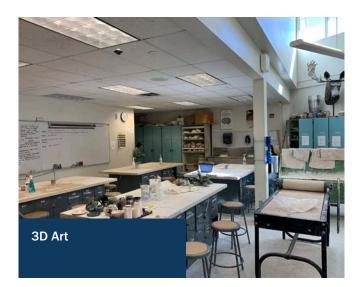


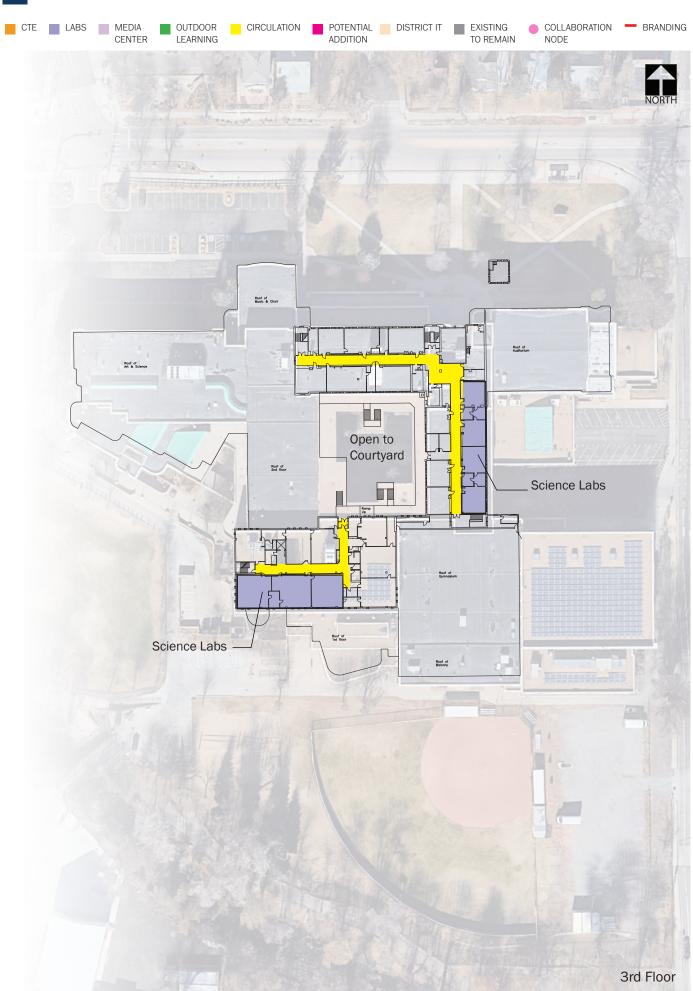












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BROOMFIELD HIGH School

INFRASTRUCTURE AND APPLIED TECHNOLOGY



POTENTIAL NEW PATHWAYS AT BROOMFIELD HIGH SCHOOL

- Medical Science
- Applied Technologies (Computer Science)

EXISTING CTE PROGRAMMING AT BROOMFIELD HIGH SCHOOL

- Business
- Arts, Audio Visual Technology, and Communications

Family Consumer Science

- Construction
- Energy

INFRASTRUCTURE AND APPLIED TECHNOLOGY BROOMFIELD HIGH SCHOOL



CAREERS

- Contractor Construction Manager HVAC Technician Forklift Operator Electrician Carpenter
- Plumber Roofer Landscaper Drywaller Civil Engineer

INDUSTRY CERTIFICATIONS

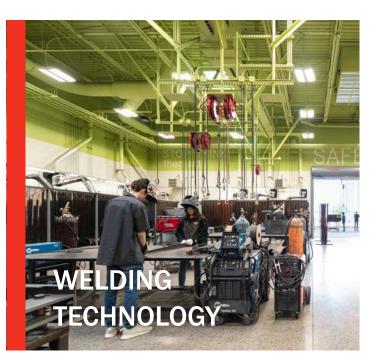
- Occupational Safety and
- Health Administration (OSHA) 10-Hour Card
- Home Builders Institute (HBI) Pre-Apprenticeship Certificate Training (PACT)
- National Center for Construction Education and Research (NCCER) Credentials
- OSHA Forklift Certification Training

CAREERS

- Structural Welder Welding Supervisor Manufacturing Welder Certified Welding Inspector
- Iron Worker Pipe Fitter Sheet Metal Worker

INDUSTRY CERTIFICATIONS

- American Welding Society (AWS) 2G SMAW, 3G SMAW, 4G SMAW, 2G FCAW, 3G FCAW, 4G FCAW (Flat plate, pipe, T joint, etc)
- Occupational Safety & Health Administration-OSHA 10
- NCCER Certifications Core Curriculum -
- Welding Levels 1 & 2
- NC3 Snap-On- Precision Measuring Angles and Rulers



INFRASTRUCTURE AND APPLIED TECHNOLOGY BROOMFIELD HIGH SCHOOL



CAREERS

Industrial Plant Mgr. Industrial Production Mgr.

Industrial Designer
 Wind Turbine Technician
 Solar Technician
 Grid Engineering and
 Distributed Energy
 Specialist

Natural Gas Worker Project Planner Outage Planner

- ★ Mechanical Engineer
- ★ Electrical Engineer

INDUSTRY CERTIFICATIONS

 National Center for Construction Education and Research (NCCER) Alternative Energy and Industrial Maintenance Mechanic and E&I Technician

- OSHA 10 Safety Certification
- OSHA Scaffold Safety Awareness Certificate
- OSHA Forklift Certification Training
- Wind Turbine Technician Certification
- First Aid, CPR, and AED Instructor

• North American Board of Certified Energy Practitioners (NABCEP): Residential & Commercial Photovoltaic Systems Certification,

Battery Based Photovoltaic Certification,

Solar Business and Tech sales Certification, Developing World Applications Certification,

Renewable Energy Applications Certification,

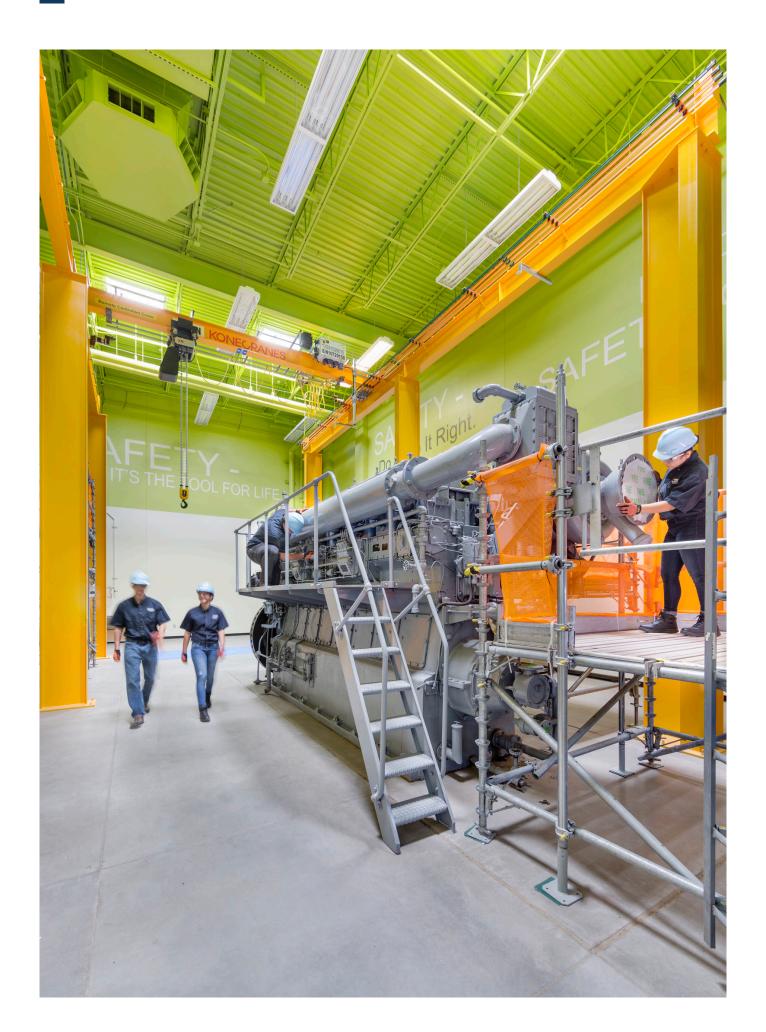
Solar Professionals Trainer Certification,

Solar Energy International; Solar Professionals, Certification Program Certification

• National Commission for the Certification of Crane Operators (NCCCO-CCO) Mobile Crane Operator Certification, Rigger Certification

• National Coalition of Certification Centers (NC3): Precision Measuring Certification, Torque Certification, Multimeter Certification

Supports pathway to a four-year degree.



BROOMFIELD HIGH SCHOOL

Gross Square Footage: 241,488 sf

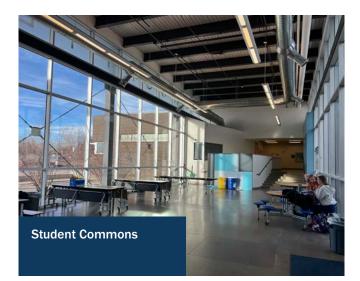
Original Construction: 1959 (13,498 sf)

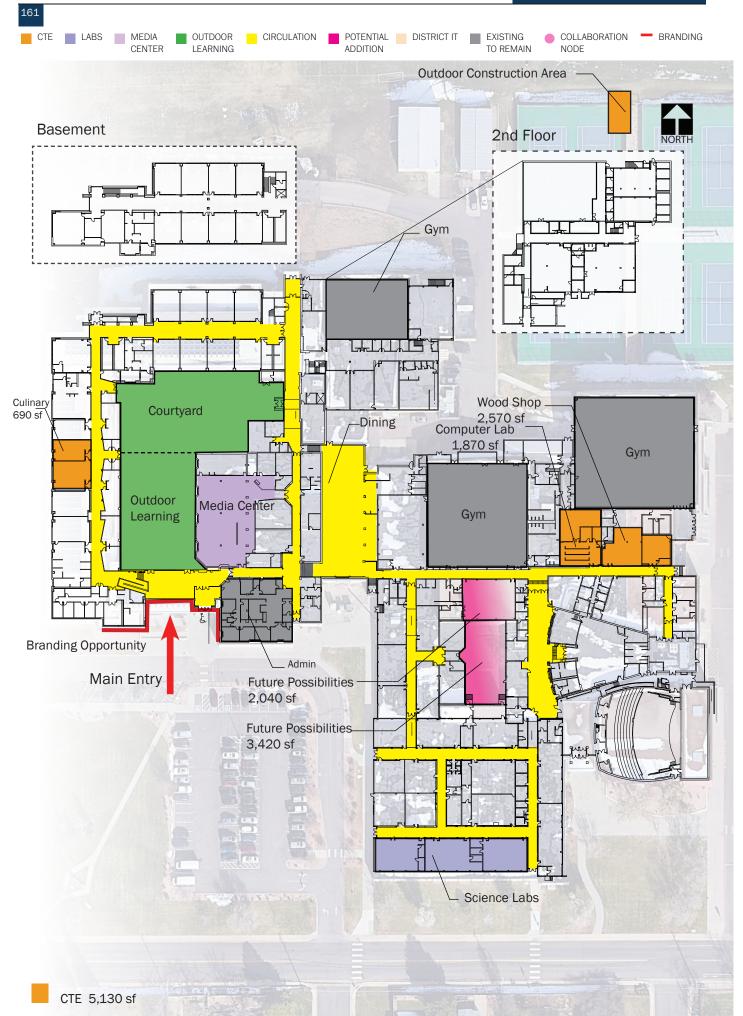
Addition/Renovation: 1964-1983 (16,502 sf)

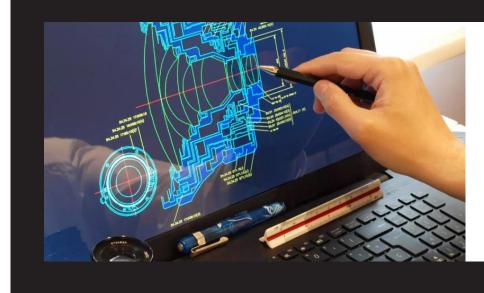












CENTAURUS HIGH SCHOOL

ENGINEERING AND IT AND STEAM



POTENTIAL NEW PATHWAYS AT CENTAURUS HIGH SCHOOL

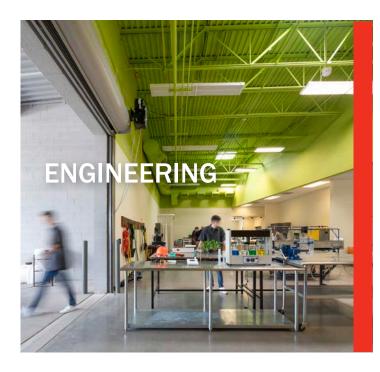
• Graphic Arts

EXISTING CTE PROGRAMMING AT CENTAURUS HIGH SCHOOL

- Marketing
- Computer Programming
- Arts, Audio Visual Technology, and Communications
- Engineering

- Family Consumer Science
- Energy

ENGINEERING AND IT AND STEAM CENTAURUS HIGH SCHOOL



CAREERS

- 🔶 Systems Engineer
- 🚖 Electrical Engineer
- 🔶 Mechanical Engineer 🔶 Petroleum Engineer
- 🔶 Chemical Engineer
- Nuclear Engineer

INDUSTRY CERTIFICATIONS

📌 Aerospace Engineer

🔶 Computer Hardware Engineer

 National Center for Construction Education and Research (NCCER) Alternative Energy and Industrial Maintenance Mechanic and E&I Technician

- OSHA 10
- OSHA Scaffold Safety Awareness Certificate
- OSHA Forklift Certification Training

CAREERS

- 🛉 Network Administrator
- T or STEAM Educator
- Mechanical Engineer
- 🛉 Computer Engineer
- Architect

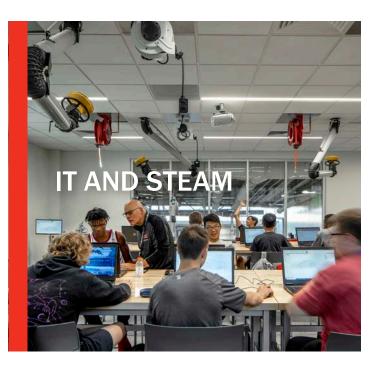
- ✤ Product Designer
- 🔶 Data Analyst
- 🕈 Game Designer
 - IT Support Specialist

INDUSTRY CERTIFICATIONS

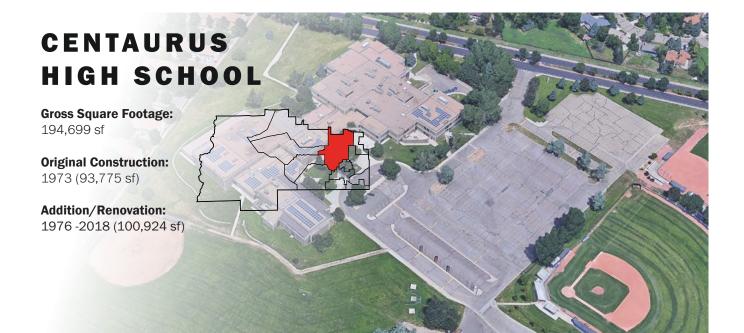
- Certified SOLIDWORKS Associate (CSWA)
- Certified Additive Manufacturing Associate (CSWA-MA)
- CompTIA A+, Network+
- TestOut PC Pro, Network Pro
- Makerbot 3D Printing Certification
- Autodesk Certified User (ACU) Certification
- ITF (Information Technology Fundamentals)
- CCNA (Cisco Certified Network Associate)
- RHCSA (Red Hat Certified System Administrator)
- EHE (Ethical Hacking Essentials)
- AWS Cloud Practitioner
- PC Pro

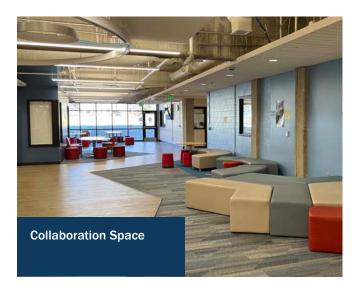
• Security Pro

- A+ Network+
- Ethical Hacking Pro Security+



Supports pathway to a four-year degree.



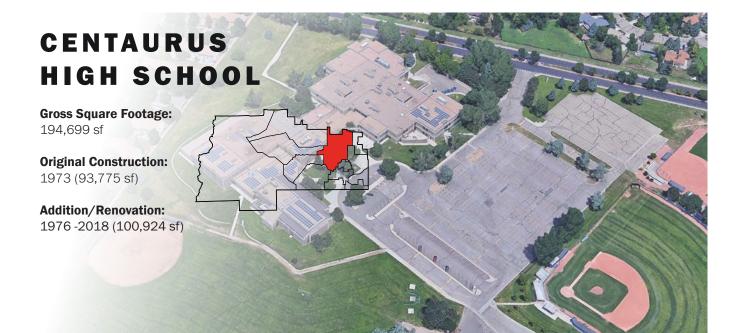
























FAIRVIEW HIGH SCHOOL

IMMERSIVE TECHNOLOGY AND ARTIFICIAL INTELLIGENCE



POTENTIAL NEW PATHWAYS AT FAIRVIEW HIGH SCHOOL

- Graphic Arts
- Immersive Technologies
- Artificial Intelligence

EXISTING CTE PROGRAMMING AT FAIRVIEW HIGH SCHOOL

- Business
- Informational Technology
 and Computer Science
- Arts, Audio Visual Technology, and Communications
- Family Consumer Science
- Energy

IMMERSIVE TECHNOLOGY AND ARTIFICIAL INTELLIGENCE FAIRVIEW HIGH SCHOOL



CAREERS

- Augmented Reality (AR)
 Designer and Developer,
- Virtual Reality (VR)
 Designer and Developer,
- 🔶 Software Engineer,
- 🔶 Design Artist,
- 🔶 Animator,
- ★ Sound Artist,
- 🔶 Al Engineer

INDUSTRY CERTIFICATIONS

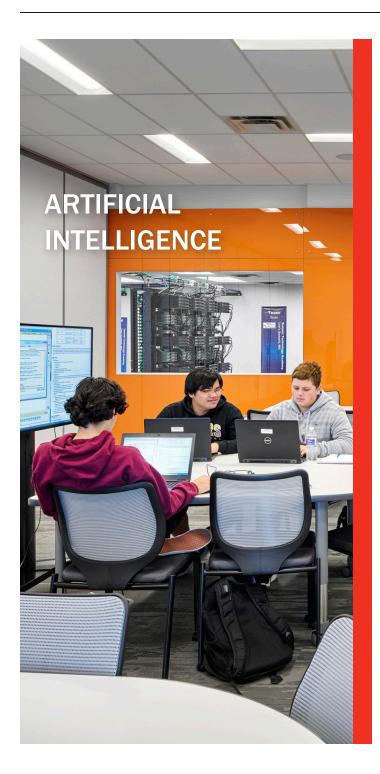
- Unity VR Developer Certification
- Professional Certificate in AR/VR Development and 3D Graphics
- Certified AR Expert
- Certified VR Expert
- Professional Certificate in Unreal Engine Foundations
- Adobe Certified Professional: Graphic Design &
- Illustrations Using Adobe Illustrator (Ai),
- Adobe Certified Professional: Visual Effects & Motion Graphics Using Adobe After Effects (Ae),

• Adobe Certified Professional: Multiplatform Animation Using Adobe Animate (An),

• Adobe Certified Professional: Print & Digital Media Publication Using Adobe InDesign (Id),

• Adobe Certified Professional: Visual Design Using Photoshop (Ps), • Adobe Certified Professional: Digital Video Using Premiere Pro (Pr)

IMMERSIVE TECHNOLOGY AND ARTIFICIAL INTELLIGENCE FAIRVIEW HIGH SCHOOL



CAREERS

- 🚖 Big Data Engineer
- Business Intelligence
- 🕈 Developer
- 🕈 Data Scientist
- 🔶 Machine Learning Engineer 🔶 UX Developer
- ★ Research Scientist
- 🖈 Al Data Analyst

INDUSTRY CERTIFICATIONS

- IBM Applied AI Professional Certificate
- IBM AI Engineering Professional Certificate
- Google IT Automation with Python Professional Certificate
- AIBiz (Foundational Training Certifications)

✤ Product Manager

🕈 Robotics Engineer

\star Al Engineer

★ NLP engineer

★ Researcher

🔶 Data Mining

IMMERSIVE TECHNOLOGY AND ARTIFICIAL INTELLIGENCE FAIRVIEW HIGH SCHOOL



★ Product Developer

Marketing Specialist

Multimedia Artist

🔶 Art Director

🔶 Animator

Freelancer

CAREERS

Directing

- ★ Script Development
- Production Planning
- Art Design and Shooting
- ★ Filming★ Post-Production
- Distribution/ Marketing

INDUSTRY CERTIFICATIONS

- Digital Media Video Production Certificate
- Certificate of Achievement (ACH), Digital Film making

CAREERS

- 🕈 Graphic Designer
- Creative Director
 User Experience (UX)
 Designer
- ★ User Interface (UI) Designer
- Production Artist

INDUSTRY CERTIFICATIONS

- 3-D Arts Undergraduate Certificate
- User Experience Undergraduate Certificate
- Visual Design Undergraduate Certificate
- Adobe Certified Associate (ACA)
- Graphic Design Specialization
- UI/UX Design Specialization
- UX Design Professional Certificate
- Graphic Design Elements for Non-Designers Specialization
- Professional Certificate in Graphic Design
- Graphic and Digital Design Certificate



Supports pathway to a four-year degree.

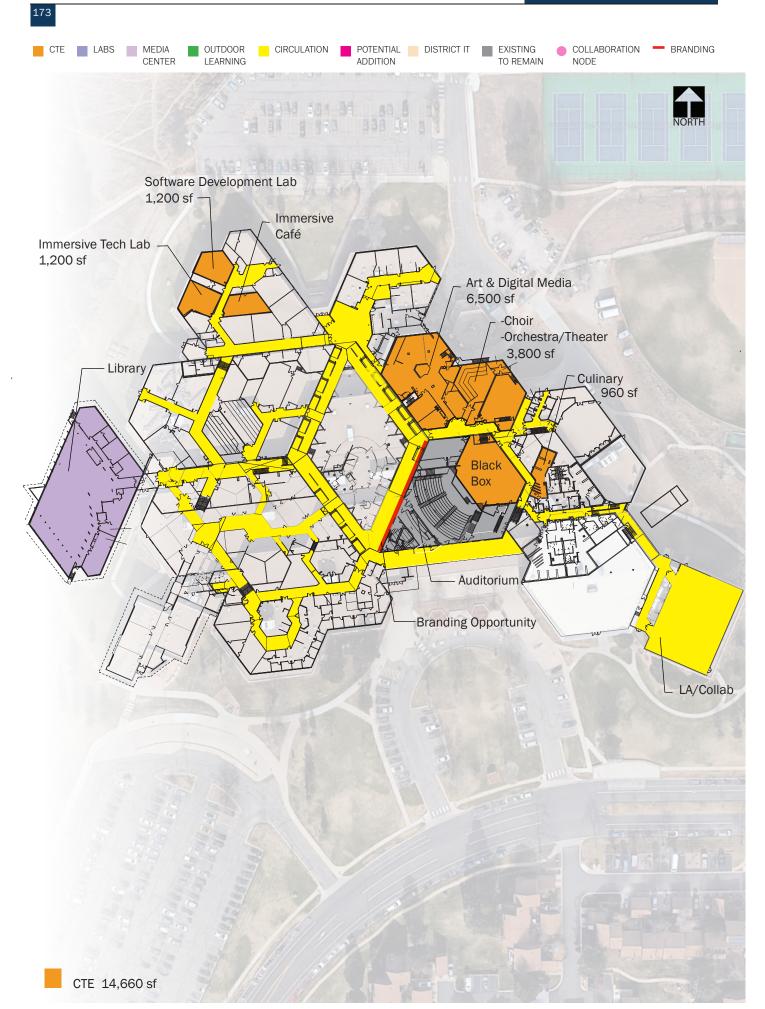














MONARCH HIGH School

SPORTS MEDICINE, SPORTS JOURNALISM, AND E GAMING



POTENTIAL NEW PATHWAYS AT MONARCH HIGH SCHOOL

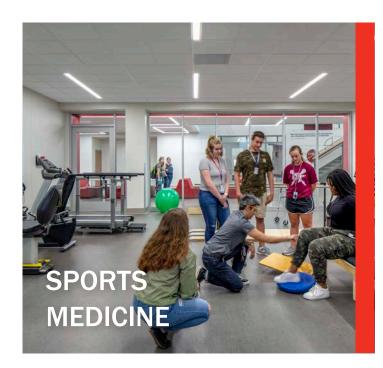
- Medical Science
- Graphic Arts

EXISTING CTE PROGRAMMING AT MONARCH HIGH SCHOOL

- Business/Marketing
- Informational Technology
 and Computer Science
- Pre-Engineering
- Health

- Arts, Audio Visual Technology, and Communications
- Family Consumer Science

SPORTS MEDICINE, SPORTS JOURNALISM AND E GAMING **MONARCH HIGH SCHOOL**



CAREERS

EMT/Paramedic Fitness/Personal Trainer

- ★ Occupational Therapist
- Athletic Trainer
- Exercise Physiologist
- + Physician
- ★ Physical Therapist

INDUSTRY CERTIFICATIONS

- Behavioral Health Technician Certificate
- Certified Nurse Aide Certificate
- CPR/First Aid, AED Certificate
- Pharmacy Technician Certificate
- Emergency Medical Responder (EMR) Certificate
- Paramedic/Emergency Medical Technician (EMT) Certificate
- Physical Therapy Technician/Aide Certification (PTTC)
- Personal Trainer Certification

CAREERS

- ★ Sports Writer/Editor
- ★ Sports Reporter
- ★ Sports Content Researcher Sports Blogger
- ★ Communications Director/Coordinator
- ★ Sports Information Director



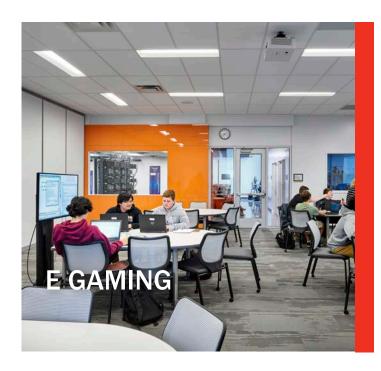
COMPETE CREATE, AND LEARN

The foundation of Generation ESports is scholastic gaming and the positive impact of video games in schools. Generation Esports runs the largest league for high school ESports and is rapidly growing it's middle school and college leagues. Generation ESports offers ESports courses, written by educators, that teach students about gaming, computer parts, design and content creation, health and <u>safety, and more. Plus, each course has a special</u> focus on mental health.¹

https://www.generationesports.com/about



SPORTS MEDICINE, SPORTS JOURNALISM AND E GAMING MONARCH HIGH SCHOOL



CAREERS

- \star Game Designer
- ESports Analyst
- Software Engineer
 Sales Executive
- ESports Coach

★ Nutritionist

- ★ ESports Journalist
- ★ Media Manager

INDUSTRY CERTIFICATIONS

- Information Technology Specialist OD 306 HTML 5 (Obtainable after one year)
- Information technology Specialist OD 302 Java Script (Obtainable after year 2)• Game Design Undergraduate Certificate
- Professional Certificate in Computer Science for Game Development
- Higher Certificate in Game Development and Design
- Games and Simulation Certificate
- Instructional Design for Simulations Certificate
- Web Application Development Graduate Certificate
- Serious Game Design MA Certificate
- Graduate Certificate in Game Design
- Video Game Design and Development Certificate
- Software Design and Programming Certificate
- Graduate Certificate in Educational Games and Simulations

MONARCH HIGH SCHOOL

Gross Square Footage: 241,823 sf

Original Construction: 1998 (233,909 sf)

Addition/Renovation: 2012 - 2018 (7,914 sf)

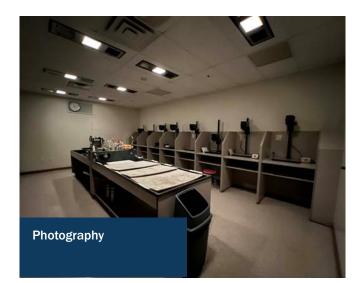




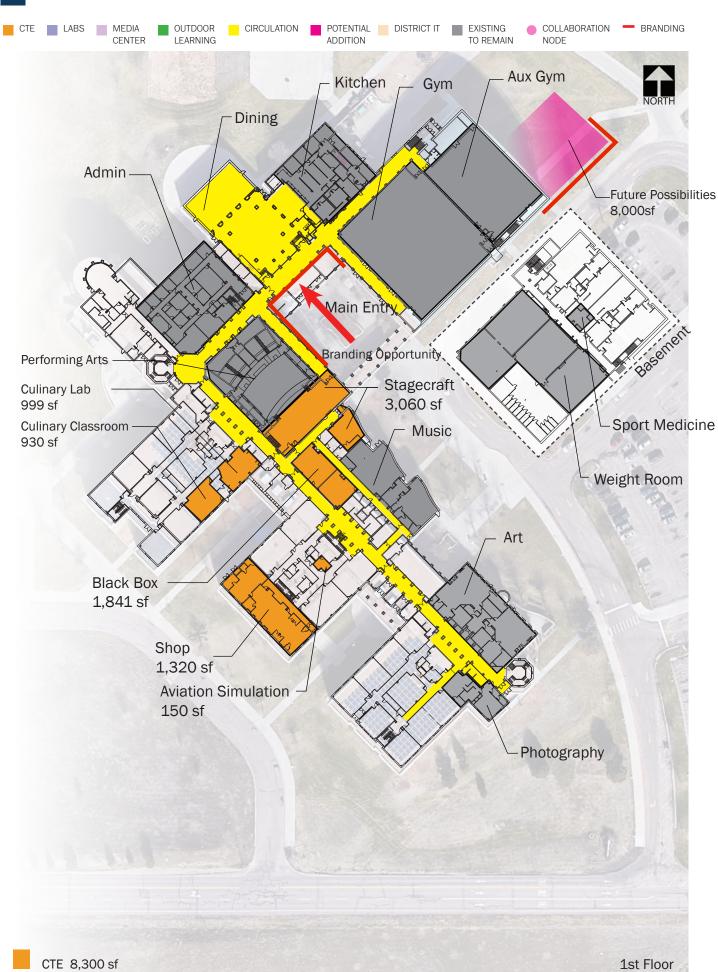
I REDUCTION

PELLIP





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MONARCH HIGH SCHOOL

Gross Square Footage: 241,823 sf

Original Construction: 1998 (233,909 sf)

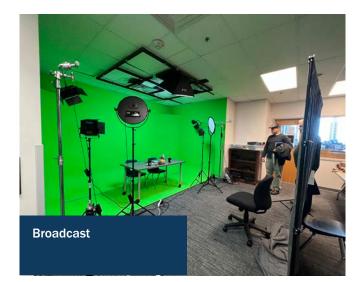
Addition/Renovation: 2012 - 2018 (7,914 sf)



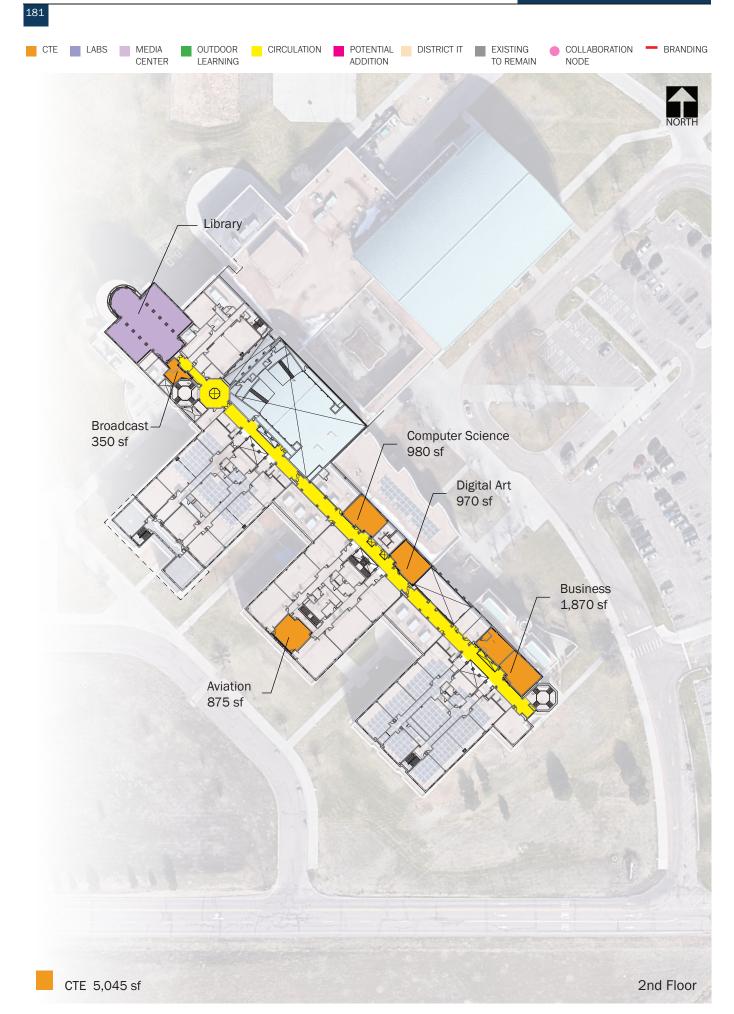


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NEDERLAND MIDDLE SENIOR HIGH SCHOOL

OUTDOOR RECREATION AND NATURAL PRODUCTS



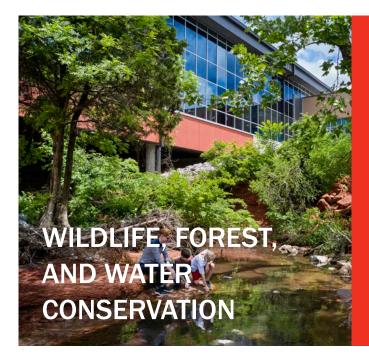
POTENTIAL NEW PATHWAYS AT NEDERLAND HIGH SCHOOL

• None

EXISTING CTE PROGRAMMING AT NEDERLAND MIDDLE SENIOR HIGH SCHOOL

- Business
- Informational Technology
 and Computer Science
- Arts, Audio Visual Technology, and Communications
- Construction
- Energy
- Agriculture and
 Outdoor Leadership

OUTDOOR RECREATION AND NATURAL PRODUCTS NEDERLAND MIDDLE SENIOR HIGH SCHOOL



CAREERS

- ★ Forester Fishing and Hunting Guide
- Conservation Scientist
 Forest and Conservation Technician
 Forest Fire Inspector
 Recreational Lake and River Manager
- ★ Lake and Pond Restoration Specialist Wildlife Crisis Manager

INDUSTRY CERTIFICATIONS

- Wilderness First Aid
- CPR
- Wilderness First Responder
- Leave No Trace
- Colorado River Watch
- Colorado Certified Water Professionals (CCWP)
- Ducks Unlimited Ecology Conservation and Management



Ski Resort Manager
 Ski/Safety Patrol
 Snow Making Operator
 Ski Instructor
 Gear Tester
 Amusement Park Operator
 Water Park Operator
 Campgrounds Operator
 Overnight Camp Management
 State/Federal Park Ranger

INDUSTRY CERTIFICATIONS

- AIARE Avalanche 1
- CPR
- Wilderness First Aid
- Wilderness First Responder



NEDERLAND MIDDLE SENIOR HIGH SCH

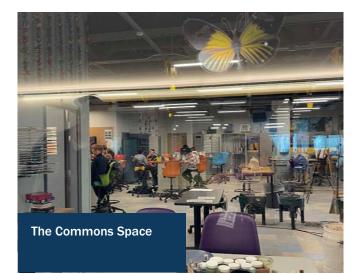
Gross Square Footage: 102,168 sf

Level 01: 58,372 sf Level 02: 43,796 sf

Original Construction: 1971 (53,576 sf)

Addition/Renovation: 1975 (978 sf - Level 01) 1983 (10,417 sf) 1990 (14,779 sf)

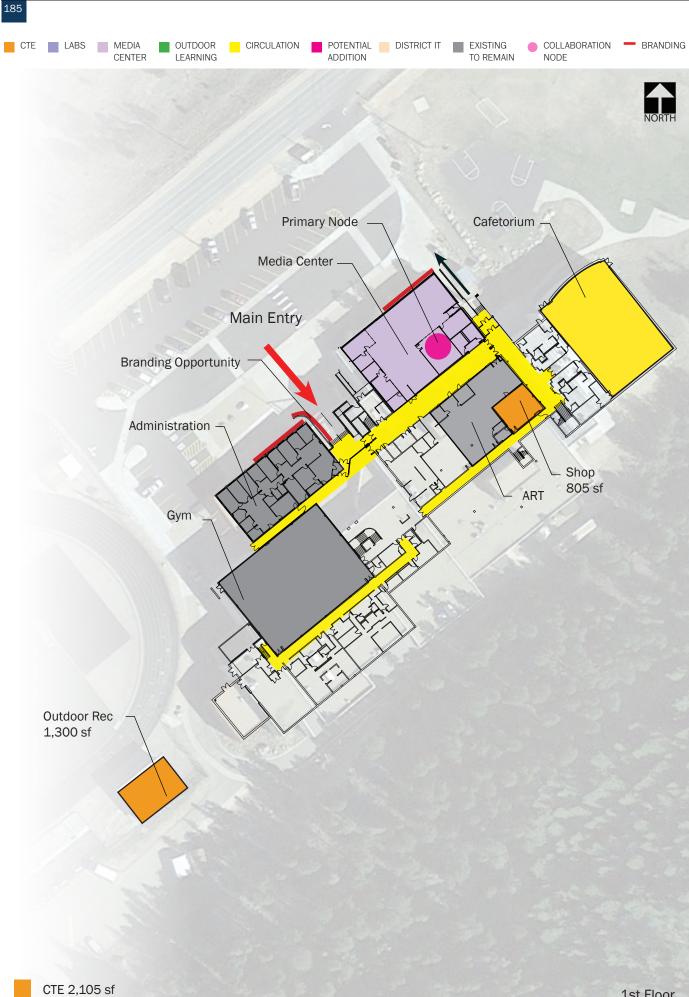
1996 (18,426 sf) 2011 (3,992 sf - Level 0











NEDERLAND MIDDLE SENIOR HIGH SCH

Gross Square Footage: 102,168 sf

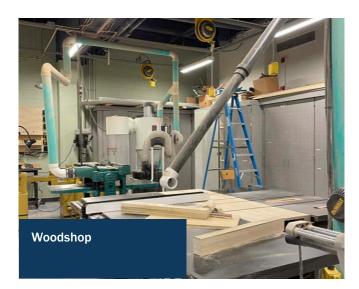
Level 01: 58,372 sf Level 02: 43,796 sf

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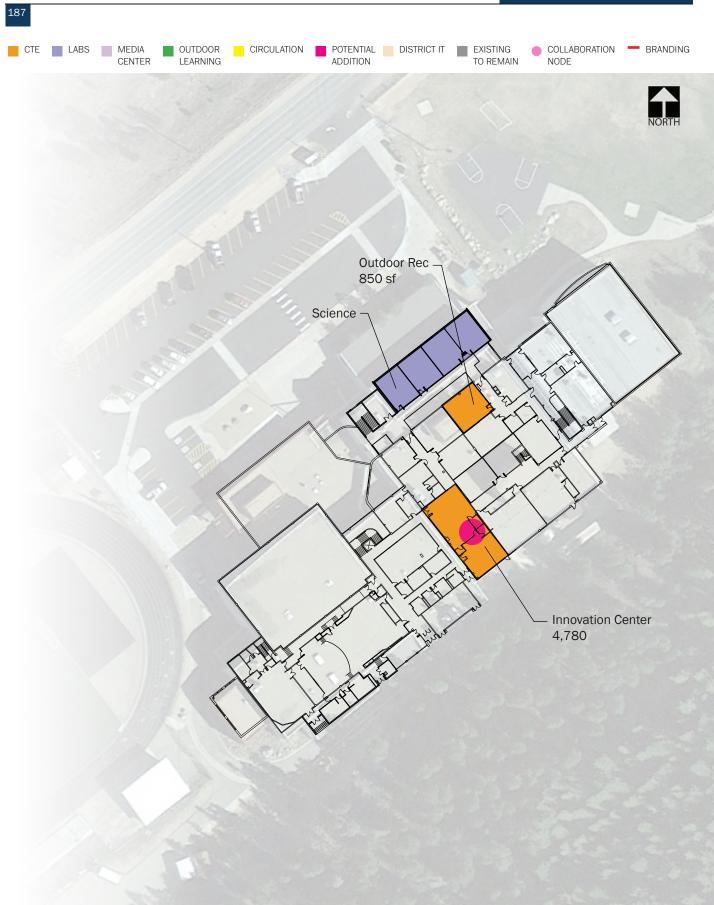
1996 (18,426 sf) 2011 (3,992 sf - Level 0

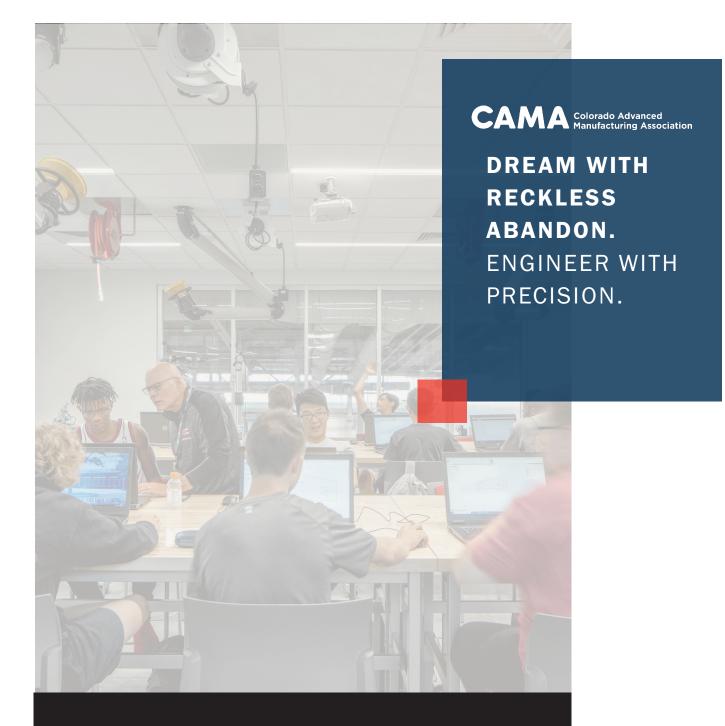












Colorado is, undeniably, home to some of the most innovative and cutting-edge manufacturers in the country. From spacecraft to bicycles and medical devices to distilleries, Colorado manufacturers are redefining manufacturing in America. Using impressive technology and processes, Colorado's manufacturing community is MAKING COLORADO everyday with remarkable and innovative products.

https://coloradomanufacturing.org/making-colorado/



NEW VISTA HIGH SCHOOL

AGRICULTURE, FOOD, AND NATURAL RESOURCES



POTENTIAL NEW PATHWAYS AT NEW VISTA HIGH SCHOOL

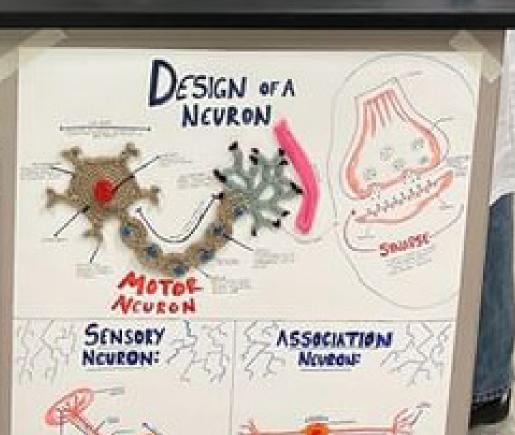
- Engineering, Technology, and Media Arts
- Hospitality, Human Services, and Education
- Information Technology
- Skills/Trades/Technical Services
- Work Based Learning

EXISTING CTE PROGRAMMING AT NEW VISTA HIGH SCHOOL

- Multi Media Art
- Acting
- Photography

- Digital Imaging
- Theater Production





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RE-ENVISIONING **BOULDER TEC** CAREER TECHNICAL EDUCATION

BVSD TECHNICAL EDUCATION CENTER

I.	Technical Education Center: Centralized Programming	194
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III.	Technical Education Center: Plan Diagrams and Phasing Schemes	200

BVSD TECHNICAL EDUCATION CENTER CENTRALIZED PROGRAMMING

Boulder TEC is Boulder Valley School District's career and technical education center. CTE programs at Boulder TEC provide 11th and 12th-grade students with the opportunity to earn college credits and careerenhancing certifications while combining creative and analytic methods to push beyond conventional thinking and imagine new possibilities through applied learning. The learning environments at Boulder TEC promote development of in-demand career skills while affording students the opportunity to maintain their home high school enrollment. Transportation is provided to and from a student's home high school and Boulder TEC. The programs at Boulder TEC are designed to compliment the core curriculum and electives delivered across the district. This master plan looks to further diversify and develop programs at Boulder TEC that expand opportunities for all students through reinforced career and industry connections. As part of the master plan, these programs will be rebranded.

CAREER TECHNICAL STUDENT ORGANIZATIONS

With support and acknowledgment of student life, Boulder TEC maintains student affiliations with Career Technical Student Organizations.

CTSOs help students build leadership skills, promote positive work values, and reinforce the CTE curriculum. There are nine CTE student organizations in Colorado and they include: DECA, FBLA, FCCLA, FFA, HOSA, PBL, (SC)2, SkillsUSA, and TSA. (In 2018-2019, more than 32,000 students participated in CTE student organizations as state affiliated members.)¹

¹ https://tec.bvsd.org/student-life/career-technical-student-organizations ^{MAGE} Boulder TEC Instagram (Fall 2022)



"PRACTICAL EXPERIENCE IF I DECIDE TO GO INTO THE MEDICAL FIELD."

"IT'S AN INTRODUCTION INTO WHAT I'M REALLY INTERESTED IN AND PASSIONATE ABOUT."

"I DON'T HAVE TO WAIT UNTIL COLLEGE." The following programs have college credits available: Biomedical Science, Construction, Criminal Justice and CSI, Emergency Medical Responder, Sports Medicine, and Video Production.



Boulder TEC's mission is to empower students through rigorous academic and technical skills for college and career readiness.

Boulder TEC offers courses in ten different programs, with commitment to better prepare students to meet challenges of the workforce and economy and succeed with high wage, high skill, in-demand employment.

AUTOMOTIVE COLLISION REPAIR

For students who excel at troubleshooting problems, fixing mechanical things and applying artistically creative ideas to real life projects.

AUTOMOTIVE SERVICE TECHNOLOGY

For students who have a passion for cars; who desire to diagnose and solve problems with engines and learn about mechanical and electrical systems.

BIOMEDICAL SCIENCE

For students who are motivated to tackle big challenges and make the world a better place by exploring new cancer treatments or teaching healthy lifestyle choices.

CONSTRUCTION TRADES

For students interested in working in a lab setting to learn the basics of construction with an emphasis on safety, leadership, and teamwork.

COSMETOLOGY

For students interested in a creative career with focus on Esthetics, Hair Styling and Design, and Nail Technology.

EMERGENCY MEDICAL RESPONDER

For students interested in fast-paced medical care, with focus on medical anatomy and physiology as well as safety and emergency care.

CRIMINAL JUSTICE AND CSI

For students interested in the basic components of the criminal justice system, policing systems, criminology, and crime scene investigation.

SPORTS MEDICINE

For students interested in the science and medicine behind sports, with focus on how to become a health professional that works with athletes.

VIDEO PRODUCTION

For students interested in creating videos, working on a television crew, or directing films, with access to professional equipment and industry software.

WELDING

For students interested in hands-on learning, different welding methods, elements of design, and welding shop safety, hand tool safety, and machine safety.

BVSD CENTRALIZED PROGRAMMING

LEVERAGING CAREER CLUSTERS: A CASE STUDY

Imagine a BVSD student who sees the Super Bowl halftime show, or watches the Olympics, or attends an epic music performance and decides that they want to learn everything they can about designing, building, and executing live experience production. They may learn about and aspire to work for a company like TAIT, a global team of planners, creative engineers, fabricators, technologists, and producers who bring extraordinary ideas to life, collaborating on visionary concepts, and delivering precision engineering, technical innovation, manufacturing, and production.¹

TAIT has more than 1,400 employees in 20 offices and 30 countries across the globe with dedicated expertise in Concert Touring, Cruise Ships, Permanent Installations, Kinetic Architecture and Art Installations, Brand Activation and Immersive Experiences, Theater, Spectacular, Film and TV, eSports, and Sports Venues. Within these market sectors, the experts at TAIT support Ideation, Design and Engineering, Manufacturing, Automation, Performer Flying, Scenic, Staging, Integration, Rental Assets, and Show Service and Support. Any one live experience produced by TAIT requires extensive collaboration across industries. Consider, for example, the following departments working together to realize one of the biggest concert tours of all time.

Administration, Assets, Business Development, Creative Services, Design and Engineering, Control Systems Engineering, Mechanical Design and Engineering, Global Technology Solutions, Control Integration, Machining (CNC Milling), Machining (CNC Routing/Operating), Operations (Mechanical Production, Support, Procurement/Logistics, Scenic), Sustaining Engineering and Manufacturing, Service and Support, and Welding and Fabrication.

¹ https://www.taittowers.com/about-tait/ IMAGES TAIT Maroon 5 MMXXI Tour





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BOULDER VALLEY SCHOOL DISTRICT AEROSPACE TRANSPORTATION (AUTOMOTIVE AND AVIATION) HEALTH BIOTECH AND PHARMACY **IMMERSIVE TECH** AND AI **HOSPITALITY AND** TOURISM **INFRASTRUCTURE CLEAN ENERGY** IT **ADVANCED** MANUFACTURING **OUTDOOR REC**

A student that is inspired to explore and create entertainment experiences will thrive in a career cluster setting, with strategic opportunity to actively engage in creative application and collaboration across industry pathways.

Imagine this scenario...

1. A BVSD elementary student attends their first major concert, has the time of their life. and discovers that they are passionate about live entertainment.

MIDDLE SCHOOL

2. The student learns about the opportunity to explore applied learning in middle school and signs up.

3. Motivated by solving problems, creating, and collaborating, the student sees potential to explore different pathways to best understand how their passion aligns to the live entertainment industry.

HIGH SCHOOL AND TECHNICAL EDUCATION CENTER

4. The student discovers that BVSD's technical education programming could make their dream an immediate reality, with opportunity to work directly with industry professionals across entertainment and engineering industries.

5. The student takes courses in Immersive Tech and AI, Hospitality and Tourism, IT, Automotive Transportation, and Advanced Manufacturing.

6. The student graduates and completes an internship with TAIT focused on core competencies: scenic, staging, and LED integration.Following completion of the internship, the student decides to pursue a bachelor's degree in Lighting Design and Theater Production.

TECHNICAL EDUCATION CENTER DESIGN COMPONENTS

A DESIGN COMPONENTS APPROACH TO TRANSFORMATIONS AT BOULDER TEC

As part of the bond program, the master plan has studied spaces at Boulder TEC that could be enhanced, spaces that could be repurposed, and areas for potential expansion.

The intention of the master plan is to apply the same Design Components approach utilized in support of both the middle and high school transformations, but with focus on the potential long term interventions that could be made to transform Boulder TEC. The master plan studies programs and plans, both existing and proposed, to inform recommendations that will enhance student and pathway connections. Scopes of work have been identified that align with current bond funding and proposed future development, all within a 10-year vision of the 'far.'

While it is agreed that Boulder TEC needs to be repositioned to become a center for the development of Boulder Valley's talent pipeline, there are still perceived stigmas connected to CTE that will have to be overcome. The challenge is in how to attract all BVSD students to Boulder TEC in both the short term (now) and long term (far). The master plan recommends that a key component of any commitment moving forward include the build out of a central I-Commons. or Innovation Commons, that can strengthen connections across pathways, and support space for a new premier pathway. Initial recommendations include either Arts and Entertainment or Aerospace/ Aviation. Planning should take careful consideration of the developed pathways provided at Boulder TEC versus at high schools where existing campuses are landlocked and their ability to expand might be limited.



DESIGN METHODOLOGY CONNECTING STUDENTS AND PATHWAYS

"It's something so different from regular school and I think it gets them [the students] energized for their future...they have the whole world in front of them. I want to just give them a little taste of what it can be like in the real world. All of us TEC teachers want to show them what they can do."

> Wendy Stogner I Boulder TEC Criminal Justice Forensic Instructor

> > tec.bvsd.org

The design components include:

- *Brand Identification at the "front door" that celebrates a true connection between education and industry as described in BVSD's Grad+ initiative. Investing in a new front door and welcoming visitors into new state of the art facilities will motivate students, staff, industry partners, and the community to expect great things from BVSD CTE.
- Provision of *Experiential Graphics that reflects the enhanced programs of each school within the overall context of the Boulder Valley economy. This commitment at Boulder TEC will provide a visible symbol that all BVSD high schools are connected through CTE.

- Enhance the recently renovated Commons Area so that it can connect with all BVSD high schools and support learning on display.
- Enhancing existing spaces and places based on program clarification and curriculum development.
 (Each pathway space should be programmed to be flexible and adaptable for long term use.)
- Connecting pathways to circulation and core curriculum both visually and programmatically.
- Provision for new low and high-density labs that reinforce Boulder TEC's ability to connect to industry.

*See the Branding Graphics portion of the master plan for an expanded summary of this scope of work.

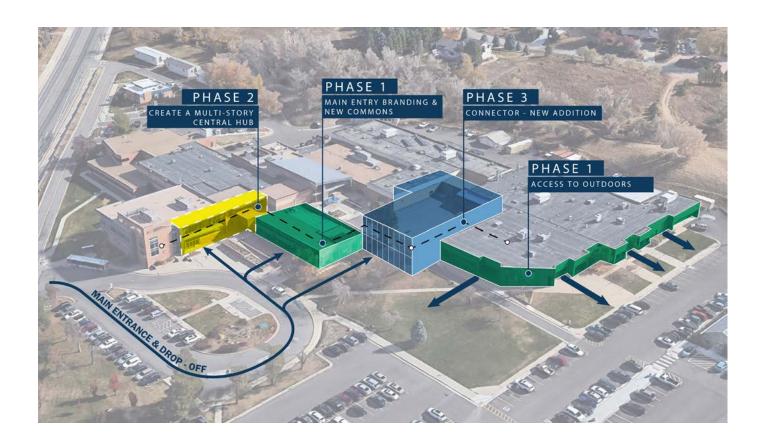
I-COMMONS AND ACCELERATOR

An Accelerator provides dedicated space for students to build the social and professional networks needed for innovative problem solving. It supports entrepreneurial thinking and cross-pathway collaboration and requires robust presentation technology and varied collaboration venues. Accelerator spaces should be equipped to accommodate Ideation, Research, Collaboration, Prototyping, Testing, and Revision.

IMAGE Center for Advanced Professional Studies (Overland Park, KS)



TECHNICAL EDUCATION CENTER PHASING SCHEMES



Phase 1:

Main Entry Branding and New Commons

Phase 1 will support a dedicated branding effort that creates an immersive and cohesive point of entry for Boulder TEC students and visitors. Entry renovations will include exterior signage. On the interior, the existing administrative suites and adjacent rooms are to be converted into a new, collaborative I-Commons space. The administration will shift to a newly renovated location adjacent to the I-Commons. The remainder of the work on Level 01 is dedicated to renovating the existing IT and Digital wing of the building, as seen on the Phase 1 plan diagram following.

Phase 1: Access to Outdoors

The Phase 1 work on Level 02 focuses on expanding the I-Commons space up into the existing Level 02 commons; this will expand opportunities for collaboration and support a sense of visual wayfinding. From the I-Commons, wayfinding continues into the corridors of the main academic portion of Boulder TEC through the introduction of new collaborative spaces at major intersections, as seen on the Phase 1 plan diagram following. Phase 1 also includes provisions to expand access to the outdoors in the perimeter shop classrooms.

Phase 2:

Create a Multi-Story Central Hub

Phase 2 continues exterior branding efforts onto the Northwest face of both Levels 01 and 02 of the building. The NW wing, which currently houses early elementary programs, is to be remodeled into the campus's new CTE Hub. A portion of this remodel includes the demolition of the floor assembly between Levels 01 and Level 02 to open the new hub vertically as seen on the Phase 2 plan diagrams. On Level 02, the academic spaces at the NW portion of the building will be renovated to meet future CTE needs.

Interim Phase:

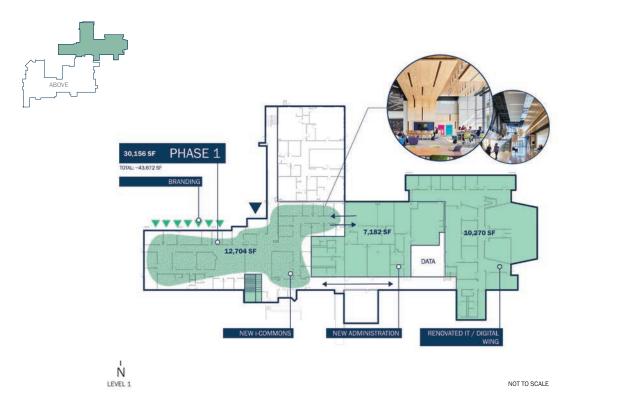
Immersive Outdoor Learning Environment

An interim phase is planned to make use of the exterior space tucked into the academic portion of Level 02. As seen in the Phase 1 plan diagram, an outdoor learning environment will be introduced, with the intention that this space will become a courtyard upon completion of Phase 3.

Phase 3:

Connector to New Addition

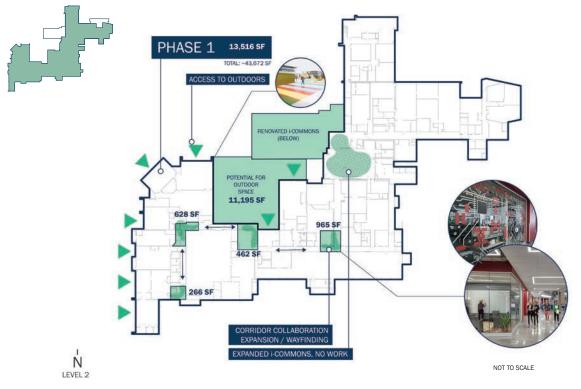
Phase 3 involves two new additions. The first is a CTE addition that connects Level O1 of the I-Commons to the academic classrooms and shops on Level O2. As seen on the Phase 3 diagram following, this addition would close off the interim Outdoor Learning Environment and solidify that area as a private interior courtyard space for students and staff to continue to use. Finally, a new Automotive addition is planned to the South.



Boulder Valley Schools CTE Master Plan Phase 1

Page 3

DLRGROUP

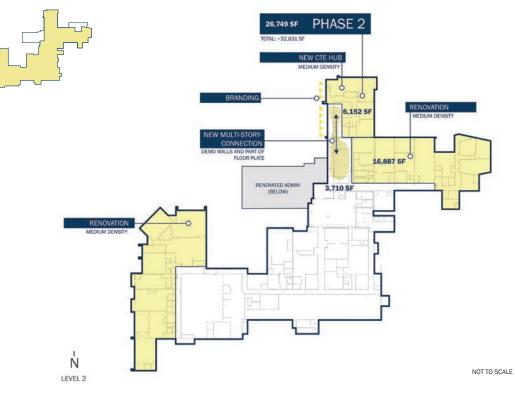


PHASE 2 5,882 SF TOTAL: ~32.631 SF NEW CTE HUB 4,852 SF 1 BRANDING CONNECTIO 5 REN NEW ADMI EP. NEW . NS CO N LEVEL 1 NOT TO SCALE

Boulder Valley Schools CTE Master Plan Phase 2 23 May 2023

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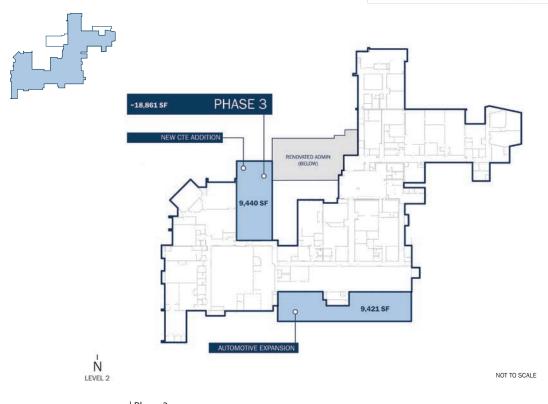
BVSD BOULDER TEC PHASING SCHEMES

The current phasing of renovations and new construction at Boulder TEC creates opportunity for the development of an interim installation for immersive outdoor learning. The space leverages the existing outdoor courtyard for use to support multiple pathways.

The proposed intervention would make use of shipping containers to provide necessary support spaces. The approach could expand the existing capabilities of the programs and promote improved student health and wellbeing.

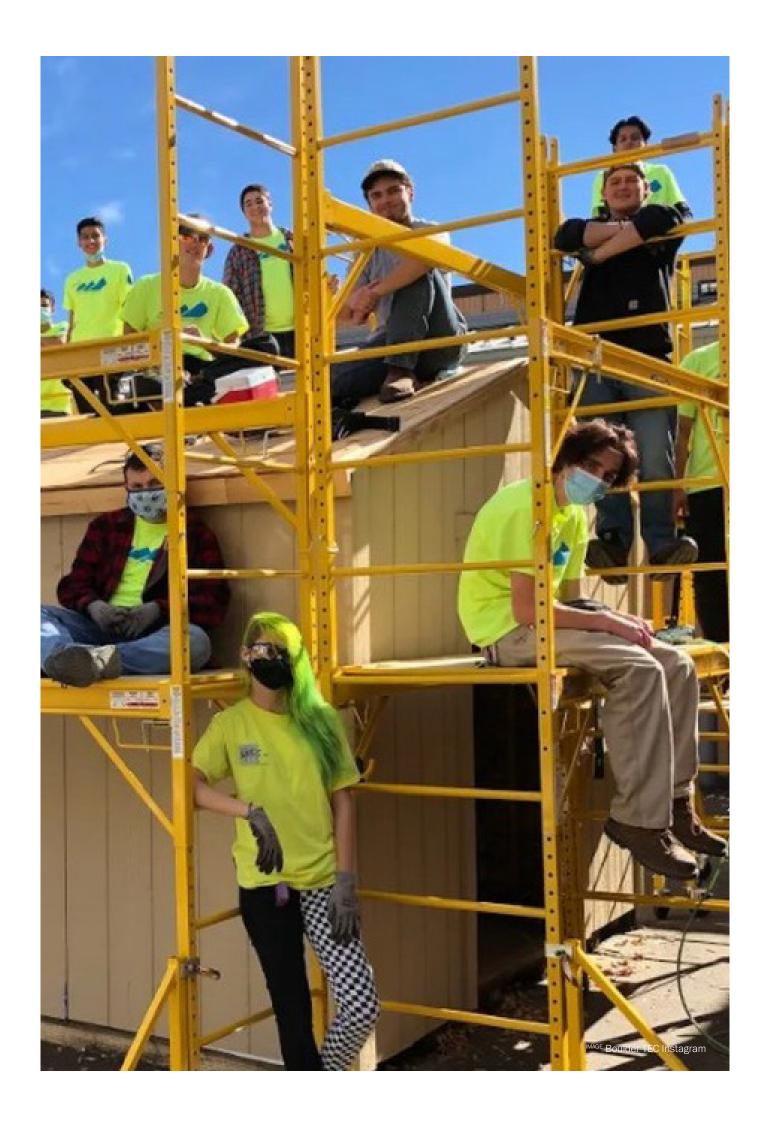
OUTDOOR LEARNING

How can spaces for outdoor learning create opportunity for cross pathway collaboration?



Boulder Valley Schools CTE Master Plan | Phase 3 23 May 2023





AN INCREMENTAL APPROACH TO MASTER PLANNING IMPROVEMENTS LAUNCH INDUSTRY PARTNERS

As part of the implementation of the master plan, there will be a "launch" of industry partner connections. Loosely defined, the levels of engagement will include:

Launch Partners: The founding partners and creative brain trust of BVSD Re-Envisioned CTE.

- Meet 3-4 times between July and December 2023 to define structures of pathways.
- Ongoing bi-annual meetings.

Pathway Sponsors: A Business Entity that provides representation and support for a BVSD Pathway at a specific school in the following ways:

- Provides input during the development phase of the pathway
- Provides ongoing support in the following ways:
- Serves on the pathway Advisory Board
- Provides Work-Based Learning opportunities in level 1 and 2 (or 3)
- Annual Financial Donation to the program

(The timeframe for this work will be defined by specific pathway needs.)

Pathway Partner: A Business Entity that provides representation and support for a specific BVSD Pathway in at least three of the following ways:

- Serves on the pathway Advisory Board
- Provides Work-Based Learning opportunities in Level 1
- Provides Work-Based learning opportunities in Level 2 or 3
- Offers Teacher professional development/training/externships
- Provides material resources
- Provides financial resources
- Provides human resources
- Sponsorship of specific need

(The timeframe for this work will be defined by specific pathway needs.)

LAUNCH DISCOVER DEVELOP CONNECT

Depending on the needs of the various pathways, industry partners will collaborate to discover ways to increase student exposure to industry and job opportunities and develop/connect curriculum recommendations to internship/externship opportunities to ensure interdisciplinary teaching and learning.

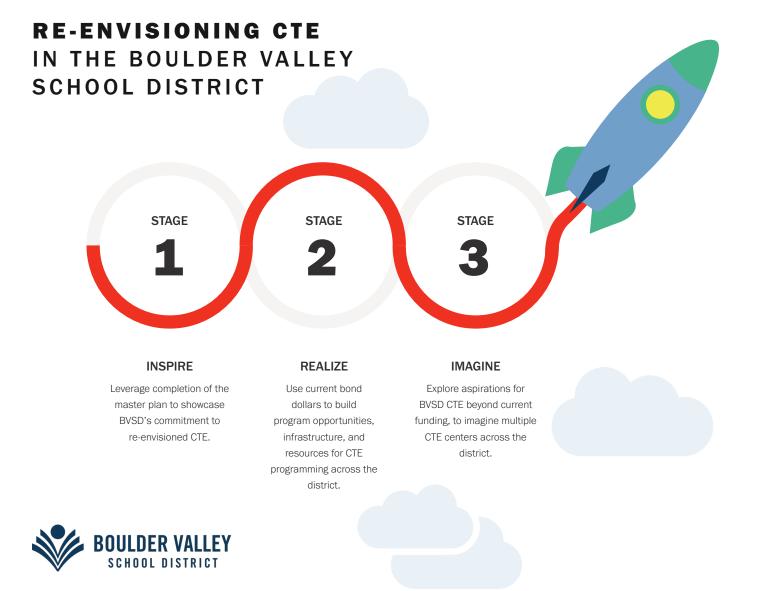
PHASING IN THREE STAGES

The master plan divides scopes of work into three stages.

The success of stages one, two, and three will depend on the district's commitment to develop and enhance industry connections initiated through the master plan process. It is imperative that the momentum gained during master planning is maintained, if not accelerated.

Stage One involves making the initial programmatic shifts to signal that the district's commitment to re-envisioning CTE is real and supported by BVSD leadership and the Boulder Valley community at large. Stage Two addresses the prioritization and distribution of \$ 43.6 million in funding allocated to enhancements across BVSD middle and high schools and the re-thinking of Boulder TEC to Boulder TECCONNECTS.

Stage Three strategizes beyond the limits of current funding to explore the development of multiple CTE centers across the district. All centers would be built to support robust connections that engage every student in a pathway to lifelong learning and careers.



STAGE ONE PHASING

STAGE ONE

SET A NEW STAGE FOR THE FUTURE.

Stage One recognizes that there are opportunities to repositionrelaunch BVSD programs with little physical intervention. During this phase, the master plan recommends early action to clean up, refresh, and rebrand. Opportunities are outlined at right. Investing in these improvements will encourage more robust industry partner conversations as the level of commitment for change is confirmed. Through the master plan process, to build a better understanding of what is currently available and working, from both a facilities and teaching and learning point of view, the design team walked 18 BVSD facilities with focus on existing labs, storage rooms, and student workspace. The following observations were made, as organized in four categories, Clean up, Safety, Brand, and Active Space.

CLEAN UP

A complete walk through, full clean-up of "stuff" stacked, piled, stored all over the place. Especially in industrial education areas (wood shops, engineering labs, construction program work areas) and stage craft areas.

The organization of supplies and tools/ equipment in storage rooms requires attention.

Removal of all "stuff" piled on equipment so that it is available for use and meeting safety requirements.

Removal of all broken and unused equipment, supplies, etc.

(Removal of debris in some situations may require a dumpster to be brought in.)

BRAND

Current CTE programming across the district does not have consistent brand representation. There is great potential to develop the district's CTE brand identity to reflect the core vision, core values, and core purpose of the CTE Master Plan re-envisioning initiative. Explore who the brand experience is being designed for, how it will differentiate from other brands across the country, and the value it will bring to the core target audience.

SAFETY

Establish safety and clean up protocols immediately for all labs and storage spaces. General lab/workspace clean up should be done at the end of every class/work time.

Display evidence of safety procedures or safety notifications; post immediately on and around all stationary equipment.

Emergency exit doors shall remain unobstructed.

Clear and marked walking paths shall be identified and marked around all stationary equipment. (Guidelines should follow established requirements for each piece of equipment.)

Welding equipment (gas tanks) should be properly chained to a fixed wall in order to prevent falling over and causing a possible explosion.

Clear all walking paths of stored items, extension cords, and other trip hazards.

Extension cords/electrical cords should never be strung across walking areas either in the air or on the floor/walk area.

ACTIVE SPACE

In many of the facilities, there is ample room for expansion of CTE programming into spaces that are underutilized.

STAGE TWO PHASING

STAGE TWO

IMPLEMENT BOND PROGRAM & LAUNCH INDUSTRY PARTNERS

Stage Two will take advantage of the recent bond program funding, leveraging substantial investments to focus on pathways and CTE clusters as catalysts for community involvement.

Middle Schools: \$5M High Schools: \$17.16M Boulder TEC: \$21.24M

TOTAL = \$43.615M

This funding will serve as a great start to shift and connect community awareness to industry connections.

Over the course of the next five years, 2023-2027, the \$43.615M in bond program funding should motivate increased interest in lifelong learning and career exploration. The following schedule outlines design and construction and prioritization of projects.

2023 - 2024

DESIGN CONSTRUCTION

Angevine Middle School Boulder TEC Broomfield Heights Middle School Broomfield High School Centaurus High School

2024 - 2025

Boulder High School Boulder TEC Broomfield High School Casey Middle School Centaurus High School Louisville Middle School Monarch High School Monarch K8

2025 - 2026

Aspen Creek K8 Boulder High School Boulder TEC Centennial Middle School Fairview High School Manhattan Middle School Platt Middle School Southern Hills Middle School

2026 - 2027

Eldorado K8 Fairview High School Nederland Middle Senior High School

STAGE THREE PHASING

STAGE THREE LEVERAGE SUCCESS INTO THE FUTURE.

Stage Three will stretch BVSD to dream BIG and consider innovative ways to expand CTE programming beyond what is currently addressed in the bond. As pathways continue to develop and increase engagement, capacity and proximity of facilities will become increasingly important. Stage three suggests that BVSD explore the development of multiple CTE centers across the district.

Boulder TEC is located fairly central to the district, but possible program growth at the eastern and western edges would allow for more equitable access within a 20-minute transit time. The master plan studied all BVSD high school campuses to inform recommendations for expanded programming and facilities. Some schools do not have the same capacity for infrastructure growth based on existing conditions or site constraints. The master plan recommends that Broomfield High School, Centaurus High School, and Monarch High School consider either major renovation, expansion, and/or additions to serve as robust CTE centers, in conjunction with Boulder TEC.

This stage of thinking should explore several 'What ifs?:'

What if Centaurus High School elevated the 'A' in it's Engineering, IT, and STEAM offerings to provide expanded programming for Immersive Tech and AI?

What if Broomfield High School expanded it's Applied Tech and Engineering pathways to include dedicated space for Aviation and Aerospace? Expanded programming could support concentrations in Aviation Safety and Security, Flight Operations, Management, Maintenance, and Operations.

What if Monarch High School expanded it's focus on Sports Medicine, Sports Journalism, and EGaming to provide an event like venue for EGaming competitions that could prepare students to become educators, coaches, managers, marketers, and entrepreneurs? The expansion would support a future facing sports culture focused on feature writing, reporting, sports marketing, photojournalism, etc.



IMAGE Boulder TEC Instagram (Fall 2022)

COST MODELS BUDGET

The master plan assumes that for all BVSD middle schools and the majority of BVSD high schools, investments will be best leveraged if focused on facility renovations and Furniture, Fixtures, and Equipment (FFE). The costs associated with typical space types were developed assuming their potential to support future pathways and/or current interventions. The figures below outline preliminary cost estimate scenarios built in conjunction with the design components; they identify proposed areas of investment for both the current bond budgets and future long term projects. (The cost models should be reviewed in conjunction with the design components outlined for middle school, high school, and Boulder TEC earlier in the document.)

	BVSD C	TE CONCEP	T ESTI	MATE					
						1	SUBTOTAL:		MARKUP / GC'S / CONTINGENC
)1	Outdoor Lab based on 1000 sqft area (\$152/sf)						TOTAL:	\$	151,80
	Storage - Tuff Shed	1	each	\$	10,000.00	\$	10,000	\$	12,00
	Shade canopy - Fabric shelter		lsum	\$	25,000.00	\$	25,000	\$	30,00
	Hardscapes		sqft	\$	30.00	\$	24,000	\$	28,80
	Fence	250	lnft	\$	100.00	\$	25,000	\$	30,00
	Seat walls	150	lnft	\$	150.00	\$	22,500	\$	27,00
	Electrical / Data	1	lsum	\$	20,000.00	\$	20,000	\$	24,00
2	Outdoor learning spaces based on 1280 soft area (\$66/sf)						TOTAL:	\$	84,00
	Shade Trees	10	each	\$	2,000.00	\$	20,000	\$	24,00
•••••	Hardscapes	150	sqft	\$	2,000.00	\$	7,500	\$	21,00 9.00
•••••	Boulder seating area		lsum	\$	35,000.00	\$	35,000	\$	42,00
•••••	Electrical / Data		lsum	\$	7,500.00	\$	7,500	\$	9,00
)3	Innovation Lab at sqft (Light renovation) = \$150 / SF						TOTAL:	\$	135,42
	Demolition of existing space	900	sqft lnft	\$	8.00	\$	7,200	\$	8,64
	Millwork (base, counter, upper)			\$	850.00	\$	17,000	\$	20,40
	New doors frames HW	900	sqft	\$	10.00	\$	9,000	\$	10,80
	Specialty doors	900	sqft	\$	8.00	\$	7,200	\$	8,64
	New flooring - LVT + Base		sqft	\$	7.00	\$	6,300	\$	7,56
	Room reconfiguration framing / gyp.		sqft	\$	20.00	\$	18,000	\$	21,60
	Painting ACT ceiling	900	sqft	\$	5.00	\$	4,500	\$	5,40
		900	sqft	\$	8.00	\$	7,200	\$	8,64
	Whiteboards	3	each	\$	1,000.00	\$	3,000	\$	3,60
	Tackboards	3		\$	650.00	\$	1,950	\$	2,34
	Mech. Upgrades	900	sqft	\$	15.00	\$	13,500	\$	16,20
	Plumbing upgrades					\$	-	I	N
	Electrical / IT upgrades	900	sqft	\$	20.00	\$	18,000	\$	21,6
	Furniture / Technology					\$	-		By own
4	Prototyping Lab (Medium Renovation) = \$201 / SF						TOTAL:	\$	322,80
	Demolition of existing space	1,600	saft	\$	8.00	\$	12,800	\$	15,3
	Millwork (base, counter, upper)	30	lnft	\$	850.00	\$	25,500	\$	30.6
	New doors frames HW	1,600		\$	7.00	\$	11,200	\$	13,4
	Specialty doors	1,600		\$	10.00	\$	16.000	\$	19.2
	New flooring - LVT + Base	1,600		\$	7.00	\$	11.200	\$	13,4
	Room reconfiguration framing / gyp.	1,600		 \$	20.00	\$	32,000	\$	38.4
		1,600		Ŧ \$	6.00	\$	9.600	\$	11,5
	Painting ACT ceiling	1,600	saft	\$	8.00	Ś	12.800	ŝ	11,0
	Whiteboards		each	\$	1,000.00	Ś	6,000	\$	7,2
	Tackboards		each	\$	650.00	÷ \$	3,900	\$	4.6
	Mech. Upgrades	1,600		\$	30.00	ŝ	48,000	\$	-,0 57,6
	Plumbing upgrades	1,600	saft	\$	25.00	š	40,000	\$	48.0
	Electrical / IT upgrades	1,600		\$ \$	25.00	φ \$	40,000	\$	48.0
	Furniture / Technology	1,000	squ	Ψ	20.00	φ Ø	+0,000	Ψ	By own
	Furniture / Technology					φ	-	 	By Owne

5	STEM Classroom (Heavy Renovation) = \$372/ SF	1.600			TOTAL:	\$ 595,0
	Demolition of existing space Millwork (base, counter, upper)	1,600 sqft 80 lnft	\$	8.00 1,250.00	\$ 12,800 \$ 100,000	\$ 15,3 \$ 120,0
	New doors frames HW	1,600 sqft	φ \$	1,250.00	\$ 16,000	\$ 120,0 \$ 19,2
	Specialty doors	1,600 sqft	\$	10.00	\$ 16,000	\$ 19,2 \$
	New flooring - LVT + Base	1,600 sqft	\$	7.00	\$ 11,200	\$ 13,4
	Room reconfiguration framing / gyp.	1,600 sqft	\$	20.00	\$ 32,000	\$ 38,4
	Painting	1,600 sqft	\$	7.00	\$ 11,200	\$ 13,4
	ACT ceiling	1,600 sqft	\$	8.00	\$ 12,800	\$ 15,3
	Whiteboards	6 each	\$	1,000.00	\$ 6,000	\$ 7,2
	Tackboards	6 each	\$	650.00 50.00	\$ 3,900 \$ 80,000	\$ 4,6
••••	Mech. Upgrades Plumbing upgrades	1,600 sqft 1,600 sqft	φ \$	60.00	\$ 96,000	\$ 96,0 \$ 115,2
••••	Electrical / IT upgrades	1,600 sqft	\$	30.00	\$ 48,000	\$ 57,6
••••	Chem. Hood	2 each	\$	25,000.00	\$ 50,000	\$ 60,0
	Furniture / Technology				\$-	By own
	Culinary Classroom (Medium / Heavy Renovation) = \$311 / SF				TOTAL:	\$ 496,9
	Demolition of existing space	1,600 sqft	\$	8.00	\$ 12,800	\$ 15,
	Millwork (base, counter, upper)	60 lnft	\$	850.00	\$ 51,000	\$ 61,2
•••	New flooring - Sheet Vinyl + Base	1,600 sqft	\$	10.00 7.00	\$ 16,000 \$ 11,200	\$ 19, \$ 13,
•••	New doors frames HW Room reconfiguration framing / gyp.	1,600 sqft 1,600 sqft	¢ •	20.00	\$ 11,200	\$ 13,4 \$ 38,4
••••	Painting	1,600 sqft		7.00	\$ 32,000	\$ 13,4
••••	ACT ceiling	1,600 sqft		8.00	\$ 12,800	\$ 15,
••••	Whiteboards	4 each	\$	1,000.00	\$ 4,000	\$ 4,
	Tackboards	4 each	\$	650.00	\$ 2,600	\$3,
	Mech. Upgrades	1,600 sqft	\$	40.00	\$ 64,000	\$ 76,
	Plumbing upgrades	1,600 sqft	\$	60.00	\$ 96,000	\$ 115,2
	Electrical / IT upgrades	1,600 sqft	\$	30.00 7,500.00	\$ 48,000 \$ 52,500	\$ 57,
••••	Appliances (Micro, fridge, range, hood) Furniture / Technology	7 set	\$	7,500.00	\$ 52,500 \$ -	\$ 63, By ow
	High Density Lab (Renovation) = \$516 / SF Demolition of existing space	1,452 sqft	\$	15.00	TOTAL: \$ 21,780	\$ 749,8 \$ 26,1
•••	Millwork (base, counter, upper)	160 lnft	\$	1,250.00	\$ 200,000	\$ 240,0
	Doors, frames and HW	4 each	\$	1,750.00	\$ 7,000	\$ 8,4
	Room reconfiguration framing / gyp.	1,452 sqft	\$	20.00	\$ 29,040	\$ 34,8
	New flooring - Sheet Vinyl + Base Painting	1,452 sqft	\$	10.00 7.00	\$ 14,520 \$ 10,164	\$ 17,4 \$ 12.
		1,452 sqft	φ	7.00	φ 10,104	
	ACT ceiling Clouds	1,452 sqft 600 sqft	\$ \$	8.00 40.00	\$ 11,616 \$ 24,000	\$ 13,9 \$ 28,8
	Whiteboards	6 each	\$	1,000.00	\$ 6,000	\$ 7,2
•••	Tackboards	6 each	\$	650.00	\$ 3,900	\$ 4,6
	Mech. Upgrades	1,452 sqft	\$	60.00	\$ 87,120	\$ 104,5
	Plumbing upgrades	1,452 sqft	\$	60.00	\$ 87,120	\$ 104,5
	Electrical / IT upgrades	1,452 sqft	\$	50.00	\$ 72,600	\$ 87,
	Chem. Hood	2 each	\$	25,000.00	\$ 50,000	\$ 60,0
	Furniture / Technology				ъ -	By ow
	Low Density Lab (Renovation) = \$540 / SF	0.178 ooft	¢	15.00	TOTAL: \$ 32,670	\$ 1,178, 1 \$ 39,2
•••	Demolition of existing space Prep. / storage room shelving	2,178 sqft 600 lnft	ծ \$	15.00 30.00	\$ 32,670 \$ 18,000	\$ 39,3 \$ 21,0
•••	Millwork (base, counter, upper)	200 lnft	ւր Տ	1,250.00	\$ 250,000	\$ 300,0
•••	Doors, frames and HW	6 each	\$	1,750.00	\$ 10,500	\$ 12,6
	Specialty doors	2,178 sqft	\$	25.00	\$ 54,450	\$ 65,3
	Room reconfiguration framing / gyp.	2,178 sqft	\$	40.00	\$ 87,120	\$ 104,5
	New flooring - Sheet Vinyl + Base	2,178 sqft	\$	10.00		\$ 26,
	Painting	2,178 sqft	\$	9.00	\$ 19,602	\$ 23,5
	ACT ceiling	2,178 sqft	\$	8.00	\$ 17,424	\$ 20,9
	Clouds Whiteboards	1,000 sqft 8 each	\$ \$	40.00 1,000.00	\$ 40,000 \$ 8,000	\$ 48,0 \$ 9,6
	Tackboards	8 each 8 each	\$ \$	650.00	\$ 5,200	\$
	Mech. Upgrades	2,178 sqft	\$	70.00	\$ 152,460	\$ 182,9
	Plumbing upgrades	2,178 sqft	\$	60.00	\$ 130,680	\$ 156,8
	Electrical / IT upgrades	2,178 sqft	\$	50.00	\$ 108,900	\$ 130,6
	Chem. Hood	1 each	\$	25,000.00	\$ 25,000	\$ 30,0
	Furniture / Technology				\$ -	By ow
•••	Transparency - Based on a 8' by 8' module	<u> </u>	Ť		TOTAL:	\$ 13,5
		32 lnft	\$	35.00		\$ 1,
	Sawcut masonry		¢.	10.00	\$ 640	\$ '
	Demo Masonry	64 sqft	φ			
	Demo Masonry Tooth Masonry	64 sqft 24 lnft	\$ \$	75.00	\$ 1,800 \$ 1,500	
	Demo Masonry Tooth Masonry Lintel / structural support	64 sqft 24 lnft 10 lnft	\$	150.00	\$ 1,500	\$ 1,8
	Demo Masonry Tooth Masonry Lintel / structural support HM Window frame Glazing - Tempered	64 sqft 24 lnft 10 lnft 1 each	\$ \$	150.00 1,750.00	\$ 1,500 \$ 1,750	\$ 1,8 \$ 2,1
	Demo Masonry Tooth Masonry Lintel / structural support	64 sqft 24 lnft 10 lnft	\$	150.00	\$ 1,500 \$ 1,750	\$ 2,1 \$ 1,8 \$ 2,1 \$ 3,0 \$ 1,2

COST MODELS BUDGET

MIDDLE SCHOOL

Total Cost per School: \$455,000

HIGH SCHOOLS

Total Cost per School: \$2,860,000

BOULDER TEC

BVSD TEC AT ARHS CONCEPT ESTIMATE								
						SUBTOTAL:		MARKUP / GC'S / / CONTINGENCY
01 PHASE ONE - MAIN ENTRY BRANDING AND NEW COMMONS						TOTAL:	\$	14,858,200
Branding	1	lsum	\$	106,000.00	\$	106,000	\$	132,500
Remodel existing space for new Commons area	12,704	sqft	\$	450.00	\$	5,716,800	\$	7,146,000
Remodel existing space for new Admin.	7,182	sqft	\$	320.00	\$	2,298,240	\$	2,872,800
Renovated IT - Digital Wing	10,270	sqft	\$	185.00	\$	1,899,950	\$	2,374,938
Access to outdoors	8	each	\$	42,400.00	\$	339,200	\$	424,000
Outdoor space	11,195	sqft	\$	70.00	\$	783,650	\$	979,563
Corridor Collaboration spaces	2,321	sqft	\$	320.00	\$	742,720	\$	928,400
02 PHASE TWO - MULTI-STORY CENTRAL HUB (ESCALATED TO 2	PHASE TWO - MULTI-STORY CENTRAL HUB (ESCALATED TO 2026)						\$	20,063,400
Branding	1	lsum	\$	125,000.00	\$	125,000	\$	156,250
Remodel existing space for New Multi-story Connection	1,030	sqft	\$	500.00	\$	515,000	\$	643,750
Remodel existing space for New CTE Hub	4,852		\$	250.00	\$	1,213,000	\$	1,516,250
Remodel existing space for expanded infrustruture trades	12,500	sqft	\$	320.00	\$	4,000,000	\$	5,000,000
2nd floor Renovation	26,148	sqft	\$	390.00	\$	10,197,720	\$	12,747,150
03 PHASE THREE BUILDING ADDITIONS (ESCALATED TO 2026)						TOTAL:	\$	27,112,688
CTE Addition	9,440	saft	\$	1,150.00	\$		\$	13,570,000
Automotive Expansion	9,421		\$	1,150.00	≎ \$	10,834,150	\$	13,542,688
Costs above are construction cost only.								

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