

ICEV EBOOK

Building High-Impact CTE Centers:

LESSONS FROM
DISTRICT LEADERS

THE WORLD NEEDS CTE



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Introduction

Career and Technical Education (CTE) programs have supported schools, businesses, and communities for decades. These programs offer opportunities for students to learn skills in the classroom and while on the job in career-specific pathways such as agriculture, construction, engineering, health sciences, and hospitality. They also prepare students for successful careers and can help generate billions of dollars for state economies and local businesses.

Despite the success of many of these programs to date, more needs to be done—and done soon—to grow CTE programming nationwide.

The push for increased CTE is driven, in part, by a looming workforce gap. According to **Association of Career and Technical Education (ACTE)**, the United States is facing a projected deficit of 6 million skilled workers by 2032 in some of the key industries mentioned above.

As such, districts are increasingly looking to expand CTE programs by adding new pathways, industry certifications, and dual enrollment opportunities. The expansion of these programs inevitably leads to needing more and varied classrooms, especially for some of the pathways that require larger equipment and bigger workspaces.

In fact, today there are more than 1,400 technical centers (not including comprehensive high schools) in 39 states and territories, according to **Advance CTE**, and this number continues to rise. Michigan, for example, added 18 technical centers between 2021 and 2022, bringing the state's total number to 62.

CTE centers offer several benefits to districts and their CTE programs. In addition to having more space for various programs, CTE centers help districts offer more courses, reach more students, partner with more local businesses, and adapt with the changes in CTE.

“CTE programs evolve very quickly and you always want to make sure you have a space that is equipped to change with them,” said Dusty Moore, CEO of iCEV.

“So many districts are thinking big and planning centers where they can reconfigure the learning spaces to adapt to what the community needs in the future.”

CTE Center Considerations

As more districts consider adding or expanding CTE centers, administrators can learn from districts that have already done so successfully. This eBook provides insights from those district leaders and outlines the different considerations for districts looking to expand their CTE offerings, including:

- **Funding a CTE center**
- **Building a new CTE center**
- **Renovating an existing building into a CTE center**
- **CTE centers in a rural or urban setting**

This eBook also shares advice on staffing and recruiting teachers, which can apply to any CTE program.

Funding

In order to launch a high-impact CTE center, districts need a solid vision and, of course, a solid financial plan. Whether you're exploring local, state, and federal grants; local bond measures; public-private partnerships; self-funding or other financing strategies; understanding funding options is an important first step.

"There are various funding sources for CTE programs, including bonds, Perkins funding, workforce development funds, and public-private partnerships," said Chuck Amos, CEO of the Amos Group, which is the parent company of SchoolBondFinder and SchoolNetwork. "The amount of funding available for CTE has risen in recent years. This is being driven by the need to address skill gaps in specific sectors and the need to provide students with more career exploration opportunities."

In this section, learn how several districts have navigated a variety of funding options and the lessons they've learned along the way. These practical insights can help you think through your own needs and opportunities.

The two most common approaches for funding a CTE center are **bonds** and **grants**.

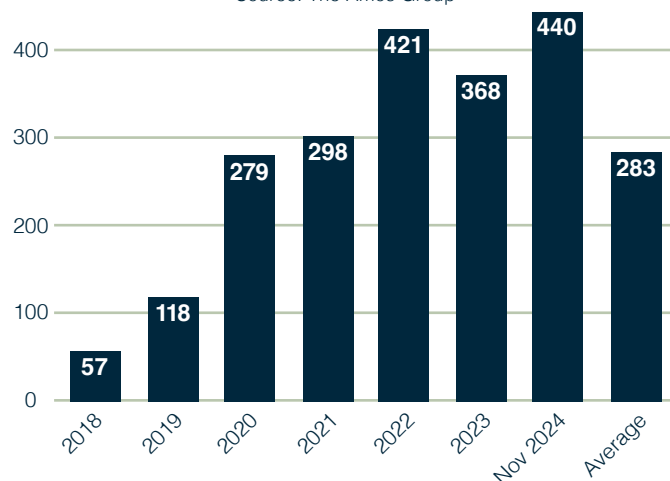
BONDS:

Districts can ask community members to pass a bond measure. When doing this, you should consider:

- **Time of year:** Will a spring or fall election work better?
- **Community outreach:** How do you plan to communicate the bond issue with voters?
- **Anticipated budget:** How much do you plan to ask for from the community? Make sure you provide an accurate budget so you aren't taking too much or too little, while considering market fluctuations on goods and services.

Number of Bonds Passed for CTE/Vo-AG/STEM (2018-2024)

Source: The Amos Group



“Our district put together a bond task force of community members made up of parents, students, teachers, community business leaders, and administrators to help determine what was needed in the bond.”

“Additionally, we went out to the community and all of the civic organizations, including rotary clubs, men's groups, and church meetings—anywhere with large groups of people—to share information about why the bond was necessary. We hosted open forums and Q&As for the community and ultimately the bond passed. Transparency throughout the process is extremely important. We're constantly posting updates to communicate back with our taxpayers and the community so they know how the district is growing.”



Amy Vance

CTE Director
Montgomery ISD
Texas

Funding

GRANTS:

Districts can hire grant writers to seek funding for CTE centers. When doing this, you should consider:

- **Priorities:** There are several grant opportunities where you can apply for additional funding – ask yourself, will you need additional funding for construction, equipment, or staff? Most states have workforce development grants, as well as grants for CTE or innovation.
- **Anticipated Budget:** When applying for grants, take into account the fluctuation of prices on things like wood and cinder block, drywall, paint, electrical and lighting, and equipment. Also remember that your budget might change. Try not to list any specific products or prices in case those change during the course of the project.

“Our district hired a grant writer because we saw an opportunity and recognized there were so many grants out there that we could be tapping into.”

“The state of Idaho offers a lot of grants for innovation and CTE, and they’ve been very supportive of us updating and renovating our CTE center.”

Patti O’Maley

Assistant Principal & CTE Coordinator
Payette River Tech Academy
Idaho



Building

Once funding is secured, your district can determine the best course of action—building from scratch or renovating an existing building—when it comes to building your CTE center. Considerations include:

- **Space:** Does your district have the space or land available to build a brand-new building?
- **Location:** If there is space, is it in a central or convenient location where high school students from across the district can commute to and from?
- **Buildings:** Are there any current buildings within the district not being used that could be renovated?

In this section, learn planning considerations for new CTE centers and for renovating a building, as well as special considerations for rural and urban settings, from district leaders.

BUILDING A NEW CTE CENTER

Offering a wide variety of CTE pathways can lead to the need for highly-specialized learning environments. For instance, a medical simulation lab requires space for hospital beds, life-like mannequins, and medical-grade monitoring equipment, while an industrial kitchen must meet commercial standards for ventilation, sanitation, and fire safety while having plenty of space for groups of students to work at commercial kitchen-grade counters. Similarly, automotive bays need large open spaces with high ceilings, reinforced floors, specialized lifts, and garage-style access, and cosmetology stations need proper plumbing, electrical, mirrors, and lighting.

As a result, many districts are constructing new, purpose-built facilities. These modern buildings meet the exact requirements of each program, allow for future expansion, and integrate industry-standard technologies.

PLANNING CONSIDERATIONS

While building from scratch can be thrilling, it can also be fraught with issues if planning is rushed. Some considerations when starting the planning process are:

- **Key stakeholders:** Who do you want involved in the planning process? Administrators, teachers, students, and industry and community leaders?
- **Architect/construction:** How will you determine who to partner with? Are there local companies your district previously worked with or a company that has a great record of building other CTE centers?
- **School visits:** Are you planning to see other CTE centers in person for inspiration and background knowledge?
- **Program courses:** What programs do you want to offer in the building?
- **Classrooms:** Which pathways require a specific space (kitchen, plumbing, auto bays, etc.)?
- **Flexible classrooms:** Which spaces can be easily changed as programs in the district change?
- **Equipment/technology:** What equipment/technology will you need? Do you have the designated spaces and required electrical for it?
- **Community:** How do you plan on communicating with the community during the construction process?

One way to make sure the Building is meeting the needs of the broader community both now and in the future is to
MAKE PLANNING A TOP PRIORITY.

DISTRICT HIGHLIGHT

Culpeper County Public Schools



Culpeper, VA

Culpeper County Public Schools opened the Culpeper Technical Education Center (CTEC) in Fall 2021. Centrally located between the two high schools in the district, CTEC houses various programs, including automotive technology, cosmetology, and health and medical sciences.

Students played a unique role throughout the planning process. Early on, the superintendent's student advisory council met with Randi Richards-Lutz, the district's director of CTE, and the rest of the CTE department, to go over their plan for CTEC so the students could share their input.



As the opening of CTEC got closer, the district also formed a student committee similar to the council but just for CTEC. These students helped prepare for the opening of the CTE center by doing things like writing the website's FAQ page and participating in teacher interviews.

“Getting students involved early on was so beneficial to CTEC. There were things students thought of that we wouldn't have otherwise.”

“Some teachers even told the principal how impressed they were when getting interviewed by a student and that's what sold them on coming to work here,” said Richards-Lutz. “It was also a great opportunity for students to gain real-world experiences and understand more about the construction process.”

Randi's



Advice

“Prepare to adjust programs based on community needs.”

“When you're trying to plan a program for the future, you shouldn't get discouraged. Give a program three years to account for enrollment and staffing fluctuations, and look at the data from the three years and go from there. We initially had an industrial maintenance program, but we weren't able to hire a teacher, so we found another program that would help meet the needs of our community and were able to hire a teacher very easily. To go from industrial maintenance to a medical assistance program, we did have to get new equipment for the space. We called upon our local partners at the community college and hospital to make that change.”

DISTRICT HIGHLIGHT

Montgomery Independent School District



Montgomery, TX

After almost a year of planning, including meetings with educators for each CTE program and touring facilities across the state, Montgomery Independent School District broke ground for its CTE Center and Agricultural Science Center in April 2024.

When designing all of the spaces, the district made sure nothing was permanent and everything was flexible.

“CTE is an ever-changing industry. A lot of the newer spaces we saw were more temporary and had the ability to change with the times if needed...”

Amy Vance, CTE director for the district.

“We made sure to incorporate this into our design process. Our engineering and robotics area, for instance, is a huge, open robotics competition area that can also be used as a flex space for project-based learning for some of our engineering courses.”

Additionally, the district prioritized working with local industry professionals. This included a science lab consultant who came in and offered input on the building’s lab space. The district also made sure to involve the local community college to ensure their programs closely aligned with the college’s in order to make it easy to shift to dual credit opportunities.



Amy’s



Advice

“Stay patient and transparent.”

“Remember it’s a long process and be patient. Transparency with industry members and community taxpayers is key, and it helps document the process. Turnover and changes happen in every district and having that transparency shows exactly how the district made its decisions and what needs to be done moving forward.”

Converting an Existing Space to a CTE Center

For districts that do not have open land to build on or that have smaller budgets, renovating an existing building into a CTE center offers an excellent alternative. Going this route brings a new set of considerations for district leaders before they can begin the renovation process.

PLANNING CONSIDERATIONS

In addition to the considerations in the previous section, here are some specific things to consider when remodeling a building:

- **Priority renovations:** What part of the infrastructure needs to be remodeled first? Plumbing, electrical, rooms, kitchen, etc.?
- **Community Partnerships:** What colleges and businesses are in your community that you can partner with to help support the renovation process?
- **Equipment/technology:** What equipment or technology will you need, and do you have the designated spaces to support it? Consider whether your facilities have the necessary electrical infrastructure to power specialized equipment. This is often an overlooked but critical factor in planning. Would your community partners be willing to donate equipment in exchange for advertising, such as banners displayed in classrooms?

Many districts are transforming outdated school buildings or old office spaces, especially ones with existing shop spaces, into modern CTE centers.



DISTRICT HIGHLIGHT

Payette River Technical Academy



Emmett, ID

Payette River Regional Technical Academy is a public charter school offering 14 CTE pathways. Its student body is comprised of approximately 175 full-time students and additional part-time students from the local high school, alternative high school, homeschool programs and a local Christian school.

The school was started by leasing space from the district and eventually, in 2020, the school board purchased a building that used to house the USDA and forestry offices in the area. Once the building was purchased, school leaders invited staff to come see the space and dream up what they would want it to look like. Then during the renovations, teachers had the opportunity to provide input into the design of their spaces.

“As a small school, teachers were really given free rein to create their spaces and voice what they wanted in the rooms— from the type of seating to the color of paint on the walls,”

Patti O'Maley, assistant principal and CTE coordinator of the academy.

“We really wanted our teachers to be involved in the process. You have to trust in the people you have hired and give them latitude to make choices.”

When an adjacent piece of property housing a car dealership went up for sale, the district purchased it to expand the Academy's offerings. They were able to move the auto mechanic, agriculture, and welding pathways over to the new building after making some modifications.



Patti's

Advice

“Change to meet the needs of the community.”

“We were a heavy farming community, however that is changing. We change our programming based on the shifts in businesses in our area and where the jobs will be for our students. A new manufacturing company in the area needs skilled welders, and the agriculture that remains here is increasingly using drones for various applications. These are great opportunities for our students and help drive the pathways we offer. We even have an aviation program we are committed to—from flight to aviation mechanics, to help serve the airport in our town.”

DISTRICT HIGHLIGHT

Littleton Public Schools



Littleton, CO

Littleton Public Schools, located about 10 miles south of Denver, opened its Explorative Pathways for Innovative Careers “EPIC” Campus in August 2023. Once an automotive repair shop, the campus was renovated and designed to offer students 14 different career pathways, including a Natural Resources pathway which gives students the opportunity to learn about land, water, forests, and wildlife.

Natural Resources teacher Mike Montgomery had the opportunity to build a hydroponics farm, where students grow produce for the district’s nutritional services and a local community café. “This ‘seed-to-table’ experience is really engaging for students and possible because of the renovated campus,” said Montgomery.



Students at EPIC are experiencing more field trips and projects in the community. Montgomery works closely with industry professionals in the community to provide these opportunities as well as have them speak to students during classes.

“Since EPIC opened, we’re providing more opportunities for students,” said Montgomery. “Local nurseries and landscaping companies are willing to hire our students who have earned certificates at EPIC. Previously, local companies worked a lot with college students, but now it’s trickling down to high school students as well.”



“We’re providing students with a sense of real-world work in the field and allowing them to explore potential career paths.”

Mike’s



Advice

“Make sure your CTE courses offer something different for students.”

“One of the questions to ask when redesigning spaces for a CTE center is ‘how is it going to be different?’ If it’s just labs they did at their high school, why are students going to come here? It has to be different and you have to identify opportunities to get students out of the classroom and into situations where they’re doing work that is relevant and meaningful.”

CTE Centers in a Rural or Urban Setting

Rural and urban districts each face unique challenges in meeting the needs of their communities. Rural areas may contend with smaller student populations and limited resources, while urban districts often navigate issues like overcrowding and space constraints. Whether offering CTE courses through a dedicated CTE center or through local partnerships, these programs play a vital role in driving economic development and preparing students by teaching industry-relevant skills.

In this section, learn planning considerations for a CTE center in a rural or urban location and read how one district successfully used out-of-the-box thinking to create a successful CTE offering.

RURAL CONSIDERATIONS

Rural school districts face a unique set of challenges when it comes to planning a CTE center. With fewer local businesses and industries nearby, it can be difficult to find partners for every CTE program. However, this challenge also presents an opportunity for rural districts to build deeper, more strategic relationships with the businesses, colleges, or community organizations that are available to help shape their CTE offerings.

Additionally, rural districts can face challenges with recruiting staff and enrolling students. However, there are unique ways for districts to create attractive and competitive opportunities for staff and students. Payette River Regional Technical Academy, for example, offers online courses to students from other small districts. They also moved to a four-day work week to entice educators to work there.

Ultimately, successful planning requires a long-term vision that balances immediate logistical challenges with the evolving educational and economic needs of the community.

URBAN CONSIDERATIONS

Urban school districts face a distinct set of challenges and opportunities shaped by their densely populated and diverse communities. When selecting programs, districts need to consider the wide range of student interests. To meet both student and community needs, offerings should reflect varied career pathways aligned with local industry demands.

Urban districts are also well-positioned to form partnerships with a wide range of local businesses, colleges, and organizations. These collaborations can enhance CTE programs through internships, mentorships, and job opportunities.

Thoughtful planning that balances opportunity with complexity can allow urban CTE centers to become transformative spaces that reflect and uplift the communities they serve.

DISTRICT HIGHLIGHT

Roanoke City Public Schools



Roanoke, VA

Roanoke City Public Schools opened Charles W. Day Technical Education Center (DAYTEC) as its CTE program grew and needed more space. The district took a former middle school they were currently using for a facilities and maintenance center and renovated it instead of building something new. Renovations included redoing the electrical and plumbing and taking down walls. It was still much more affordable than building from the ground up, especially since it was originally built to be a school.

The district partnered with various business leaders to help them with the renovation, including a local project manager.

“Having someone in the know that was also local was extremely beneficial to the renovation process,” said Kathy Duncan, CTE director for the district. “It was great having someone manage the day-to-day items so administrators and teachers could focus on their students instead of getting things up and running.”

Additional partners included a lighting company that helped put together the building’s courtyard and the local community colleges that provided considerations for lab and classroom designs.

“Working with the community members gave us helpful insights, as well as led to work-based learning opportunities for students,” said Duncan. “There are so many potential



partnerships out there for districts to keep in mind that can help with instruction or equipment.”

When the district prepared for the building to open, they prioritized recruiting students by promoting the new classes and opportunities they’d have for the next school year. This included mailers, flyers, phone calls, and eventually open houses and tours once the building was ready.

“It was so important for us to get creative, whether that meant going to various community meetings or grilling hot dogs for families as they toured during our open house,” said Duncan. “We wanted to make sure they knew what was coming and that we were listening to their needs as well.”

Kathy’s



Advice

“Get creative about hiring.”

“We hired nine teachers from the industry and helped them get their provisional licenses. They took three classes—classroom management, curriculum & instruction, and human development. We then put these teachers in a cohort and brought them in ahead of the building opening to give them time to complete the classes and teach alongside a current teacher for a semester. They learned best practices and procedures through this mentorship, and by the time the building opened they were fully licensed teachers.”

Staffing & Recruitment: Building Your Team

A CTE center can have state-of-the-art facilities and relevant curriculum, but it needs qualified and passionate educators in order to be successful. Recruiting and retaining instructors is often mentioned as a significant stressor for CTE administrators.

Learn how several CTE administrators handled recruitment for, and staffing of, their CTE centers.

FINDING QUALIFIED CANDIDATES

Many districts offer unique programs to entice people from industry to come to work for their CTE programs. According to Vance, Texas offers a District of Innovation designation that allows a district to exempt itself from requiring certification for hard to fill positions. This allows the district to hire professionals with industry experience to fill CTE positions.

Duncan knows firsthand about supporting the move from industry to teaching. She started her career as a critical care respiratory therapist before moving into higher education and then CTE at Roanoke City Public Schools.

As soon as the district knew the renovation was going to happen, they started advertising positions. The district hired multiple people from industry and partnered with EducateVA to help their new hires learn how to teach in a classroom and get certified before the center opened.

Duncan also finds supporting teachers with a robust curriculum such as **ICEV** and providing every teacher with their own office and storage room, desktop plus laptop computers, and printers goes a long way in supporting their day-to-day work.

Culpeper County Public Schools found a secret weapon when they hired two co-operative education students to help in opening their center. “One of those two students sat in on every teacher interview offering a portion of questions from the student perspective,” said Richards-Lutz. “One of our hires said that having a student in the interview sold them on coming to our school.”

Other districts have offered incentives and stipends, with one even moving to a four-day work week, to recruit people to come to work at their CTE centers.

Conclusion

Throughout the country, districts are finding ways to provide CTE courses to students as the need to address workforce shortages continues to rise. Whether they are building a brand-new building, renovating an existing one, or getting creative with local partnerships, students are getting the hands-on, real-world learning experiences they need to succeed in future careers.

Dusty's



Advice

“Everyone should go out to their local CTE center...”

“I travel to visit CTE centers all over the country and it’s great to see how they are being creative and utilizing different spaces to make programs that students love,” said Dusty Moore, CEO of ICEV.

“Everyone should go out to their local CTE center because they will be blown away by what’s happening in the different centers across the country. It doesn’t matter if it’s an existing space they’re reconfiguring or a brand-new space, it’s about what they’re actually doing in the space that matters.”

CTE Planner Checklist

If you are considering starting or expanding a CTE program, here is a checklist to help you get started:

1. PLANNING

- Determine goals and objectives of the CTE center.
- Identify high-demand career pathways and community needs.
- Find partnerships with local businesses, workforce boards, and colleges.
- Create a board or committee to oversee the process.

2. FUNDING

- Secure funding source(s).
- Create a budget for the CTE center.

3. BUILDING & CONSTRUCTION

- Identify location (new build or renovation).
- Design facilities tailored to programs (labs, shops, etc.), but with the ability for change.

4. PROGRAMS & CURRICULUM

- Obtain necessary program approvals for the pathways identified in step one.
- Align programs with state and national CTE standards.
- Develop work-based learning opportunities (internships, dual credit, certifications, etc.)
- Use a robust curriculum, like **ICEV**, that can both help industry professionals teach and provide examples of the work in action before students do their hands-on work.

5. STAFFING

- Hire qualified teachers and industry professionals.
- Provide professional development and mentorship.

6. STUDENT RECRUITMENT

- Create marketing plans (student visits, open houses, flyers and other materials, etc.).
- Determine enrollment policies while considering transportation and scheduling.

7. EVALUATION

- Set up data/reporting systems such as **Eduthings** (align with Perkins V requirements).
- Schedule regular program evaluations and feedback sessions.