

# **CTE Implementing Career Clusters: Preparing Students for High Skill, High Demand, High-Wage Careers August 25, 2016 Transcript**

[00:00] Good afternoon. Welcome to the Virginia Department of Education's Professional Development Video Series. I am George Willcox, associate director in the Office of Career, Technical, and Adult Education.

Today's video session will focus on the 16 Career Clusters and 79 pathways, with an emphasis on using data to make data-driven decisions about the type of appropriate CTE courses that offer in each local school division, region, and across the Commonwealth.

Today, we have Luke Juday from the University of Virginia. He is a policy associate in the Office of Demographics in Public Service. Luke has spent considerable time studying the 16 Clusters, the 79 pathways, and looking at Virginia Employment data and national trends in terms of providing information that may assist local school divisions in making decisions about appropriate courses. Luke, welcome to VDOE...

[01:29, Juday] Thank you.

[Willcox] ...and we look forward to your presentation about data and its effectiveness in making decisions about course offerings.

[Juday] ...Thank you. I'm happy to be here.

[Willcox] Very good.

[Juday] Thank you, George. Today, we're here to talk about implementing career clusters for high-skill, high-demand, and high-wage careers. Want to talk about three things today in this professional development session. The first is, what data are available and where can data be found. Part B, we're going to look at using data; how can labor market data and career clusters be used to prepare students for these high-demand careers? Then in Part C, we'll look at how

data can be used to complete the new CTE course application and give you a practical walkthrough of how you'll be using this data for that application.

So Part A, Finding the Data. The CTE Trailblazers website in the labor market data section, which has a link at the top of your PowerPoint there, gives you all of the VEC's employment projections for the next 10 years, which we have sorted into career clusters for your use on applications and in research. Now I want to note here that the employment projections come out every two years. The most recent data has just been released, in fact, last week, and that is the 2014 to 2024 data, and that'll be available within the next few months on the CTE Trailblazer's site in a reorganized format. But most of the data that you'll be seeing on these slides is still 2012 to 2022, with some exceptions.

The first website we'll look at is the CTE Trailblazers Labor Market Data website. What we do on this website is take data that's produced by the Virginia Employment Commission and then sort it so that it gives it to you in a more useable format for the clusters and pathways as you're applying for CTE courses. Look at the Labor Market Data page, then scroll down and find your Local Workforce Investment Area (LWIA). Later on in this session, we'll be doing a demonstration using data from Local Workforce Investment Area 13, the Bay Area Consortium. Click on your Local Workforce Investment Area and you'll download a spreadsheet.

Open that spreadsheet and you'll find data for the state, for your local workforce investment area, and the same data reorganized into clusters and pathways for your easy use. The CTE Trailblazers' spreadsheets each contain four tabs.

The first two, Virginia SOC Summary and Virginia Clusters Duplicated, are the same on every sheet. This is the statewide data. The first tab, SOC's Summary, comes directly from the VEC. The second tab is our reorganization according to clusters or pathways.

The second two tabs are for the local workforce investment area. The one that will probably be most useful to you is the fourth and last tab, the Local Workforce Investment Area clusters duplicated, which gives you data on the current and projected number of employees and growth rate for each occupation pathway and cluster.

[04:53] The next great source of data that I want to look at is the Virginia LMI or Labor Market Information website, which contains a significant amount of state-based data on employment. The second resource we'll be looking at today is the Virginia LMI or Labor Market Information website. This website contains a lot of the same data that you can find in the CTE Trailblazers website, but in a searchable format for individual occupations. But it also contains a lot of other data, including community profiles that are produced for each locality in the Commonwealth. Community profiles are useful because they list the significant amount of additional information like demographic data, workforce information, and the top 50 employers in that locality. You can use this list of top 50 employers to find potential partners as you develop programs and courses.

An additional source of information comes from the Virginia Economic Development Partnership's [yesvirginia.com](http://yesvirginia.com) website, which has community profiles for each locality in the Commonwealth. The Virginia Economic Development partnership has a [yesvirginia.org](http://yesvirginia.org) website, which also contains Community Profiles. These Community Profiles, similar to the ones that you'll find for the Virginia Employment Commission, are available for each locality. They give demographic and workforce information and a few of the largest employers, along with their number of employees. But these are oriented more towards companies that are looking at the locality for economic development purposes.

These Community Profiles, unlike the ones available on the Virginia LMI website, are produced more for marketing purposes for the locality for economic development reasons, and thus, they provide a lot more information and a very user-friendly format, though they don't contain quite as much information as the Virginia LMI reports do.

So far, all the data that we've looked at has been at a Virginia-wide level, and it's produced by the Virginia Employment Commission. This data is produced using local knowledge and local information to give you the best statewide numbers. But the Bureau of Labor Statistics, a federal agency, also produces employment projections at a national level. These can be very useful when you're looking at the overall national trend of employment and a particular industry. The BLS website has a few resources that you might want to look into.

The first one is its Economy at a Glance page, which is broken down by state. On the link in the PowerPoint you can go to the Economy at a Glance page for the state of Virginia, which gives you current and comparative employment numbers by industry. Economy at a Glance will give you a month-by-month breakdown of the growth and employment in each industry and its 12-month change. This can give you a good idea of what types of industries are on the upswing and the downswing most recently. You can also get back-data to look at this over a longer period of time. The BLS contains a significant amount of additional data at a national, state, and even a metropolitan or local level on employment. If you look at the employment page, you can see that the BLS publishes national employment projections. We'll look a little bit more at how to find these, because they'll be useful to us later on as we fill out the new CTE course application.

The Bureau of Labor Statistics website has a significant amount of data available on it. For this reason, it can sometimes be a little overwhelming when you're first navigating to it, but click on the employment tab. Here, there's employment data from a variety of surveys and different data products available at a state and national and a local level. The one that you're probably going to be most interested in is the National Employment Projections at the bottom of this matrix. Click on the Multiscreen Data Search tab. Then click on National or Occupational Projections Data, the one-screen data search.

Here you can find national projections and numbers of annual job openings in median annual wages for every occupation available in the CTE Trailblazers site but at a national level. You can also see the typical entry-level education, the work experience in a related occupation that might be required, and typical on-the-job training that might be required.

Part B is on Using the Data. All members of a secondary CTE team can and should make use of these data ... of this data. Administrators, especially, can know the high-skills, high-demand, and high-wage careers in their locality so that they can encourage the growth in those programs; confirm that their division has the appropriate preparation and coursework for students; and connect with local community members to create opportunities for students. Local CTE advisory committees can also understand the trends in their community as well as the trends in the state and the nation from a data-driven perspective. That will help them to help divisions connect students with appropriate advisors and experiences.

Teachers can also make use of this data to give local examples as a model for potential careers to consider both the skills and future education necessary for the students and their classes, and to encourage students to research careers in the field using this data so that they're familiar with the potential labor market. Career counselors that come in at this point as well, they can use the data to assist students in their search and preparation for careers and also to encourage students to research further careers in similar fields so that their potential, familiar with that potential labor market. And lastly, to connect with local businesses in promising career fields to try to help students get a leg up in their future careers.

[11:05] Clusters and pathways are a way of grouping occupations that are projected by the BLS and the VEC. Clusters and pathways group occupations together by common skill sets or by common types of tasks that might be performed in those occupations. This is helpful because research suggests that most American adults change careers or change major job areas five to seven times during their lifetime. So while a student may have a particular occupation that they're interested in and that they're working towards, and while this might be necessary in certain very specialized occupations, most students are going to experience a significant amount of job change throughout their lifetime.

Looking at clusters or pathways rather than specific occupations can help teachers and educators and the CTE administrators to think in terms of areas of growth and skill sets that might be valuable to students and whatever occupations grow or change in the near future.

Much of this data and the data sources that we looked at in Part A can be useful for students as well in doing their own research but there's also a great website called the Virginia Wizard that organizes this data in a way that is oriented toward students and can help them to look at potential careers in the future.

The Virginia Wizard website contains a lot of the same data that you might be able to find from these other websites but reorganized to be useful especially to students and to counselors. Click on careers. Here you'll find a set of tools and a walk-through to help students consider what their skill set might be, what they're interested in, and what types of careers might be available to them.

For data purposes, you can search careers by name or by cluster. Let's look at the Architecture and Construction cluster; it's the second one on this list. The Virginia Wizard website tabs particular careers that it deems to be in demand. These are careers that are growing faster than the overall economy and that students might want to look at that they want to have an easier time finding a job in the future.

Look at Crane and Tower Operators. The website will give you basic information about what kind of education that you might need to enter this career, how much money you're likely to make including your starting salary and then later your median salary later in your career, as well as the number of careers and the growth rate. It also gives you a great supply and demand graph, which suggest to you what kind of demand there will be for this job in the future.

One of the best way ... things CTE administrators and local advisory committees can use data for is to try to find occupations to prepare their students for that will experience growth over the long-term. As you're looking at this data, think of a few signals to look for in a particular occupation or pathway or cluster. One signal is, are there several occupations within a cluster that are projected to grow quickly? Is this an area of growth, or is there simply one small occupation that is likely to experience growth?

Another to ... signal to look for is whether the occupation is growing faster or slower than overall employment in the region. Most regions in the Virginia ... in the Trailblazers CTE websites are experiencing employment growth across most occupations, but a significant amount of employment growth is due simply to population growth. As population grows in a region, people require more services, more goods, and more administration, which results in more jobs. And while that does ... that is very real growth, it also means that that growth is coming with more people. It doesn't necessarily mean that an occupation is on the rise in a per-capita sense. So an important thing to look for is, is the occupational pathway growing faster than the overall employment in that region?

Another signal to look for is how does the starting wage stack up? Data on the CTE Trailblazers website provides the average wage and often students may be looking at that average wage or at a concept ... a popular conception they have of how much a particular occupation earns. But it's

important to also make them aware of how much they're likely to make immediately out of school or at an entry-level position.

A fourth signal to look for is how many jobs are available in that field? There might be a significant amount of growth planned in a particular occupation, but if that occupation is extremely small and niche, then it's likely that there are not going to be a great number of job opportunities, especially if a student wants to stay in a particular region.

And lastly, will there be many job openings in the future? The CTE Trailblazers website publishes the number of annual job openings to help students see which jobs are likely to come up most frequently.

[16:27] When we're looking at this data, it's important to have an overarching conception of the larger trends going on in the economy for context. So let's look at a few career clusters and pathways and at the state as a whole to get an idea of where the economy seems to be headed.

Virginia, overall, has nearly 4 million employees working in 2014. That number is projected to grow 9.25 percent by the year 2024 for an estimated 131,569 annual job openings. Each region varies in terms of how much growth it expects to receive, and so it's important certainly to understand in your local workforce investment area what the projection of job growth is for all occupations. But an easy number to keep in mind also is the statewide projection of 9.25 percent.

Careers that are growing more slowly than 9.25 percent are likely to be contracting as a proportion of the economy versus growing. This is important because, as careers contract, what happens is that there becomes a buildup of educated people with a significant amount of experience in that career field, and thus, jobs become very difficult to break into for entry-level candidates.

Jobs that are growing at a faster rate than that overall growth rate are likely to have more ... be more open to entry-level candidates coming in. Let's look at a few of the fastest-growing career clusters and talk about why these areas of the economy are growing.

The first is Health Science. Careers across health science are growing extremely rapidly, much faster than the state's overall growth rate. These numbers are from 2012 and are going to be revised down just lightly but they're still almost 25 percent growth across this career cluster. As you can see the largest pathway within health science is the therapeutic services, and this includes doctors, nurses, physician's assistants, certified nursing assistants, and all other caregivers who are providing healthcare services. These careers are expected to grow much faster than the overall growth rate, meaning there will be plenty of opportunities and significant wage growth expected in all these career over the next 10 years.

The second-fastest-growing cluster is in Human Services. This includes a wide variety of miscellaneous services being provided. One of the largest is personal care services, and one of the largest occupations in the personal care services is actually in-home care, which could potentially be classified as therapeutic since it's generally medical in nature.

So this is some ways tied to the health sciences growth. But you can see that across all human services the significant amount of growth is expected both in early childhood development, and counseling and mental health, consumer services, anything where a person is performing an act to provide a direct service to someone rather than producing a good for them.

One reason why these clusters are growing so rapidly is because of the aging population. The number of births in Virginia has actually been fairly consistent for several decades now, but what's happened is a very large generation, often called the baby boomers, have been moving slowly up in the age brackets ... up the age brackets. As a result, creating growth in each of those groups. So if you look at the statewide population by age group, over the last 10 years the fastest-growing group, at almost 38 percent growth rate, has been people over 65.

Virginias aged 50 to 64 have also been growing rapidly, as that's the tail end right now of the baby boom generation. As you can see in the lower age groups, there isn't a significant amount of growth. That's because of that consistent number. They're about as many 19-year-olds in Virginia today as there were in 1980. The growth has been happening ... the most population growth has been attributed to the upper-age groups growing larger.

[20:32] Older age groups, as we know, have more demand for health care services and also tend to be at the peak of their careers in terms of earning potential and thus they have money to spend on those health care services. That's part of why anything that is healthcare oriented is expected to grow significantly over the next several decades not just over the next 10 years. Additionally, there is been an overall increase in efficiency in most manufacturing and goods-producing sectors. As a result, employment is tending to shift over to human services in service-oriented rather than goods-producing types of clusters.

The third-fastest-growing cluster is Information Technology, with a 25 percent projected growth rate from 2012 to 2022. This includes a wide variety of techno ... high-tech careers. The northern Virginia area is experiencing some of the fastest growth in this cluster. This includes things like network systems, programming and software, and anything internet-based.

Information Technology, again, is a great cluster for the, for near-term growth because of that increased efficiency in goods-producing. As a result, a lot of our current gains, our current value being created in the economy is from new technologies that are increasing our efficiency as opposed to labor-oriented manufacturing.

Information Technology is a great career cluster to point your students towards for long-term growth. The governor's recent cybersecurity initiative is also focused on this cluster and has attempted to grow employment in Virginia and this extremely high-paying field.

Lastly, let's look at the largest cluster, Business Management and Administration. This includes, the ... by far, the largest number of jobs of any cluster and has largely average growth over most of its pathways. This is a great career field to point students toward because of the simple number of jobs. As I mentioned before, many occupations may be growing rapidly but they may have a very small number of jobs, making it difficult to find a job even if it is experiencing growth, especially if a student wants to stay in a particular region.

Business management and administration-oriented careers are the largest cluster and have a significant presence in every LWIA.

Now let's move on to Part C. Part C is how to use this data to fill out the new CTE course application, probably the most practical purpose of having a Trailblazer's data for most administrators.

The course application is available at the website linked above, and you can also find PDF instructions below, but we'll do a walk-through that'll help you to see exactly what numbers you're looking for on those spreadsheets.

The first thing to do is to scroll down and look at that course application. There's a table in it, in Part H, Section 1, that has ... has places for occupations and pathways that fit the course that you are attempting to apply for. Suppose, for example, that you're applying for Building Trades II - from Johnston County (obviously a made-up Virginia county) we're going to say that it's in Local Workforce Investment Area 13, which is the Bay Area Consortium. Now, this is a local workforce investment area that runs from the Fredericksburg area, which is growing extremely rapidly, all the way down to the Eastern Shore, Northern Neck and Middle Peninsula. There's a wide variety of things going on across, and that's where the earlier data that we talked about at a locality level may be useful to you. But for the purposes of a new CTE course application, we're just going to look at the data at a local workforce investment area level.

So first thing you want to do is think about the Building Trades II course. Some of the key words from it are masonry, carpentry, electricity, and plumbing. So what we'll do is navigate to the CTE Trailblazers website that I showed you earlier and look at the Labor Market Data spreadsheet. Download the spreadsheet for Local Workforce Investment Area 13, Bay Consortium.

In that spreadsheet there are four different tabs. The fourth one is the Local Workforce Investment Area Clusters Duplicated. That's the sheet that you're going to want to navigate to first. That gives you all the local employment numbers, broken down by cluster and pathway. Do a Control + F, or find, to find some of those key words and different occupations. So some of the ones that we've identified are carpenters, cement masons and concrete finishers, electricians, and pipe layers. These are occupations that might have a direct link to the course being applied for.

[25:29] The first thing that you'll need to find is the percent change in unemployment over the 10-year period. Take, for example, carpenters. Carpenters in the Local Workforce Investment Area 13 are expected to have a 25 percent growth rate. Very rapid compared to the LWIA as a whole. So we'll take that number and put it into column number two on that spreadsheet, which ask for the most recent 10-year projected percent for rate of employment growth. First, write the occupation in the pathway in the left and then put that number in column two.

The next column looks for the most recent 10-year projection for the number of new jobs and a Local Workforce Investment Area. This can be found right next to that percent change, and the number in this case is 296 new jobs. That number goes in column three.

Column number four asks for the most recent 10-year projection percent for rate of employment growth in the Commonwealth as a whole rather than in the Local Workforce Investment Area. In the tabs at the bottom of the sheet, look on ... look to the left for the Virginia Clusters Duplicated sheet and navigate to that sheet. On the Virginia Clusters Duplicated sheet, it should look extremely similar to the LWIA sheet, but you'll notice that all the numbers are a lot bigger because they're for the entire state.

Find the same occupation, carpenters, and identify the percent change over that 10-year period. In this case it's 24 percent. Put that number then in column four.

Column five asks for the most recent 10-year projection percent for rate of employment growth at a national level. This is where we'll go back to Part A, where I talked about how to find a BLS's National Employment Projections. Luckily for you, the sheet contains a link on that word National that you can click on, which will take you right to the website. On the BLS's National Employment Projections, search using key word in the Title column on the left side for carpenter. Find that same occupation and identify the employment change projected over the next 10 years as a percentage, and put that into the sheet. In this case, it's 24.2 percent.

Column six asks for the Most recent 10-year projected percent rate of employment growth across all occupations. This can be found at the top of that sheet. Going back to the CTE sheet, go back to the Local Workforce Investment Area Clusters Duplicated and look at the top row. You see all

occupations listed there and a percent change number. It's 17 percent in this case for the Bay Area Consortium. Put that number into column six.

Column seven asks for the most recent 10-year projection percent for rate of growth for the identified pathway in the Commonwealth. Again, you'll have to navigate back to the Virginia Clusters Duplicated sheet. Once you're there, look at the percent change for the pathway, in this case construction. It's 20 percent. Now, put that in column seven.

Now that you filled out this row, start adding additional rows for additional occupations that might be relevant to this course. Complete the table for as many occupations as apply. Don't just stick to obvious occupations; consider also occupations outside of the immediate pathway by asking yourself the following:

- What skills does the course build?
- How might this course motivate students to pursue in other careers?

For example, students who are interested in mechanical or civil engineer might benefit from Building Trades II. So this could be, in this case, relevant occupations when you're applying for that course.

[29:25] Once you've filled out that table, move on to part H, Section 2, Questions A through D. These questions reference your completed table.

Question A is, "Does the projected rate of growth for your ... for the occupations you have identified exceed the rate of growth for all occupations in your Local Workforce Investment Area?" Compare column two to column six on the table that we looked at before. In this case, you'll take each occupation that you identified in that first table and put the data from column two into the second column on this table and data from column six into the third column on this table. And then take the difference of them by subtracting the first ... the second from the first. It's as easy as that.

Using this number you can identify whether, in this case, carpentry is growing faster than all jobs in that region.

Question B is “Does the projected rate of growth for the occupations you've identified exceed the rate of employment growth for the overall pathway in the Commonwealth?” Again, look for data from column two in that first table and put it into the second column in this table. Then take the data from column seven in that first table and put it into this one and take the difference between the two.

[30:50] Question C, Sometimes a low rate of growth may still amount to a reasonably large number of jobs. Do you see evidence for large volume of new jobs supported by this course, in this case reference column 3? This is going back to what I talked about earlier. Even if there isn't significant growth, for instance in that business management administration cluster as I talked about in Part B, even if there isn't significantly faster growth in the overall economy it may still be a very large career and that's something that you want to be able to prepare students for.

Question D is, “Divisions prepare students for state and national competitiveness. Do the growth rates found in columns four or five on the labor market employment data table demonstrate that the careers supported by the course are expected to see rapid growth at the state or national level?” While we certainly want to prepare students as much as possible for jobs that will be available in their region, we also want to prepare them for jobs that will be available nationally or at a state level in case they move elsewhere. In this case, look at the growth rates nationally and the growth rate in the Commonwealth as a whole and see if perhaps fast growth in those areas justifies adding the course even if it's not a rapidly growing occupation in your own local workforce investment area.

Section 8, Part 2, Question E asks you to find another source of information to support your claim that this course will be valuable to your division. You'll have to move beyond just the data available on the CTE Trailblazers website. Consider some of the following options. Perhaps announcements of a new industry opening. Often, a locality's economic development office will put out announcements when a large business opens its doors within that locality. Has there been a major manufacturing center or processing plant that's recently opened in your locality that will require this type of job even if that's not apparent on the projections? Or, have your local leaders suggested that they're going to target a certain industry even though that's not apparent on the projection.

Also, you can look at newspaper articles, which will cover some of the same topics and other reliable examples of information about your community. You can find another projection or another article suggesting that there is likely to be growth for some unforeseen reason in a particular occupation. Find something that will support the projections or will help to bolster them in making your case for why you should offer the CTE course in your district.

There's a lot of quantitative information on high-skill, high-demand, and high-wage careers. Use these data to prepare your students for the workforce that they'll be facing for the years to come. The data is out there. There's no excuse to not target high growth industries. You have the information: Now go forth and analyze.

[33:44, Willcox] Luke, thank you for a wonderful presentation. The data was very specific in terms of how administrators can use that data to make data-driven decisions about the selection of CTE courses to offer students.

We believe that administrators will use this presentation throughout the year with their teachers as they plan for even the '17-'18 school year.

[Juday] Great. Thanks, George.

[Willcox] And we look forward to continuing to work with the Weldon Cooper Center to provide the Trailblazers website and the data that's produced from that, and we will certainly look forward to the 2014-2024 data to be posted.

[Juday] Great! And our contact information is also available on the slide if you have any questions about data or available to answer those questions.

[Willcox] We would ask that the administrators and teachers that watch today's session would take just a few minutes to complete the online evaluation form. We value your feedback; we use the comments that you share for constant improvement of these programs. We would ask that you would mark your calendar for September 1st. The next Professional Development Video Series will deal with Federal Program Monitoring: the Self-Assessment process plus the Civil

Rights Reviews, and that session will be part one of two. The primary presenter in that session will be William Hatch.

Thank you very much for watching today's session, and we wish all school divisions across the Commonwealth a successful 2016-17 school year.