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| A picture containing application  Description automatically generated*Ohio In-Demand Jobs and CTE Pathways Alignment Map* – User Guide |

****Introduction****

This map summarizes data from the Ohio Department of Education’s Office of Career-Technical Education and labor market data from the Ohio Department of Job and Family Services (ODJFS).

Users can navigate the map to visualize [in-demand and critical jobs in Ohio](https://topjobs.ohio.gov/top-jobs-list/overview) (statewide, by region of the state, and by county) and locations that offer programming for state approved career-technical education (CTE) pathways.

The map visually connects education and labor market data across the state of Ohio, giving valuable insights for ODE, families and students, employers, and policymakers on CTE and post-secondary education tracks that lead to in-demand careers and sustainable wage potential.

****Definitions****

This map displays *only* occupations that meet the [ODJFS definition](https://topjobs.ohio.gov/top-jobs-list/overview) of “top jobs” in Ohio, which include in-demand or critical occupations as described below.

**In-Demand Jobs**

In-demand jobs strengthen Ohio’s current and future strategic economic advantage and empower people with 21st century skills. These jobs have a sustainable wage and a promising future based on the projected number of openings and growth. The following criteria was used by ODJFS to define an “in-demand job” in Ohio:

* 80% of state median wage, $14.90 per hour, or more;
* Annual growth in the number of jobs higher than the statewide average of 20; or
* Annual job openings greater than 620.

In addition to these state labor statistics and projections, electronic job posting trend data and business responses to Ohio’s In-Demand Jobs Survey are components in defining in-demand jobs.

**Critical Jobs**

Critical jobs ensure that Ohio’s state workforce supports the health and well-being of Ohioans, their families, and our communities. Developing the workforce in critical job areas, such as early childhood education, mental/behavioral health, and recovery, are a priority because of their impact on the lives of Ohioans at every stage of life.

Critical Jobs are identified through the help of experts and stakeholders in eight career clusters. The eight priority career clusters include:

* Children and Community Health
* Early Childhood Education
* First Responders
* Lead Abatement and Construction
* Mental and Behavioral Health
* Nurses
* Physicians
* Wellness Research and Technology

**Occupations**

Occupations listed in this map are titled according to [Standard Occupational Classification System codes](https://www.bls.gov/SOC/#:~:text=SOC%20home%20%3A%20U.S.%20Bureau%20of%20Labor%20Statistics) (SOC codes) and may encompass multiple job titles used by industry. For more information on the various job titles, related occupations, required skills, and typical education or preparation requirements for roles, please see [Occupational Information Network’s (O\*NET) resources here](https://www.onetonline.org/). You can search by occupation title.

**Primary Career Fields**

For each in-demand or critical job with current postings available in Ohio, ODE and ODJFS have mapped the occupation to a primary career field. Ohio’s 16 CTE career fields are industry cluster-level categorizations, each with multiple active CTE pathways contained within them (e.g., Agriculture and Environmental Systems, Manufacturing). To see the full list of Ohio’s 16 CTE career fields and/or obtain more information [visit this link](https://education.ohio.gov/Topics/Career-Tech/Career-Fields), or visit the Career Fields-CTE Pathway(s)-Occupations tab.

**Primary CTE Pathways**

Within each Ohio CTE career cluster are multiple pathways. Whether a student is interested in going to college, getting an industry-recognized certificate, or working right after high school, career pathways further refine the education and industry exposure a CTE student will get that is relevant for specific career field pathways. For a full list of Ohio’s CTE career pathways, [visit this link](https://education.ohio.gov/Topics/Career-Tech/Career-Connections/Career-Pathways), or visit the Career Fields-CTE Pathway(s)-Occupations tab that crosswalks career fields, pathways, and occupations.

How to Navigate the Map

Upon entering the map, familiarize yourself with the map layout and features, including the major tabs along the top, the left-side filters menu, the right-side job availability and salary features, and the lower right legend. Each is described briefly below.

**Top Tabs**

* **In-Demand and Critical Jobs-CTE Pathways tab:** The main map page, to which this tool should default. This page allows you an opportunity to search for in-demand and critical jobs and see associated CTE pathways and the locations of state approved career-technical education (CTE) pathway programming by location. You can limit your search based on filters on the left and see wage and job availability (based on filters) to the right.
* **Career Fields-CTE Pathway(s)-Occupations tab:** This tab presents a crosswalk of primary OH CTE career fields to primary and secondary pathways, and to occupations for which those CTE pathways programs may lead, either through direct employment or transfer to post-secondary education and training that leads to them. As with the map, you can filter this crosswalk by various parameters through the menu on the left.
* **Ohio Career-Technical Planning District Report Cards:**  This tab links to Ohio CTE Planning district Report website and the most recent district report card. The information measures district and school performance in areas most critical to success in learning, as well as information about finances and expenditures, opportunities to learn and technology, and educators and staffing.

Map Features

**Filters**

Filters in the left-side menu allow you to limit your search by various elements (e.g., geography, career field(s) and pathway(s), occupations, specific populations), and examine factors like drive time from a CTE district location. **Demographic and commute-time filters** also exist in this list to provide more detail and considerations for planning, equitable access and proximity to in-demand programming across pathways, and indicators of current levels of education within a population.

* Population younger than 18 years is the percentage of population in the county that is under 18. The median for Ohio is 22%.
* Population with no HS diploma or GED is the percentage of the population in the county without a high school diploma or a GED
* Select district(s) for drive time allows users to select a specific district and visualize a 30-minute drive time radius for that district. This feature is useful if trying to determine the proximity of a specific career pathway available or the availability of jobs within a specific occupation.

**Top 10 In-Demand Jobs by Availability and Starting Salary**

This section allows you to filter by:

* Top in-demand and critical jobs by number of jobs available

***or***

* Starting salary

Tabs below the list allow you to toggle between job availability and starting salary. Notice that additional data/information is presented in this window.

**Legend**

The legend located in the lower, right designates map information by specified shapes or colors. Information available in the legend include:

* Number of Job Openings by Occupation (County)
* Secondary Schools with Selected Pathway
* Postsecondary Institutions
* Secondar Schools without Selected Pathway
* 30-minute Drive Time Radius

**Zoom and Refocus Functions**

To zoom in on a specific region of the map, the user can place their cursor on the areas of the map to which they would like to zoom in on and use their mouse to scroll or click on the + and – signs in the lower right of the screen. The user can also their mouse to click and drag on the map to refocus and recenter a specific location/ area.

**Pop-Ups**

There are two sets of additional information that users can access via pop-up windows.

* **School Pop-Ups** provide general school information and identify the approved CTE pathways offered, occupations aligned to those pathways, and district association.
* After selecting occupations, users can access **County-Level Pop-Ups** that provide information regarding the percent of the county’s population under 18 years old, the percent of the population aged 18 and older, the percent of the population with no high school diploma or GED, population without a high school or GED diploma and then a link to view the CTPDs associated with the county.

Example Map Search

Below is a short example of how a user might use the map to understand the Top 10 In-Demand or Critical Occupations in their County?”

The user can begin with the left-hand menu, filtering to their preference:

1. Choose a View: Select County
2. Region: (Inactive)
3. County: Select the specific county you are interested in learning about.

The county selected will be highlighted by a purple border.

You can zoom in to this County using your mouse or the + and – symbols on the screen.

1. Move to the upper right screen and click on the Job Availability tab the tab, located above the legend. This list indicates the top ten in-demand or critical occupations by the number of jobs available.

Information about the occupation includes total number of job openings, starting salary, median salary for the occupation, and typical education needed for entry.

For more examples on how to use the map to answer common questions, please visit example search exercise below.

****Data Sources****

* **Occupations, job openings, starting salary, and median salary**: Ohio Department of Job and Family Services (ODJFS), 2021
* **CTE Programs**: Ohio Department of Education, SY2020-21
* **Postsecondary Locations: Ohio Department of Higher Education, 2022**
* **Typical Education Needed for Occupation Entry: U.S. Bureau of Labor Statistics, 2021**

Contact

For questions about this map and/or the data presented, please refer to the User Guide or contact Becky Crance at [Rebecca.Crance@education.ohio.gov](mailto:Rebecca.Crance@education.ohio.gov).

## *Practice Exercise*

**Instructions**

This handout is designed to guide users through navigating the Ohio In-Demand Jobs and CTE Pathways Alignment Map and to generate observations and discussion. The table provides the following:

* Step-by-step instructions for how to navigate the map;
* Reflection questions to consider when exploring the GIS map to identify trends, opportunities, and challenges with strengthening alignment to career and technical education (CTE) programs and high-wage, high-demand occupations; and
* Note-taking space to document responses to the reflection questions and key observations.

This handout is not intended to limit exploration of the map when explored alone. Users are encouraged to ask their own unique questions of interest related to the data within the map and record associated observations.

| **Instructions: Navigating the Map** | **Reflection Questions** | **Notes** |
| --- | --- | --- |
| **Pathway Programming Availability by Career Field** | | |
| 1. At the top of the left-side menu, select “Region” for your geographic view. *Note: You can search by statewide, region(s), or county(ies). For this exercise, we will have you search by region(s).* 2. Select “Central” from the “Region(s)” drop-down. 3. Select “Health Science” in the “Primary Career Field” drop-down. 4. Next, observe the points on the map that indicate where CTE programs are and are not available for your selected pathway.  * You may want to zoom in using the + and – symbols in the lower right corner of the map. * Use the legend on the right to determine availability (blue and gray symbols). * Click on each symbol on the map to produce a pop-up with CTE center or community college information.  1. Consider the questions posed in the next column. | * How well is this region covered from a health science pathway perspective? * Are there certain counties in the region without any programming in this career field? With very little? |  |
| **Pathway Programming Availability by Pathway** | | |
| 1. Now, select the “Allied Health and Nursing Pathway” pathway in the “Primary CTE Pathways” dropdown. *Note: Your selections will automatically be limited to those pathways within the selected career field.* 2. Next, observe the points on the map that indicate where programming for this CTE pathway is and is not available (e.g., blue versus white dots, red versus white diamonds). 3. Consider the questions pos**e**d in the next column. | * Which CTE centers/schools offer programming for this pathway? * Where are there both secondary and postsecondary CTE programs in this pathway? * Which region (if multiple selected) or counties lack a CTE program for this pathway? * At first glance, are the closest programs for this pathway a reasonable/ commutable distance? |  |
| **Occupational information: Top Jobs by Job Availability and Starting Salary** | | |
| Next, select examine which jobs rise to the “Top 10 in-demand or critical jobs by job availability” in the list in the upper right.  You can toggle back and forth between top occupations by “Job Availability” and “Starting Salary” directly below the list.  Consider the questions posed in the next column. | * What are the top 3 jobs associated with this CTE pathway by job availability (number of postings)? * What are the top three jobs by starting salary? * Which have the best wage potential by median salary? * Any surprises? |  |
| **Occupational Information: Job Availability within a Region** | | |
| 1. Next, select “Surgical Technologist” in the “Occupation” drop-down. 2. Review the job openings by county heat map to see the concentration of this occupation within your selected region(s). *See legend in lower right-hand corner for job opening ranges.* 3. Review the top right box to view region-wide wage and openings information about the selected occupation. 4. Review the reflection questions in the next column for this occupation. | * Where are these jobs most heavily concentrated? * Are these concentrations surprising? * Does the concentration of jobs generally align with relevant pathway offerings across the region? * If not, where are there gaps? |  |