



**SCHOOL-BASED  
HEALTH ALLIANCE**  
The National Voice for School-Based Health Care

# THE CHILDREN'S HEALTH AND EDUCATION MAPPING TOOL USER GUIDE

Last Updated: December 2022



[www.sbh4all.org](http://www.sbh4all.org)

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In this User Guide for The Children's Health and Education Mapping Tool developed by the School-Based Health Alliance, we provide step-by-step directions for each function, ideas for how to use the tool itself, its limitations, a glossary, and a list of data sources. For questions or assistance, please email us at [research@sbh4all.org](mailto:research@sbh4all.org).

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## What is The Children's Health and Education Mapping Tool?

The [School-Based Health Alliance's Children's Health and Education Mapping Tool](#), developed in partnership with HealthLandscape, allows users to harness the power of geographic information systems (GIS) technology for data-driven decision-making. Initially introduced in 2014 in conjunction with HealthLandscape at the Robert Graham Center for Policy Research in Family Medicine and Primary Care, the tool has progressed into a user-friendly system designed to identify and characterize medically underserved areas and expand health service accessibly. Users can search, map, and download data on child health, education, and socioeconomic status at the county level compared to national averages. The tool can map, filter, and view critical characteristics of public schools, school-based health centers (SBHCs), and other healthcare facilities. It can also display indicators of community child and adolescent health, identify geographic areas of need, and examine public schools and SBHC characteristics. These abilities can help users plan where to target new services, collaborate with and learn from others in your area, advocate, and fundraise with compelling visuals and relevant data for grant applications.

This guide provides instructions for the Children's Health and Education Mapping Tool. The Mapping Tool is designed to help users:

1. Assess community child and adolescent health.
2. Identify areas of need.
  - a. Zoom in on the map to focus on disparities and resources in a specific area of interest
3. Target high-need areas with new or additional services.
4. Examine the characteristics of public schools and SBHCs.
  - b. Filter to display public schools of interest (Title 1 eligible, grades served, free and reduced lunch rate)
5. Collaborate with and learn from others in your area.
  - c. Display contact information of Health Centers and indicate which schools have existing relationships with those Health Centers
6. Raise awareness among policymakers.
  - d. Map U.S. and census geographic boundaries (counties, census tracts, congressional districts, school districts)
7. Fundraise with compelling visuals and relevant data for grant applications.
  - e. Download data on child health and education indicators by county or information on public schools, school-based health centers, and Health Centers in the area
  - f. Upload the organization's location data to add to the map as they're using it.

## Data in the Children's Health and Education Mapping Tool

See the Table below for data included in the Mapping Tool and its location.

Mapping Tool Location	Variable
Children's Health and Education Indicators Function: Health Coverage and Insurance Indicators	Under 18: Percent Insured
Children's Health and Education Indicators Function: Health Indicators	Teen Birth Rate
	Adult Population: Percent Obese
	Total Population: Percent Food Insecure
	STI Rate
Children's Health and Education Indicators Function: Education Indicators	Percent of Adults with No High School Diploma
	Percent Free Lunch

Mapping Tool Location	Variable
Children's Health and Education Indicators Function: Demographic and Socioeconomic Status Indicators	Percent Kids in Poverty
	Percent Kids in Single-Parent Households
	Percent of Households with Severe Housing Problems
	Violent Crime Rate
SBHCs & School Characteristics Function: Schools	Public Schools Locations
	Title 1 Eligibility
	Lowest Grade Level Offered
	Highest Grade Level Offered
	Free and Reduced Lunch Eligibility Percentage
SBHCs & School Characteristics Function: School-Based Health Centers	School-Based Health Centers (SBHC) Locations
	SBHC Sponsor Organization
	SBHC Provider Team
	Hours of Operation per Week
	Populations Served
	SBHC Serves Adolescents
	Grade Levels Served
	Delivery Model
	States
	Counties
Optional Layers: US & Census Geographic Boundaries	Zip Code Tabulation Areas
	Census Tracts
	Block Groups
	School Districts
	Primary Care HPSAs
Optional Layers: Health Policy	Dental Care HPSAs
	Mental Health Care HPSAs
	Medically Underserved Areas/Populations
Optional Layers: Health Care Facilities	Health Center Program Delivery Sites
	School-Located Delivery Sites
Optional Layers: Infrastructure	Interstates
	Major Roads
	Streets

## Glossary

**Census Tracts:** Census tracts are small, relatively permanent statistical subdivisions of a county. They average about 4,000 inhabitants (Minimum 1,200 – Maximum 8,000 inhabitants)

**Census Block Groups:** the smallest geographic area for which the Bureau of the Census collects and tabulates data.

**Health Center Program Delivery Sites:** Locations of Health Center Service Delivery and Look-Alike Sites based on Health Center Program Uniform Data System (UDS) Data reporting. Health Centers are also known as Federally Qualified Health Centers or Community Health Centers.

**Health Professional Shortage Areas (HSPA):** Areas (geographic, populations, or facilities) that have a shortage of primary, dental or mental health care providers.

**Medically Underserved Areas/Populations (MUSA/P):** geographic areas and populations with a lack of access to primary care services.

**Polygon Data:** Display of data that represents a bounded area.

**Point Data:** Display of data that exists at a specific location or address.

**School-Based Health Center (SBHC):** Offer the most comprehensive type of school-based health care. SBHCs provide the nation's vulnerable children and youth access to primary care where they spend most of their time – at school. SBHCs often also provide behavioral health, oral health, and vision care. Working at the intersection of health and education, SBHCs collaborate with school districts, principals, teachers, school staff, families, and students. Most SBHCs operate with an external community medical sponsoring agency in partnership with the Local Education Agency.

### SBHC Delivery Models

- **Traditional:** Patient access primary care in a fixed facility on a school campus; other services may be provided in-person or via telehealth.
- **School-Linked:** Patients access primary care in a fixed facility near a school campus; other services may be provided in-person or via telehealth
- **Mobile:** Patients access primary care in a specially equipped van or bus parked on or near a school campus; other services may be provided in-person or via telehealth
- **Telehealth Exclusive:** Patients access primary care in a designated space at the school EXCLUSIVELY via telehealth; other services may be provided in-person or via telehealth)

**School-Located Delivery Sites:** This represents health center service delivery sites attributed to a school location in the Health Center Program Uniform Data System (UDS) Data. Note: not all school-located delivery sites meet the definition of an SBHC and SBHCs not sponsored by Health Centers are not school-located delivery sites.

**Title I:** A federal program that provides supplemental financial assistance to local educational agencies for children from low-income families to help ensure that all children meet challenging state academic standards.

**Zip Code Tabulation Area (ZCTA):** generalized areal representations of United States Postal Service (USPS) ZIP Code service areas.

## Data Limitations

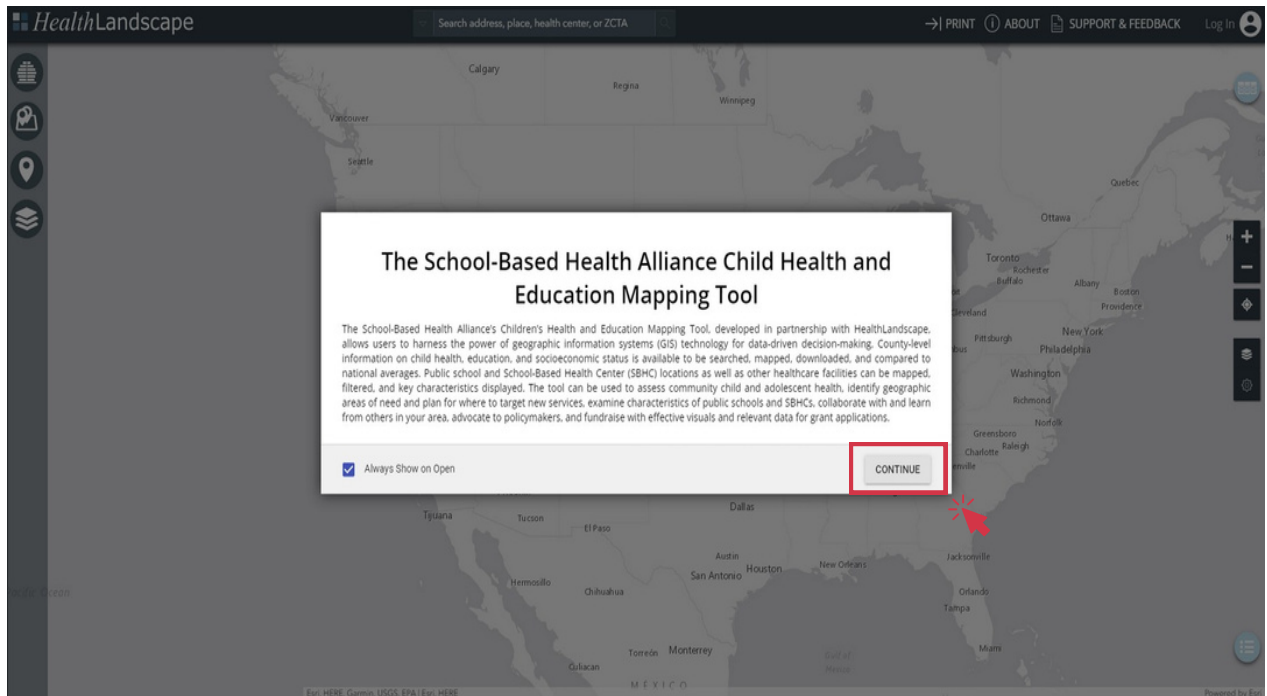
Users should note the following when considering the data reflected in the Mapping Tool.

1. **The data is not live.** Please check the data sources to see the year(s) of data reflected on the map for locations and health and education indicators. School-based health center locations are updated based on responses to SBHA's last National Census of School-Based Health Centers. SBHCs may have opened or closed since the previous data update.
2. The Child Health & Education Indicator data is at the county level. Variations may exist within counties that the data do not show.
3. The Mapping Tool cannot explain causation of Child Health & Education Indicator values.
4. The Mapping Tool does not test for statistically significant differences between populations or locations.

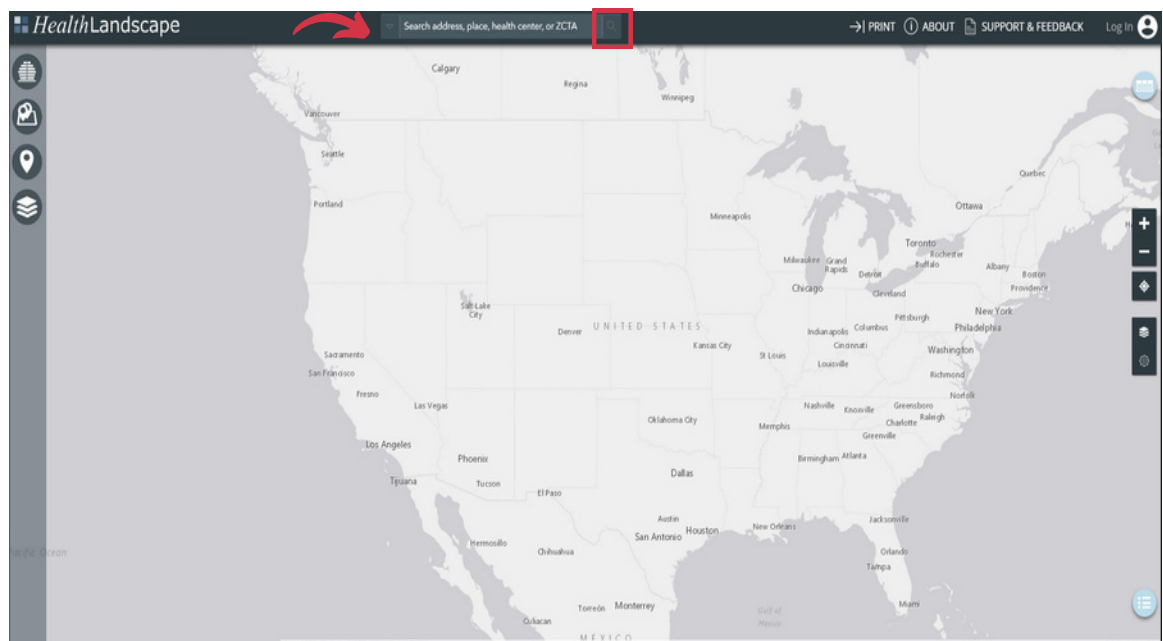
## Getting Started: Welcome Screen and Basic Functions

The Children's Health and Education Mapping Tool works on all browsers and all platforms, though it is optimized using Chrome or Firefox. We recommend accessing the UDS Mapper on any tablet or computer with a minimum screen size of ten inches. The Mapping Tool works best when exploring a region, state, or locality.

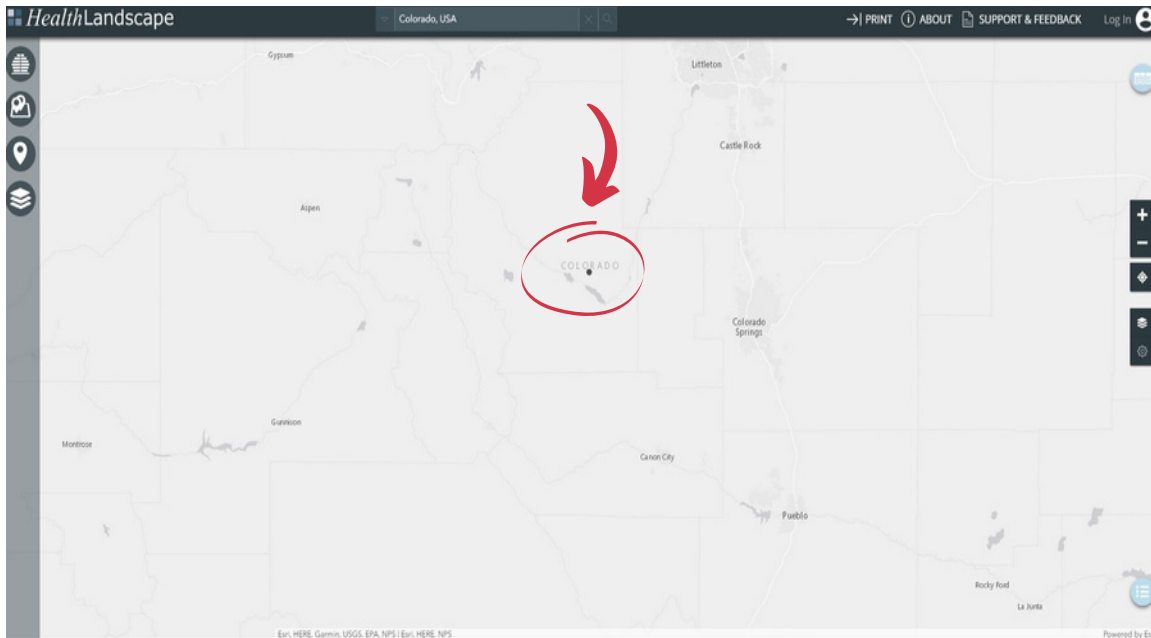
Upon first opening the Mapping Tool, the Welcome Screen will display. Click on the **CONTINUE** button to begin using the tool.



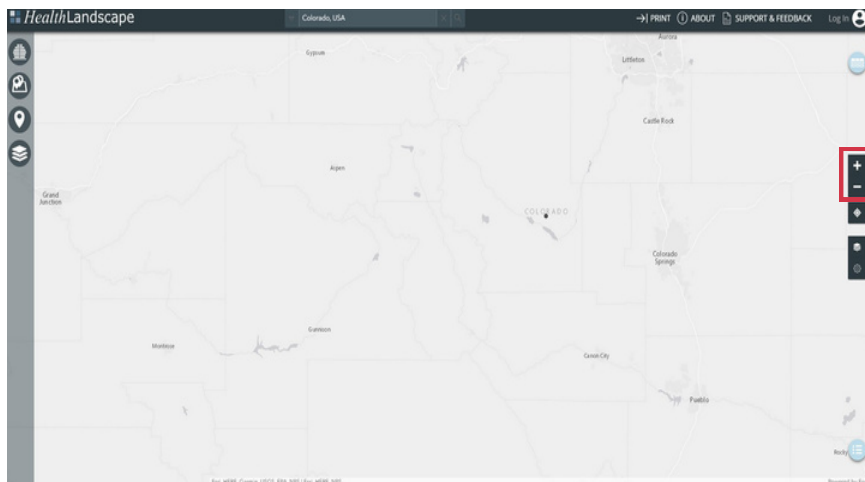
After the Welcome Screen, the entire map displays an overview. From here, **select a state** by using the drop-down options or typing in the search bar at the top of the screen and clicking the magnifying glass. Users can also enter a specific address, health center, or ZCTA (Zip Code Tabulation Area). For this example, we will use Colorado.



After clicking on the magnifying glass, the view will narrow to the identified area of interest and place a black dot, indicating the selection.



From here, users can zoom in to see a smaller area or zoom out to see a larger region. An arrow and blue box highlight the location view buttons in the image below.



To zoom in or out, use the Scale tool buttons:



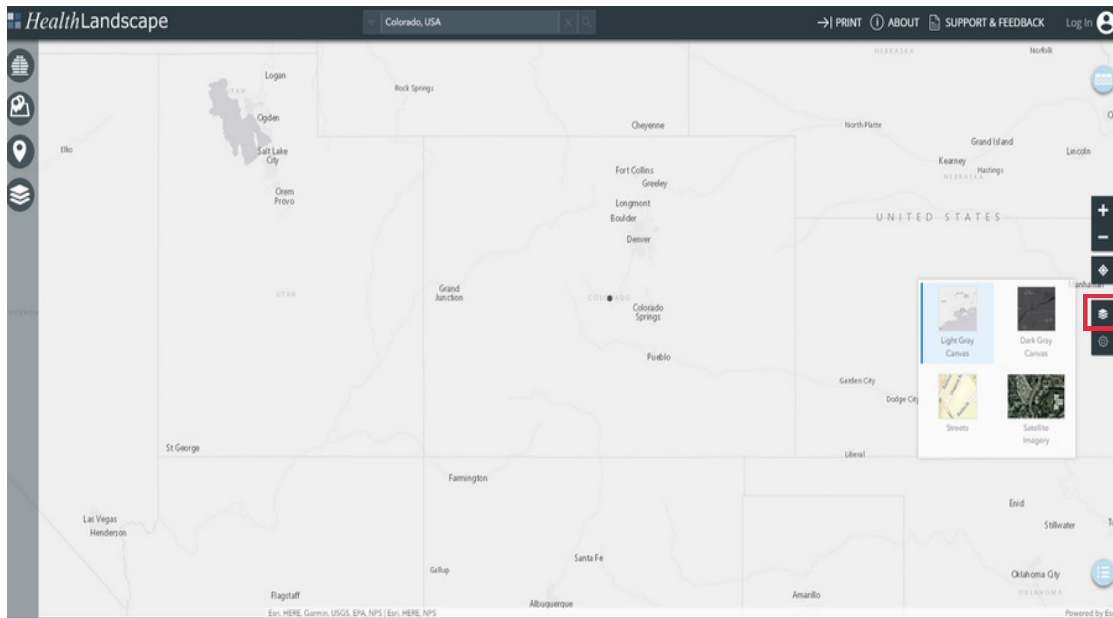
For Zoom In

For Zoom Out



## Basemap

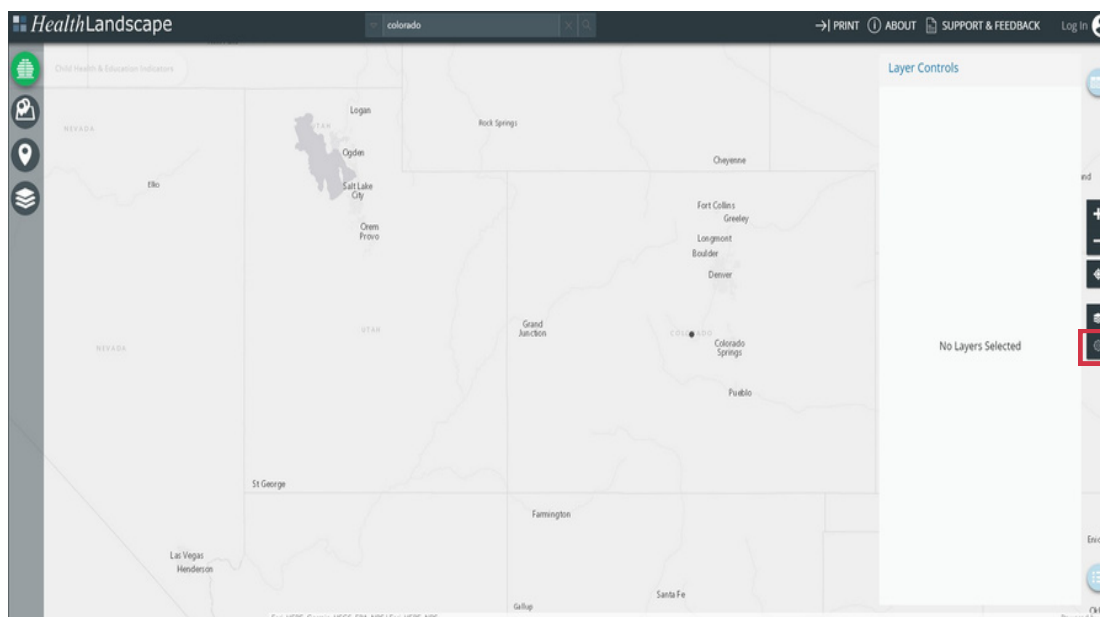
Users can use the **Basemap** button to change the background display between a light gray canvas, dark gray canvas, streets, and satellite imagery settings based on preference. Images in this guide use the Light Gray Canvas.



## Layer Controls

When using multiple functions within the HealthLandscape platform, each outlined below, use the **Layer Controls** feature to change the order in which the map displays images. Geographic data comes in multiple forms, the most common being points and polygons. The Child Health & Education Indicators tool contains polygon data, while the SBHCs & School Characteristics function contains point data. Depending on how users combine the tools, users may need to bring the points back on top of the polygons or vice-versa. Open the Layer Controls menu to drag the appropriate layer to the top of the stack.

To select the Layer Control button, click on the gear icon on the right of the screen (indicated below). The Layer Control button will read No Layers Selected until users activate one or more of the Mapping Tool functions. Once different data is displayed, users can rearrange it using this feature. This option is helpful when accessing School and SBHC information and designing print materials. Read more about the Layer Control feature in the section below on [Developing Resources](#).



# Child Health and Education Indicators Function

## Child Health and Education Indicators Content

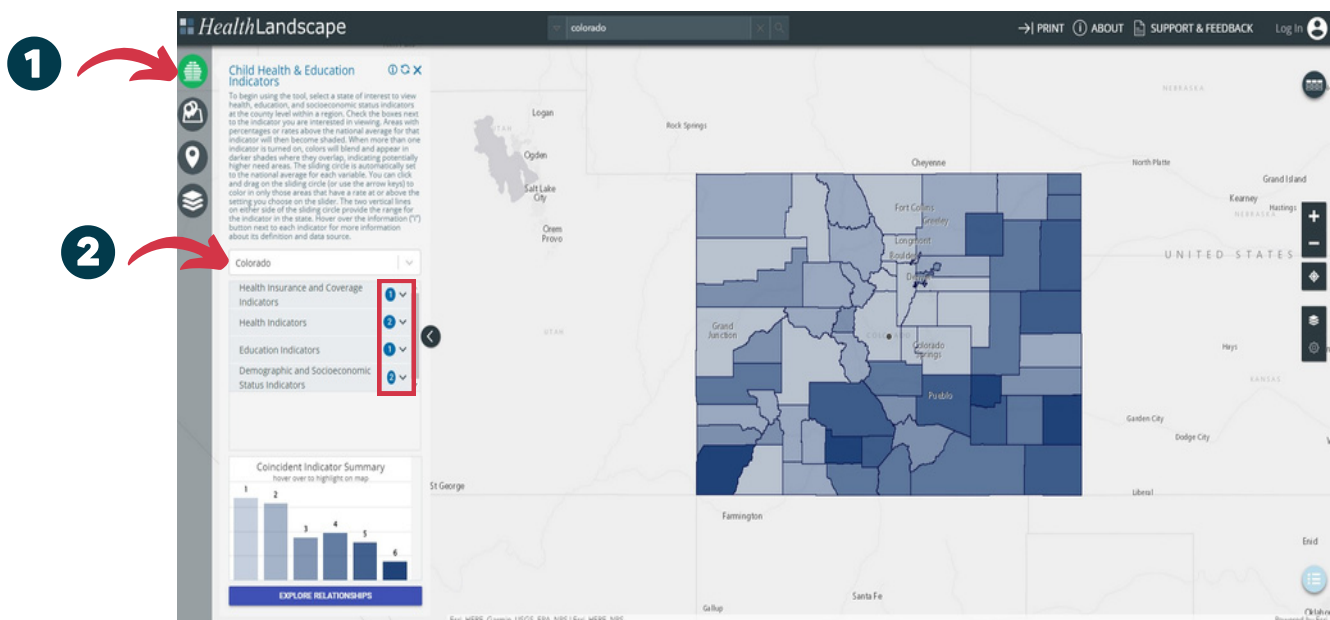
This tool includes the following categories and select indicators gathered from a range of national databases, including the US Census Bureau, the CDC Health Indicators Warehouse, and the Robert Wood Johnson Foundation Community Health Rankings.

- Health Coverage and Insurance Indicators
  - Under 18: Percent Insured
- Health Indicators
  - Teen Birth Rate
  - Adult Population: Percent Obese
  - Total Population: Percent Food Insecure
  - STI Rate
- Education Indicators
  - Percent Adults with No High School Diploma
- Demographic and Socioeconomic Status Indicators
  - Percent Free Lunch
  - Percent Kids in Poverty
  - Percent Kids in Single-Parent Households
  - Percent of Households with Severe Housing Problems
  - Violent Crime Rate

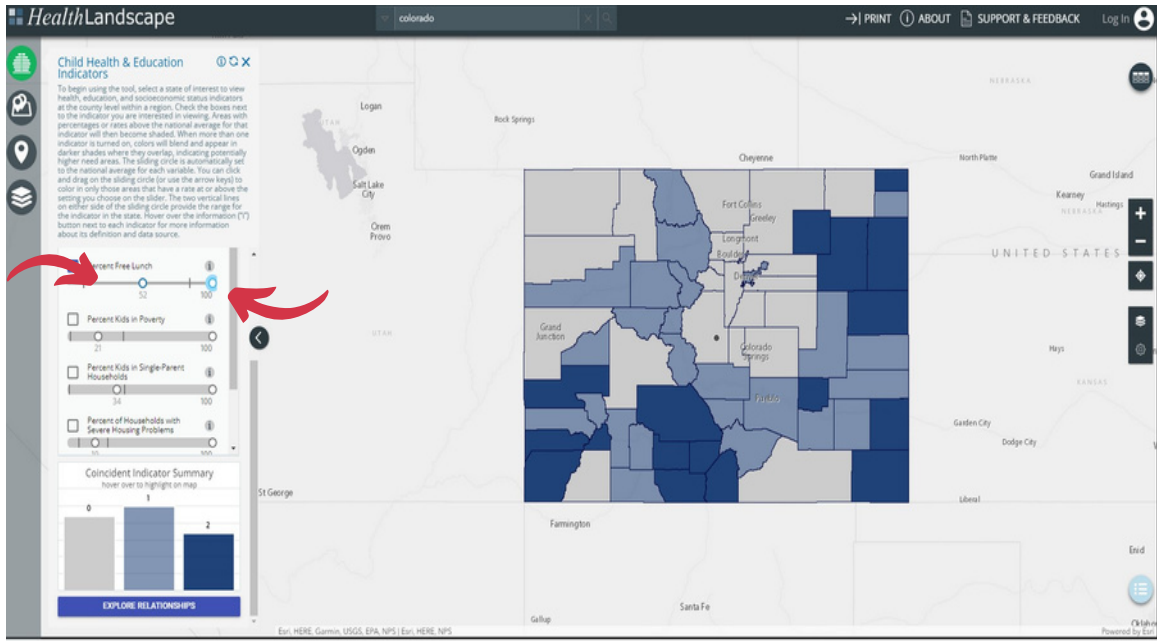
## Basic Uses

To begin using this function, click on the **Child Health & Education Indicators** icon on the left-hand toolbar. Select a state of interest to view health, education, and socioeconomic status indicators at the county level. The Child Health & Education Indicators tool contains polygon data. More details on polygon data are in the Layer Controls section above.

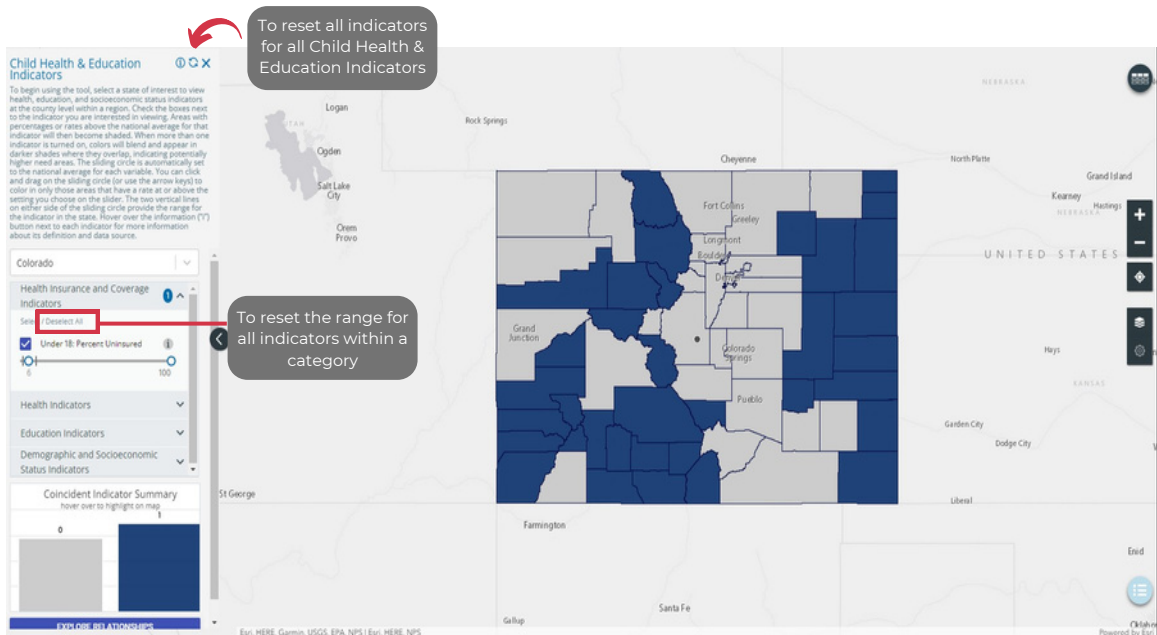
Click on a checkbox to turn on an indicator. Areas with percentages or rates above the national average for that indicator will then become shaded. Areas of higher need will appear in darker shades of blue to indicate overlap when more than one indicator is on. The number in the blue circles represents the number of active indicators in each category.



The first, or left most, sliding circle begins at the national average for each variable. The second circle is defaulted at 100 percent. Users can click and drag on the sliding circle(s) (or use the arrow keys) to narrow the selection to a particular range. The map will color in counties that fall within the set range. The two vertical lines on either side of the first sliding circle provide the range for the indicator in the state. Hover over the information ("i") button next to each indicator for more details about its definition, data source, and date.



When using any of the indicators, it is possible to both reset individual ranges and restart the entirety of the process with two simple buttons. To reset the range for all indicators within a category (e.g., Health Indicators, Education Indicators), the user can choose the "Deselect All" button, highlighted with a blue square below. To reset all indicators for all Child Health & Education Indicators, click on the icon that looks like two arrows in a circle.

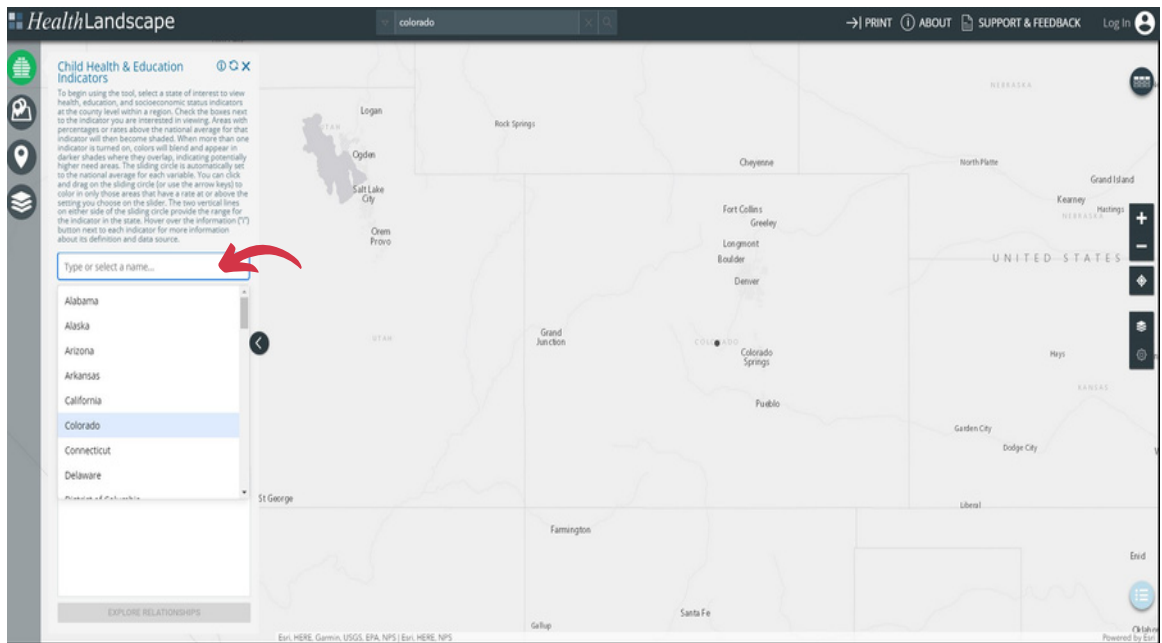


# Visualize Community Health and Areas of Need

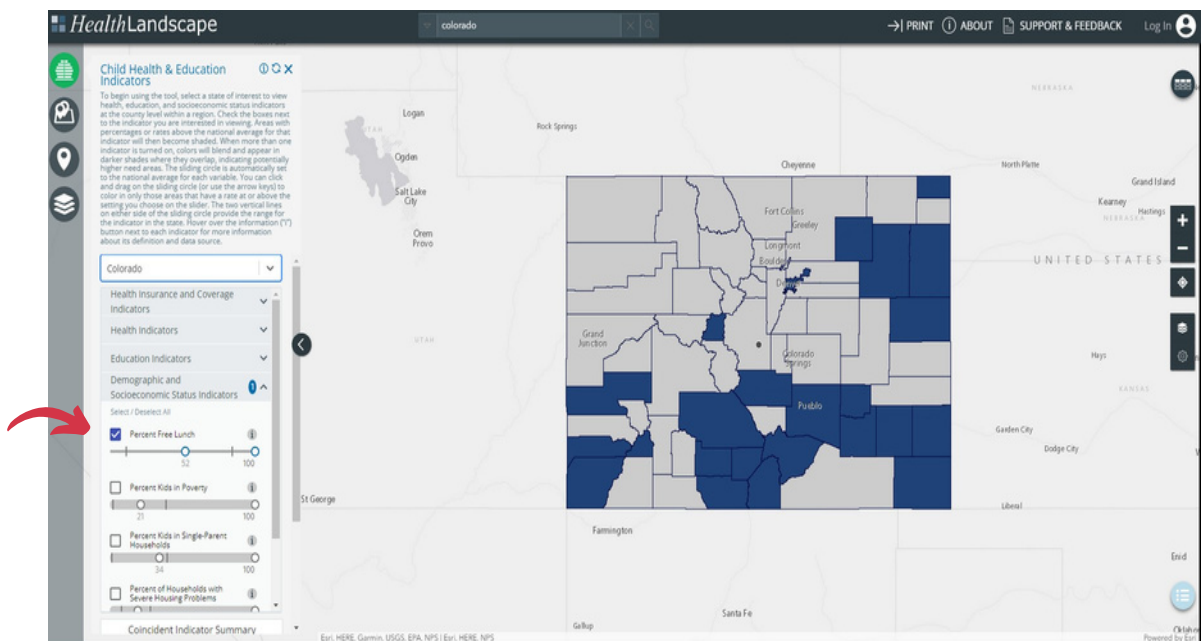
## View Counties Underperforming Relative to One Indicator

Generating a map from within the Child Health & Education Indicators component of the tool involves three easy steps.

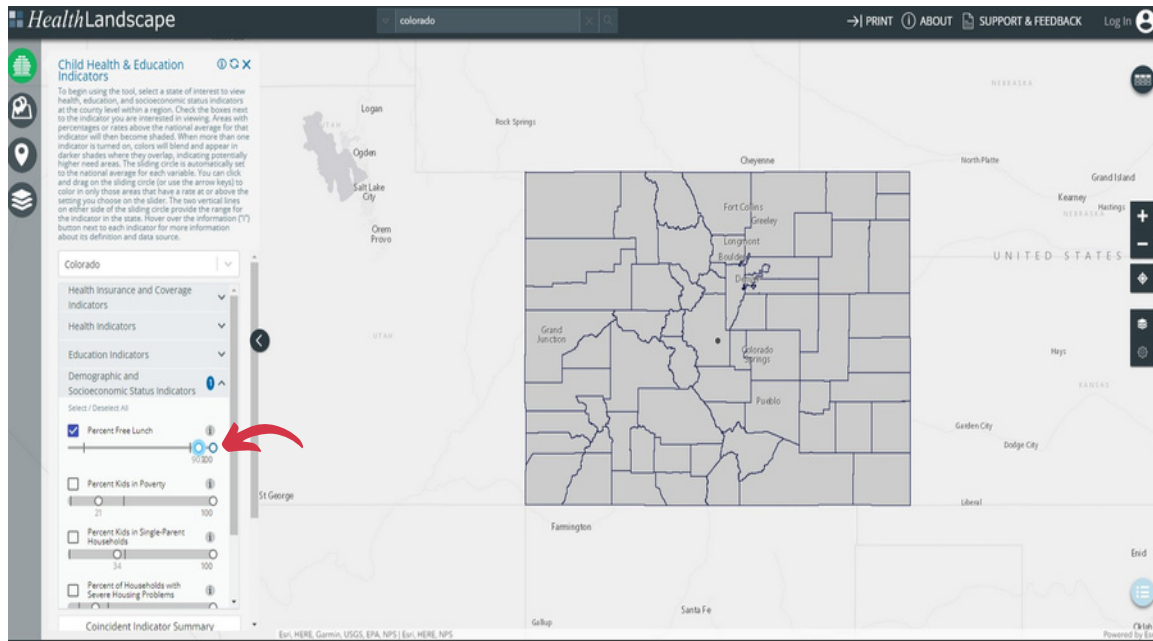
1. Select a state by using the scroll bar or typing in the area indicated with an arrow below.



2. Choose one of the 11 indicators. Four subheadings (Health Insurance and Coverage Indicators, Health Indicators, Education Indicators, and Demographic and Socioeconomic Status Indicators) categorize the indicators. Activate the indicator of interest using the checkbox. The first (left most) sliding circle is automatically at the national average for each indicator. Counties with percentages or rates underperforming relative to the national average for that indicator will then become shaded for the selected region. For example, the active indicator here is Percent Free Lunch.



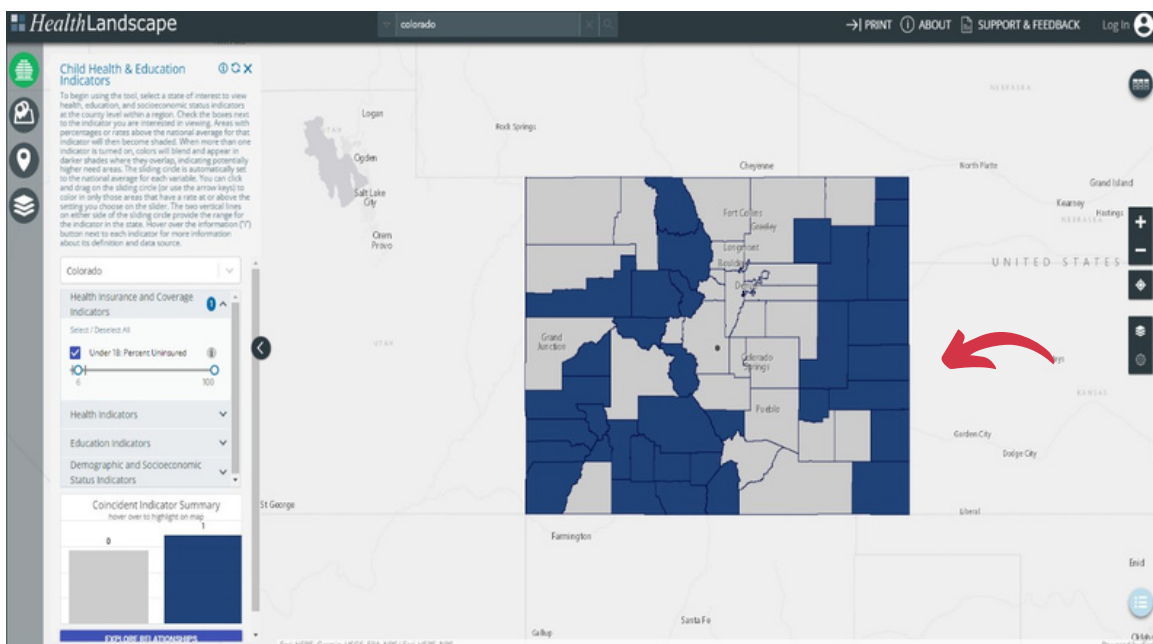
3. Adjust the sliding circle beneath the indicator to change the range of values shaded on the map. Users can click and drag the sliding circle(s) to counties with a percentage or rate at or above the setting or setting range chosen on the slider. The two vertical lines on either side of the sliding circle provide the range of values for the indicator in the state or the U.S. If users slide the circle outside the two bars, they will note that there are no values.



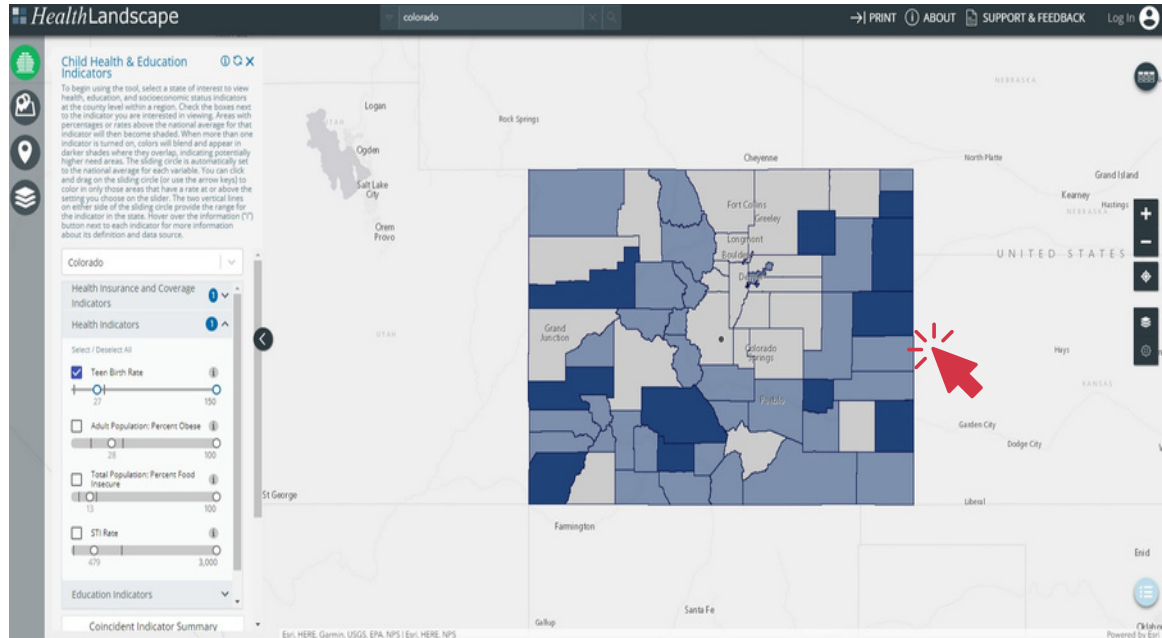
## View Counties Underperforming Relative to Multiple Indicators

Generating a map with numerous indicators from within the Child Health & Education Indicators component of the tool is similar to developing a map with a single indicator:

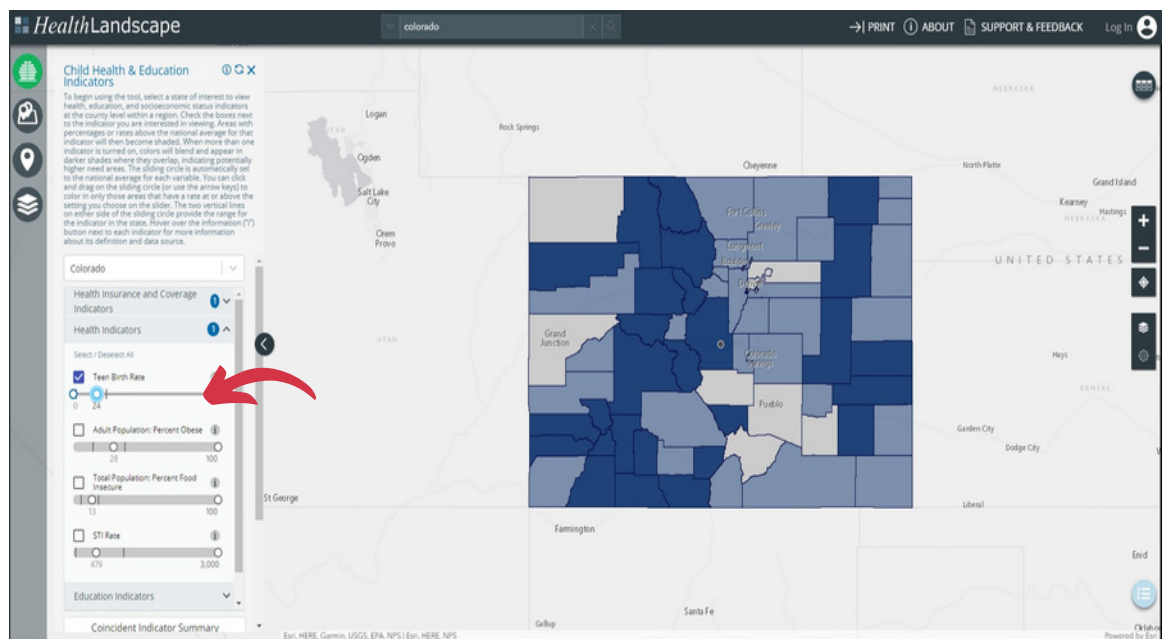
1. Follow the steps outlined above to create a map with one indicator.



2. Select as many other indicators as desired by clicking on the corresponding checkbox. The first (left most) sliding circle next to each indicator is automatically at the national average for each variable. Counties with percentages or rates underperforming compared to the national average for that indicator will then become shaded for the region selected. When a user turns on more than one indicator, colors will blend and appear in darker shades of blue where they overlap, indicating areas that may be in higher need.



3. Adjust the sliding circle(s) beneath each indicator to change the range of values shaded on the map. Click and drag on the sliding circle to highlight counties within the desired range. The two vertical lines provide the range for the indicator in the state or the U.S.

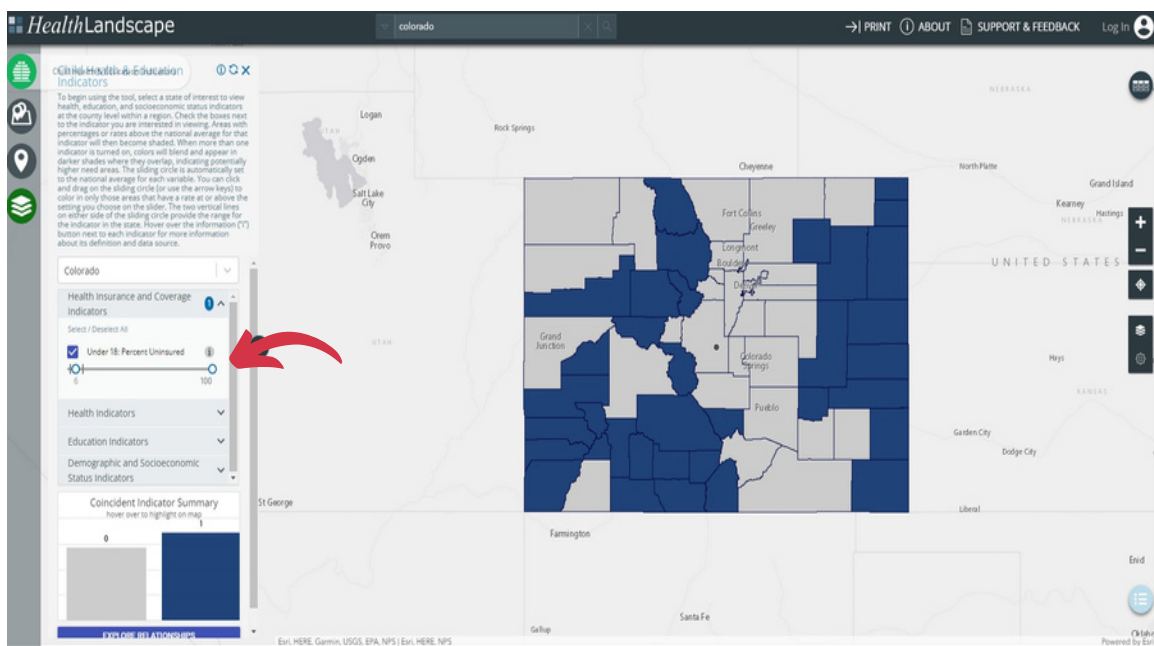


# Coincident Indicator Summary Histogram

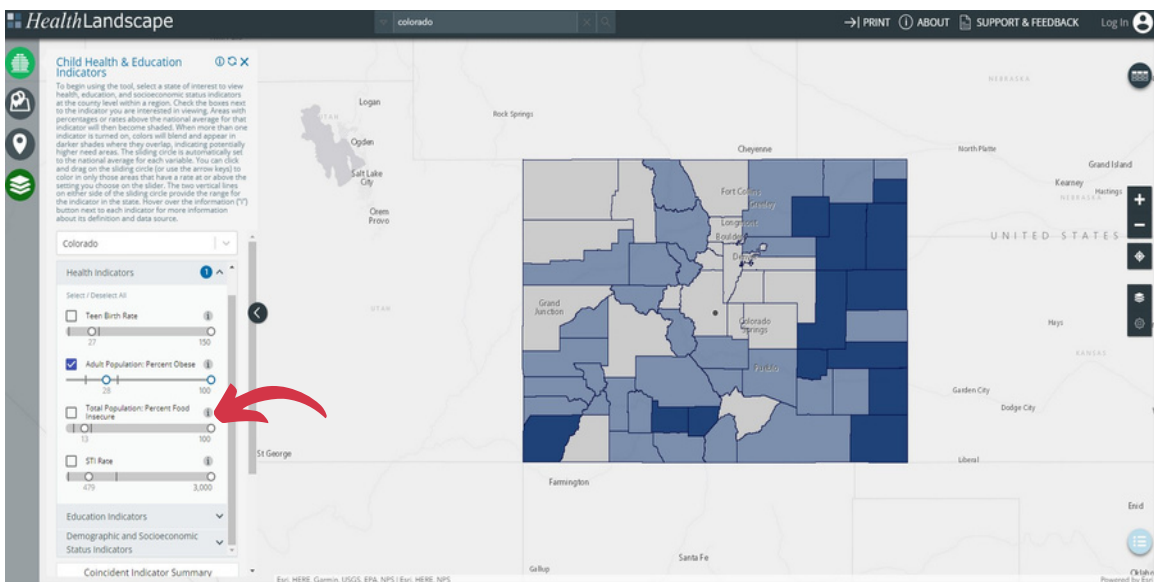
The Coincident Indicator Summary shows how many of the selected indicators' counties are underperforming compared to the national average. This feature will automatically appear after users choose at least one indicator in the [Child Health & Education Indicators Function](#).

1. Clicking on one of the bars will highlight only the underperforming counties on the selected number of indicators. For example, by clicking on the bar for "2," the map will show only the underperforming counties relative to the national average on two indicators. The map will no longer show the counties underperforming for all three selected indicators. A call-out will appear that indicates the number of counties with the selected number of indicators.
  - a. For example, with "Under 18: Percent Uninsured," "Adult Population: Percent Obese," and "Percent of Adults with No High School Diploma" selected, click the histogram bar for "2". The map will show the 30 counties in the state are underperforming relative to the national average on two of the three selected indicators.

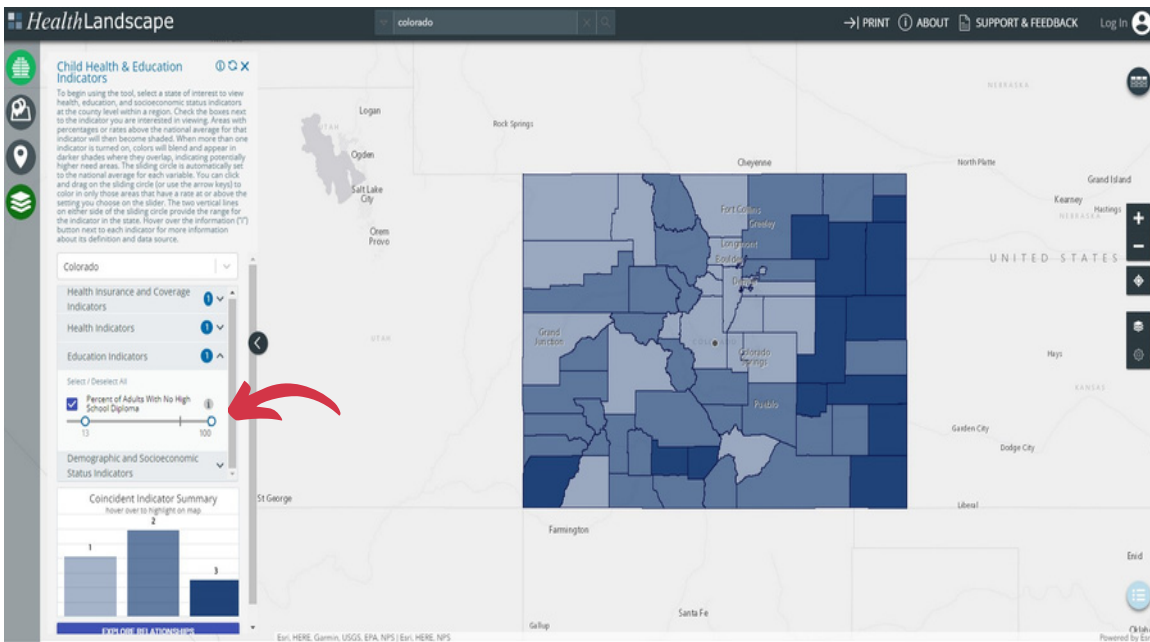
## Selecting Indicator 1- Under 18: Percent Uninsured



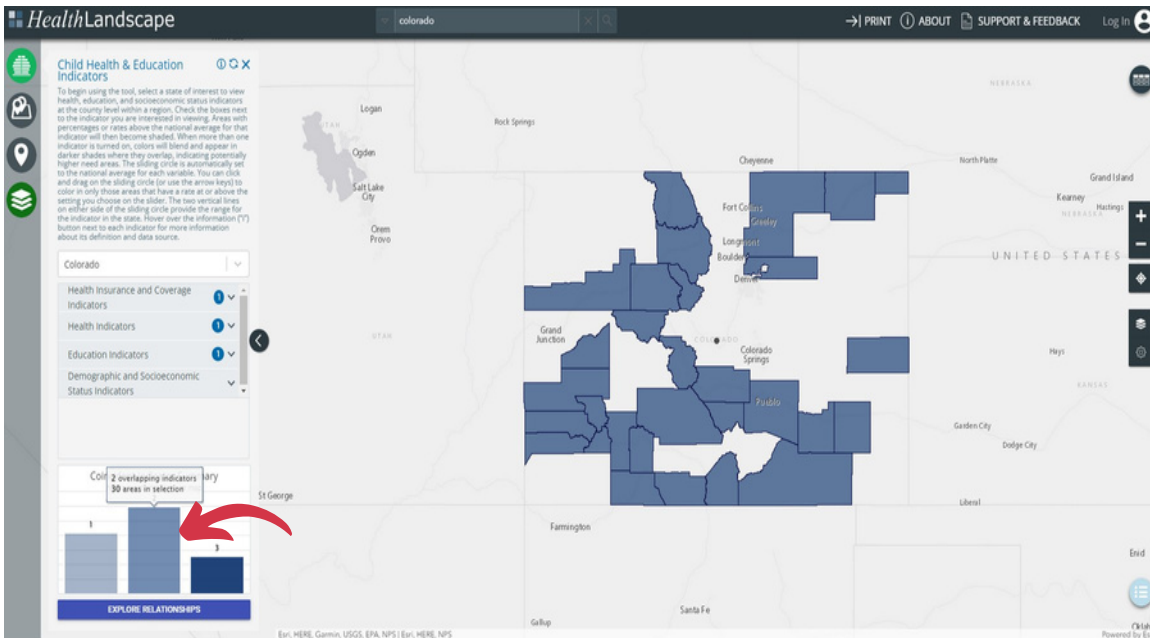
## Selecting Indicator 2- Adult Population: Percent Obese



## Selecting Indicator 3- Percent of Adults with No High School Diploma



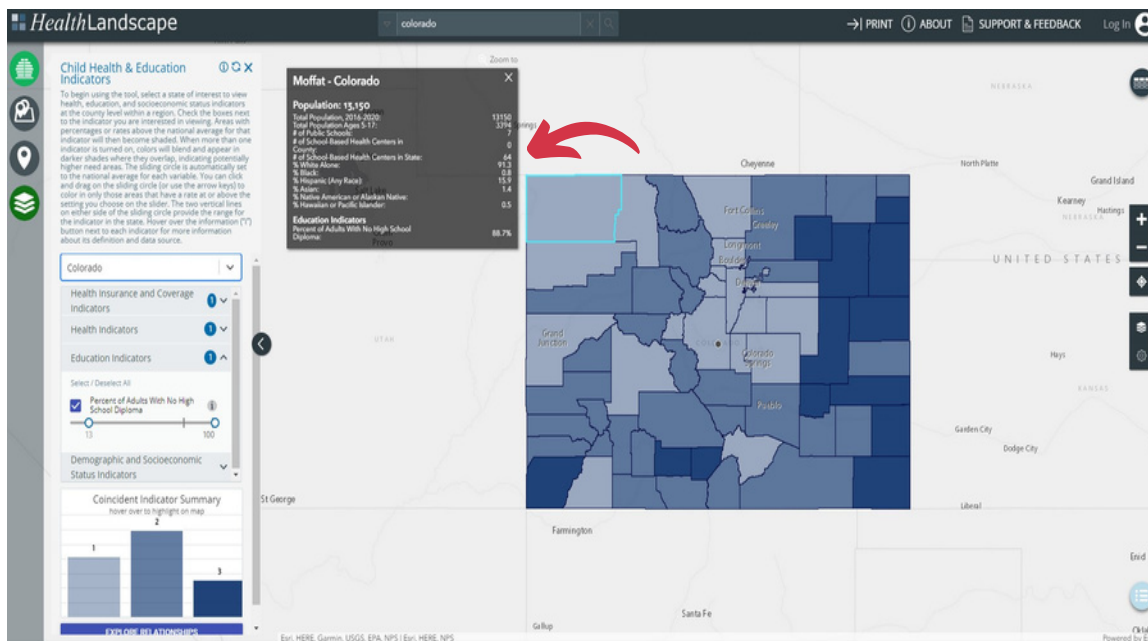
## Highlighting counties with an overlap of two selected indicators





## Learn More about a County

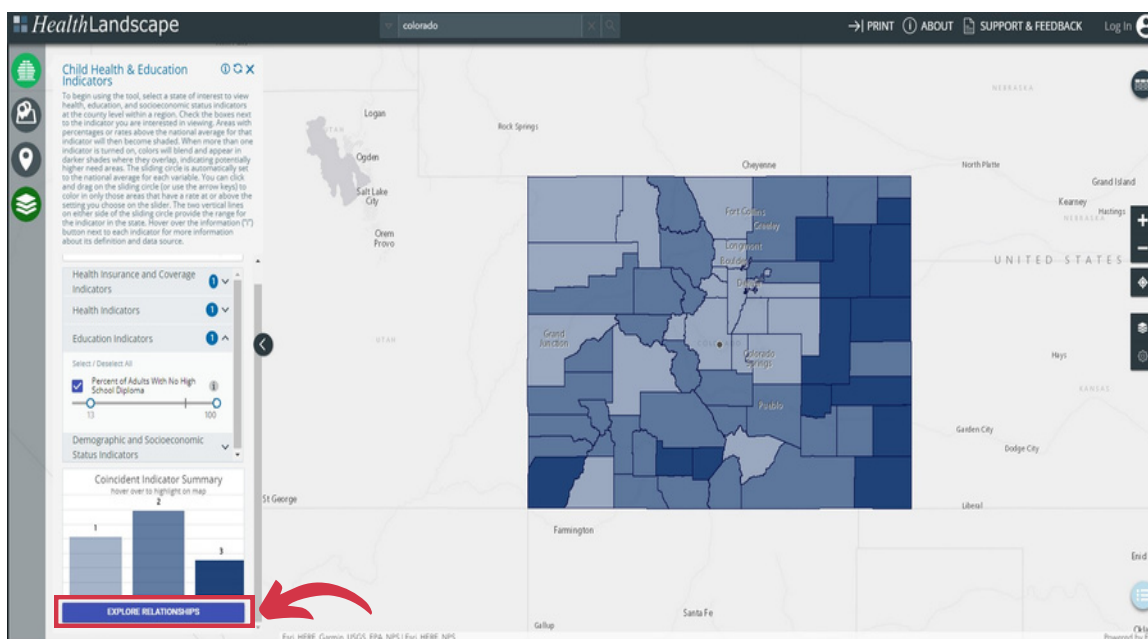
Hovering the cursor above a county will make a gray pop-up box that lists the County Name, Total Population, Number of Public Schools, Total Enrollment in Public Schools, and the Number of School-Based Health Centers in that county. Selecting the Child Health & Education Indicators also includes those values.



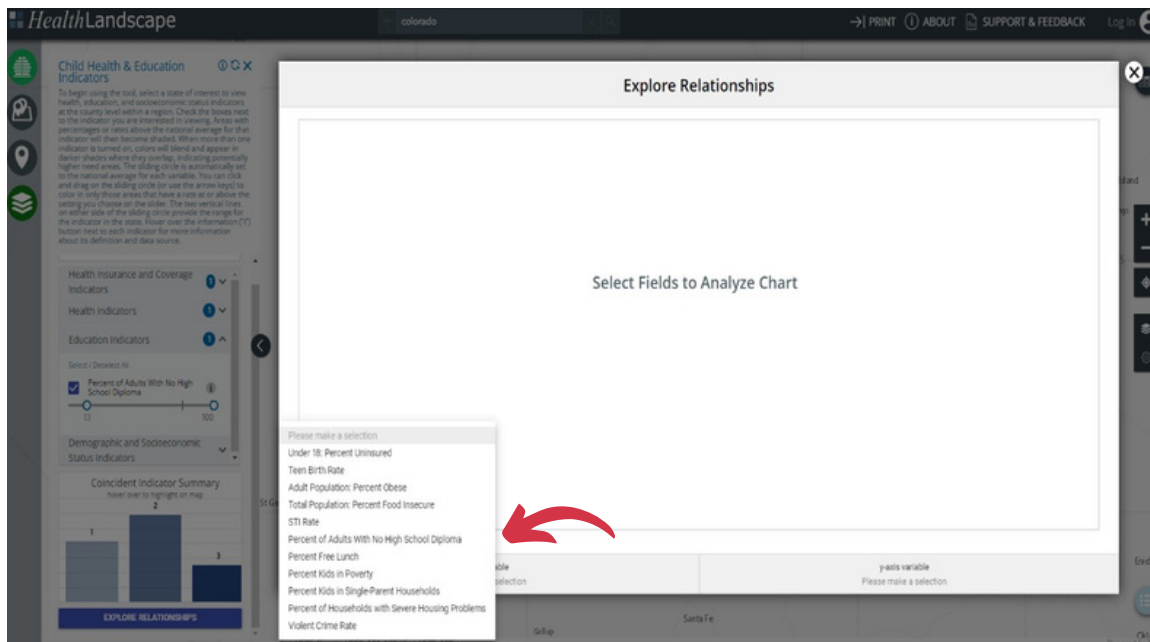
## Explore Relationships Feature

The large **Explore Relationships** button at the bottom of the panel allows users to display correlations between selected indicators. This tool is helpful for users comfortable with statistics looking for a visual representation of the association between two of the Child Health & Education Indicators. Users can confirm if indicators of interest have a positive or inverse correlation in a state. Note that this feature is only functional if there is adequate data available for the geographic region selected.

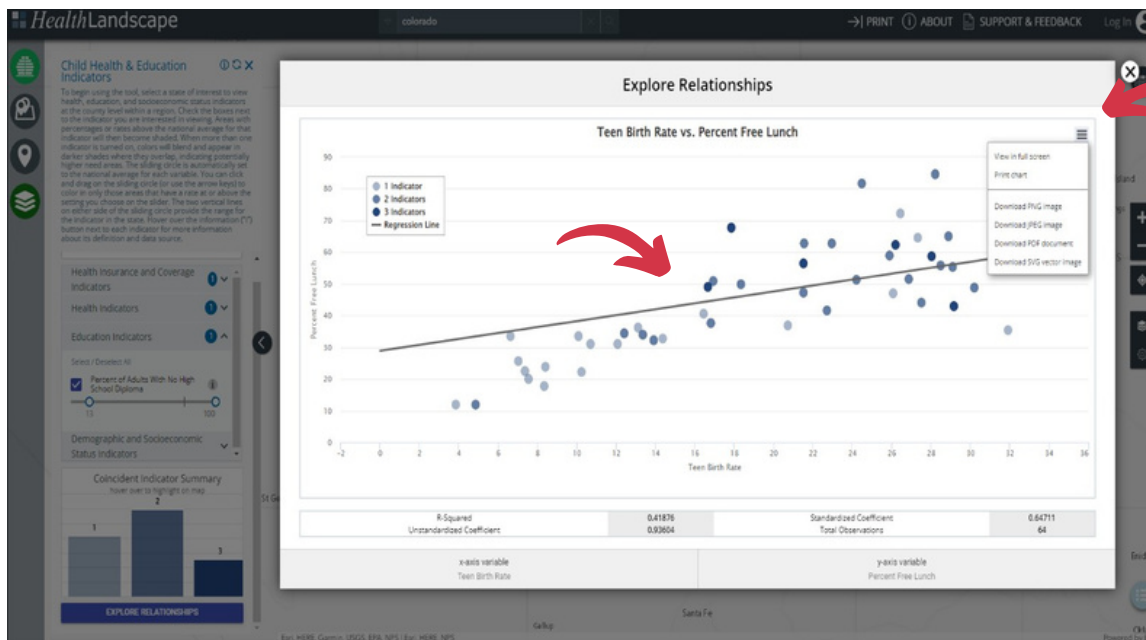
1. To use the Explore Relationships button, navigate to the long bar at the bottom of the indicator screen and click on it.



2. After clicking on the button, a pop-up will appear. The user can select from the indicators as variables to graph on an x-axis-y-axis variable.



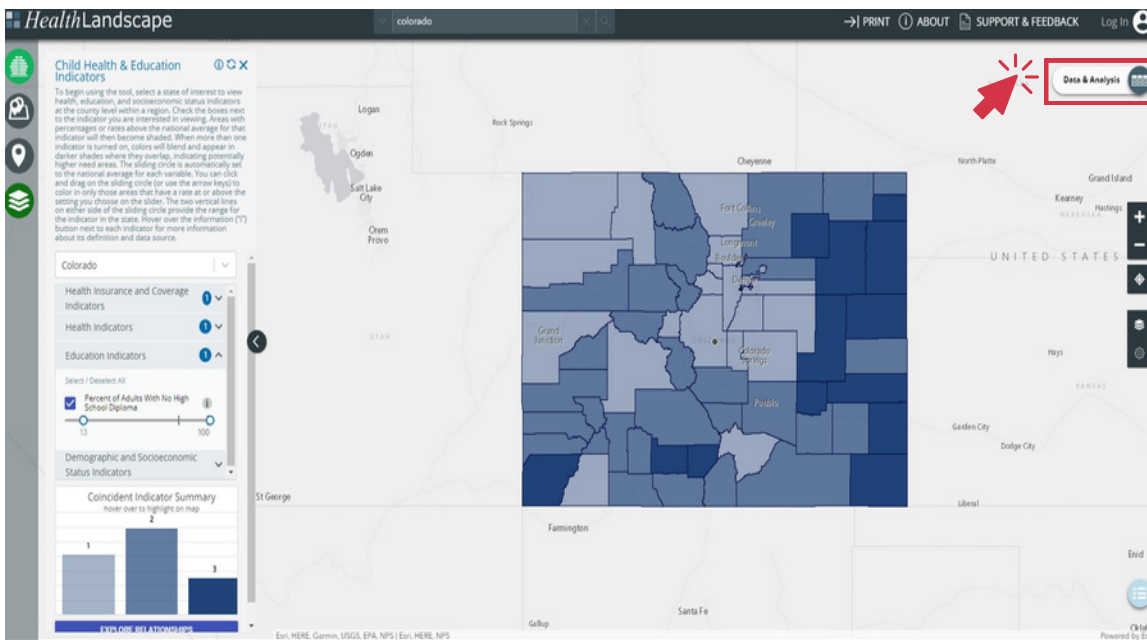
3. After selecting a dependent and independent variable, the feature populates the county-level data in a graph, including the regression line. The counties' extent of overlap in the selected health and education indicators remains depicted in varying blues. The bottom of the chart includes the R-squared value and the standardized and unstandardized beta coefficients. Users can select the three lines in the right corner to view the chart in full screen, print the graph, or download it as one of the listed file types.



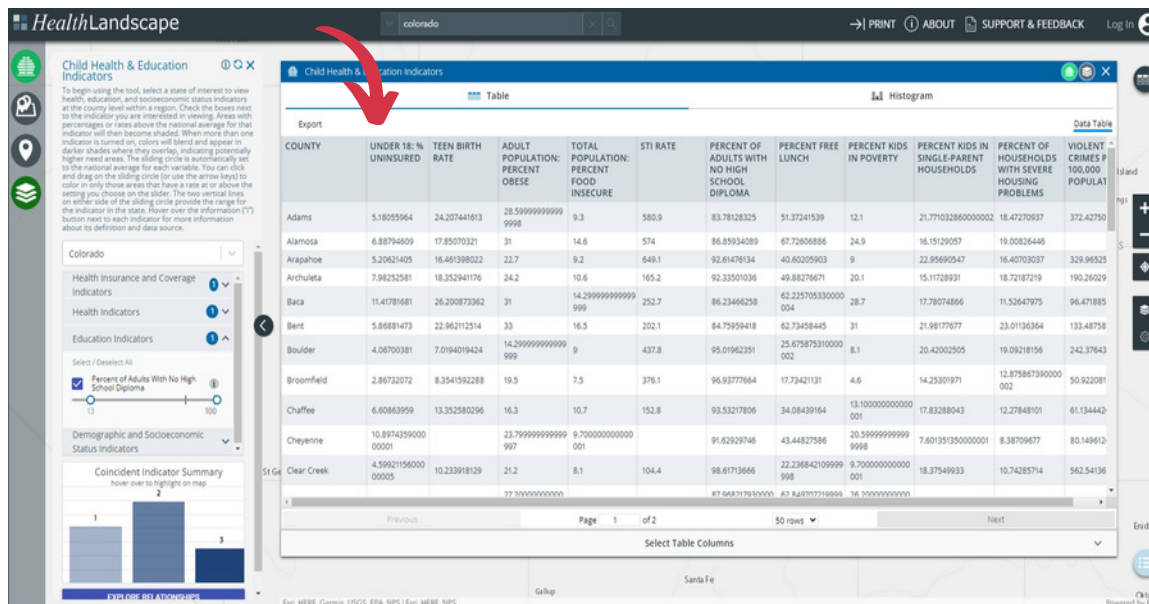
# Data View

Using the Data View, users can see a table representing all data on a selected map.

1. Click the **Data & Analysis** button after selecting all necessary information from the indicators on the left to view the information in a table.



2. Notice that a **pop-up window** appears with the indicator data displayed by county. It is possible to change the size of the sections by placing the mouse cursor between two categories and dragging it to the desired size.



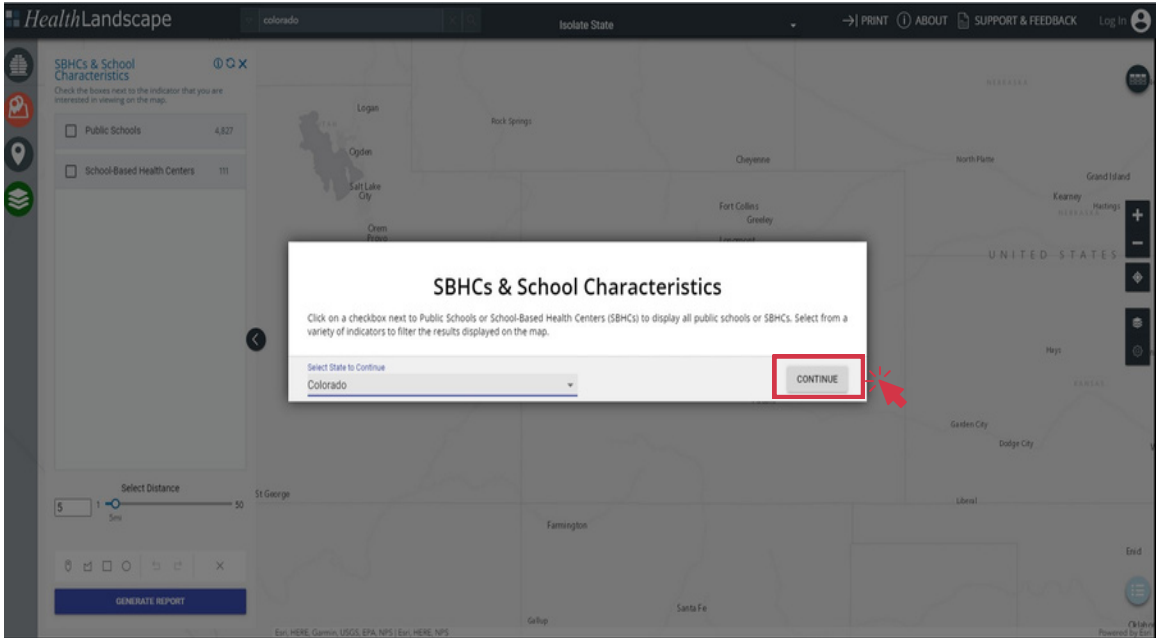
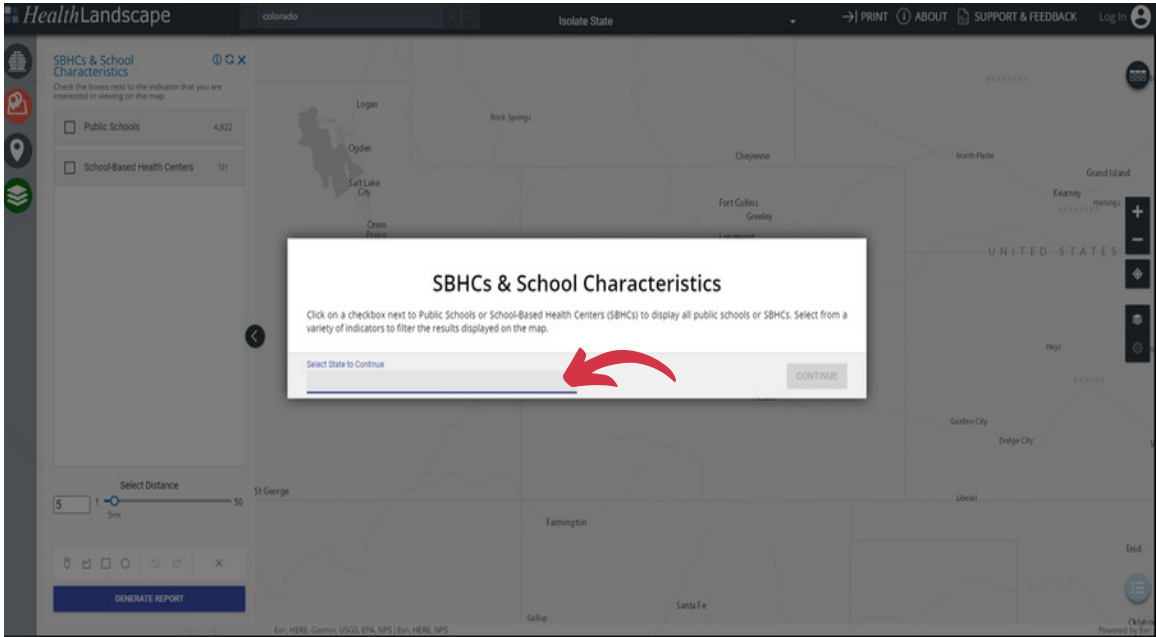
3. Export data into Excel using the **Export** button. Users can download a CSV file containing the data. For states, this will show all the indicator data for every county, not just the selected indicators. The file will appear in browser downloads.

COUNTY	UNDER 18: % UNINSURED	TEEN BIRTH RATE	ADULT POPULATION: PERCENT OBESE	TOTAL POPULATION: PERCENT FOOD INSECURE	STI RATE	PERCENT OF ADULTS WITH NO HIGH SCHOOL DIPLOMA	PERCENT FREE LUNCH	PERCENT KIDS IN POVERTY	PERCENT KIDS IN SINGLE-PARENT HOUSEHOLDS	PERCENT OF HOUSEHOLDS WITH SEVERE HOUSING PROBLEMS	VIOLENT CRIMES PER 100,000 POPULATION
Adams	5.1805564	24.207441813	28.599999999999998	9.3	580.9	83.78128325	51.37241539	12.1	21.771032860000002	18.47270937	372.42750473
Alamosa	6.88794609	17.85070321	31	14.6	574	86.8594089	67.72606886	24.9	16.15129057	19.00826446	329.9652518
Arapahoe	5.20621405	16.481398022	22.7	9.2	649.1	92.61476134	40.60205903	9	22.95690547	16.40703037	329.9652518
Archuleta	7.98252581	18.352941176	24.2	10.6	165.2	92.33501036	49.88276671	20.1	15.11728931	18.72187219	190.26029227
Baca	11.41781681	26.200873362	31	14.299999999999999	252.7	86.23466258	62.225705330000004	28.7	17.78074866	11.52647975	96.47853336
Bent	5.86881473	22.96212514	33	16.5	202.1	84.75959418	62.73458445	31	21.98177677	23.01136364	133.48758565
Boulder	4.06700381	7.0194019424	14.299999999999999	9	437.8	95.01962351	25.675875310000002	8.1	20.42002505	19.09218156	242.3764358
Broomfield	2.86732072	8.354192288	19.5	7.5	376.1	96.93777664	17.73421131	4.6	14.25301971	12.875867390000002	50.922081381
Chaffee	6.60849359	13.352580296	16.3	10.7	152.8	93.53217806	34.08439164	13.100000000000001	17.83288043	12.27848101	61.134442613
Cheyenne	10.897435900000001	23.799999999999999	9.700000000000001	0.01	91.62929746	43.44827586	20.599999999999998	9.700000000000001	7.601351350000001	8.38709677	80.14961261
Clear Creek	4.5902115600000005	10.233918129	21.2	8.1	104.4	98.61713666	22.336842109999998	9.700000000000001	18.37549933	10.74285714	562.54136334

## SBHCs & School Characteristics Function

### Basic Uses

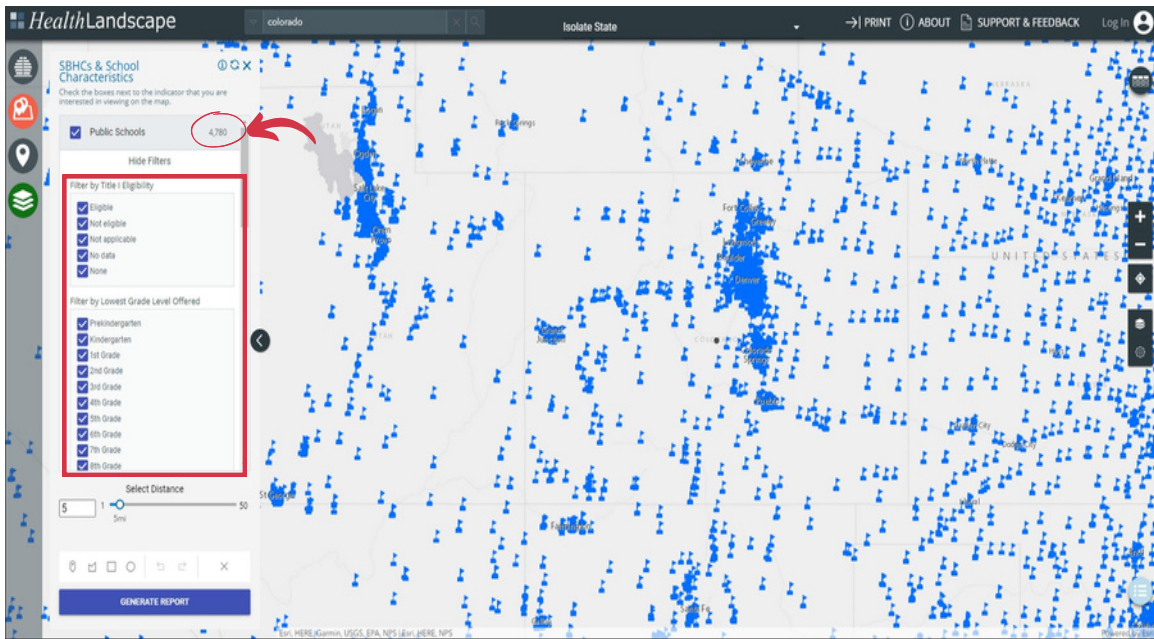
Click on the **SBHCs & School Characteristics** button on the left-hand side of the screen to open this function. Select a state from the drop-down menu and click the **CONTINUE** button. The tool will automatically zoom to the area that includes the selected state. This function will add the locations of public schools and school-based health centers. The SBHCs & School Characteristics function contains point data.



# Public Schools

## Adding Public School Locations

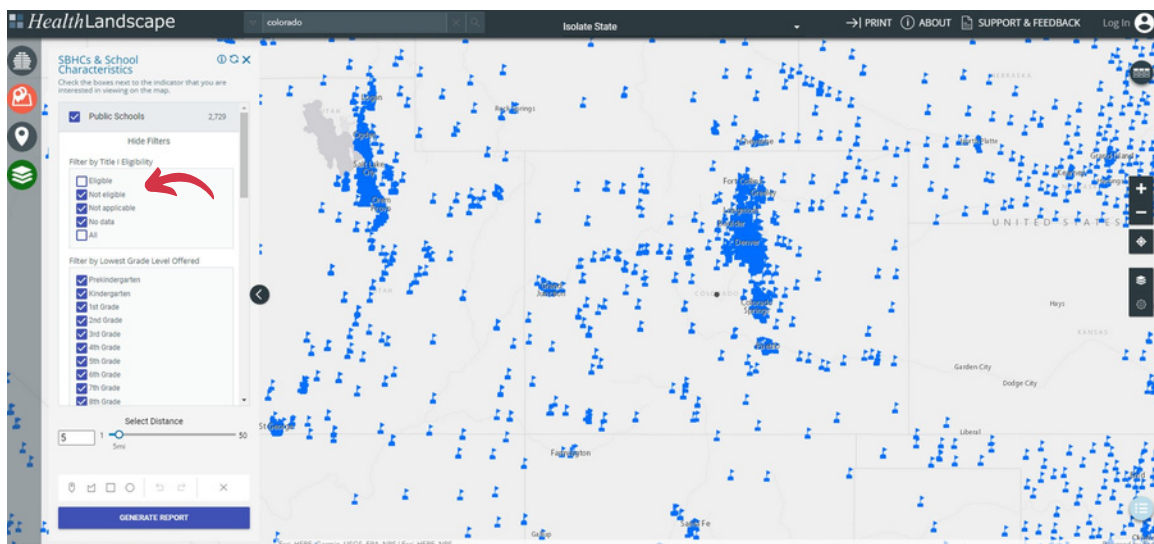
A variety of indicators can filter the public schools displayed on the map: Title I Eligibility, Lowest Grade Level Offered, Highest Grade Level Offered, Total School Enrollment, Free and Reduced Lunch Eligibility, and State. The two blue boxes below indicate the filters' locations. The scroll bar allows the user to see all potential filters.



## Filtering by School Characteristics

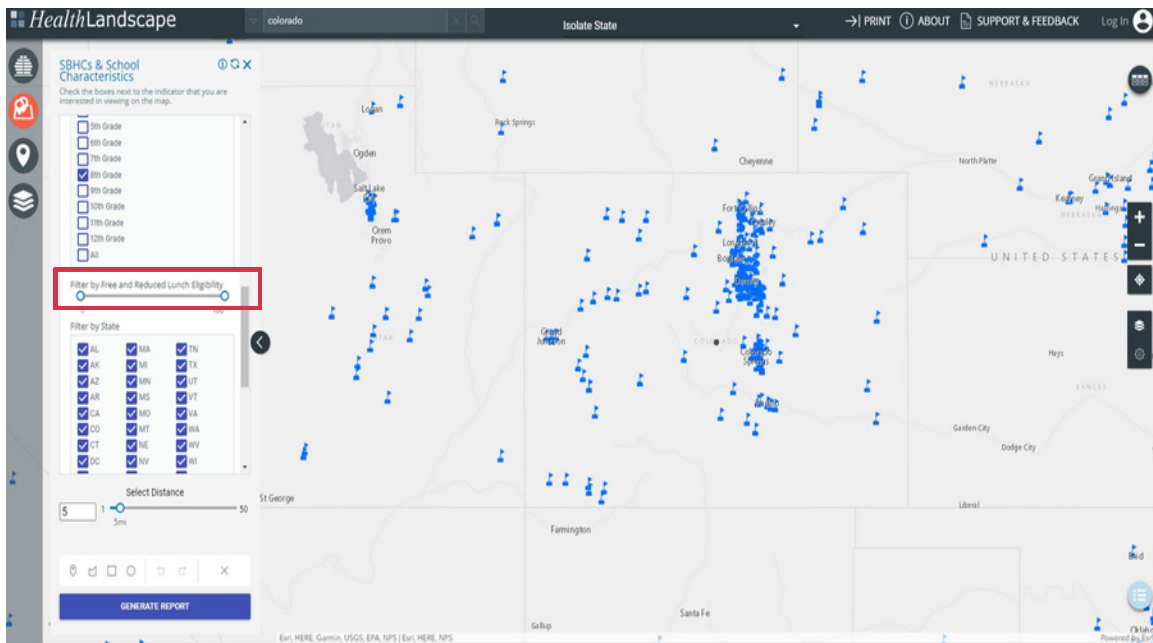
Clicking on the text bar can activate filters for Title I Eligibility, Lowest Grade Level Offered, and Highest Grade Level Offered. For example, to view only public schools eligible for Title I, click on the "Eligible" filter under Title I Eligibility. To view only public schools that serve students in grades 6-8, click on the "6th-grade" filter for "Lowest Grade Level Offered" and on the "8th-grade" filter for "Highest Grade Level Offered." Clicking on the "All" button will select or deselect information to quickly choose specific filters.

### Selecting Title I Eligibility

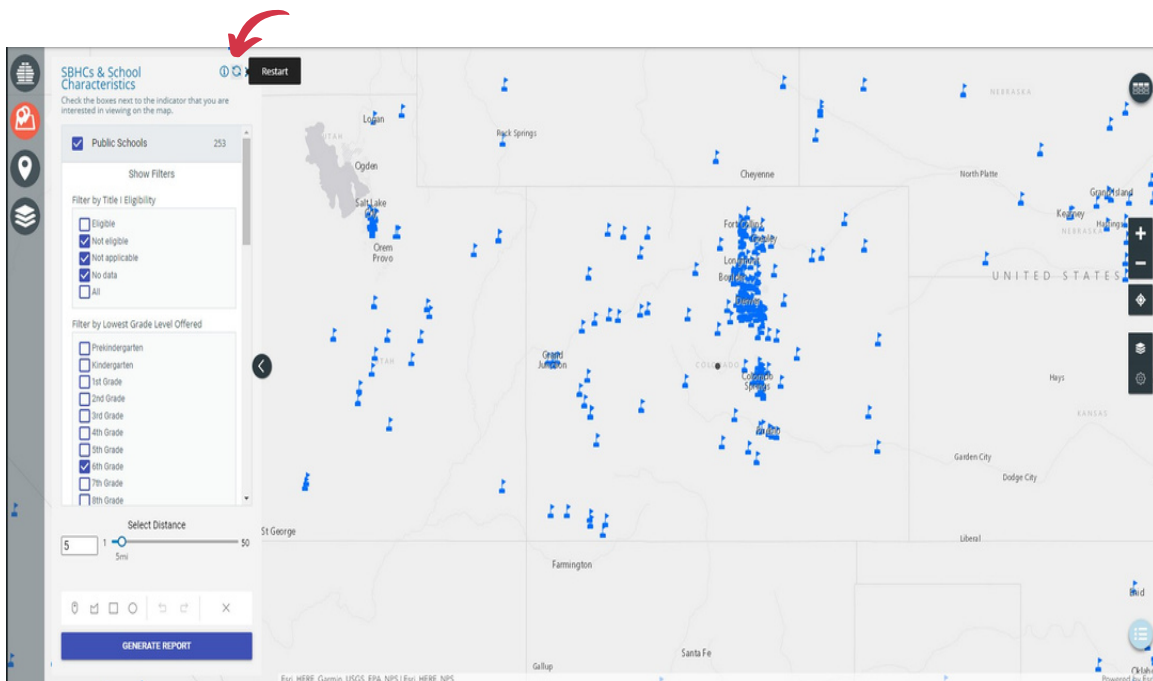




The **Free and Reduced Lunch Eligibility** are numeric sliders (shown in red square). Adjust the circles on either end to change the range of values. The map then displays public schools with data within the selected range. For example, to view only public schools with free and reduced lunch eligibility between 50 and 100% of students, use the mouse or the arrows on the keyboard to slide the left circle to 50 and the right to 100. The Free and Reduced Lunch Value in the Child Health and Education Indicators section represents the average in the county; here, it is the number of students at a specific school eligible for free and reduced lunch.

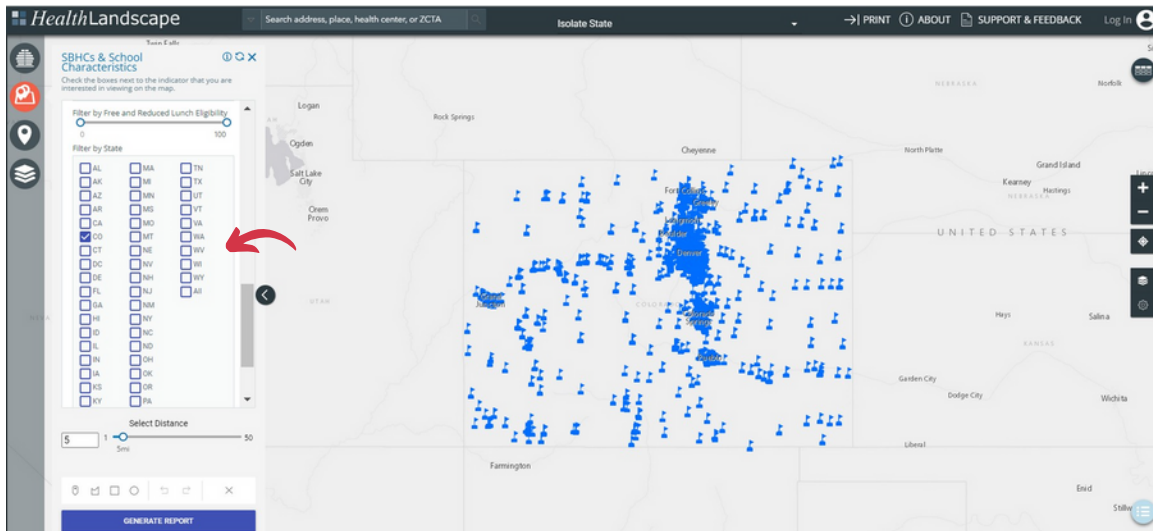


Users can select multiple filters at the same time. To **reset the data**, click on the reset button (which looks like a circling arrow) at the top of the SBHCs & School Characteristics tab on the right gray toolbar. It is possible to display public schools and filters alone or with school-based health center locations. See [below](#) for more information on mapping SBHCs.



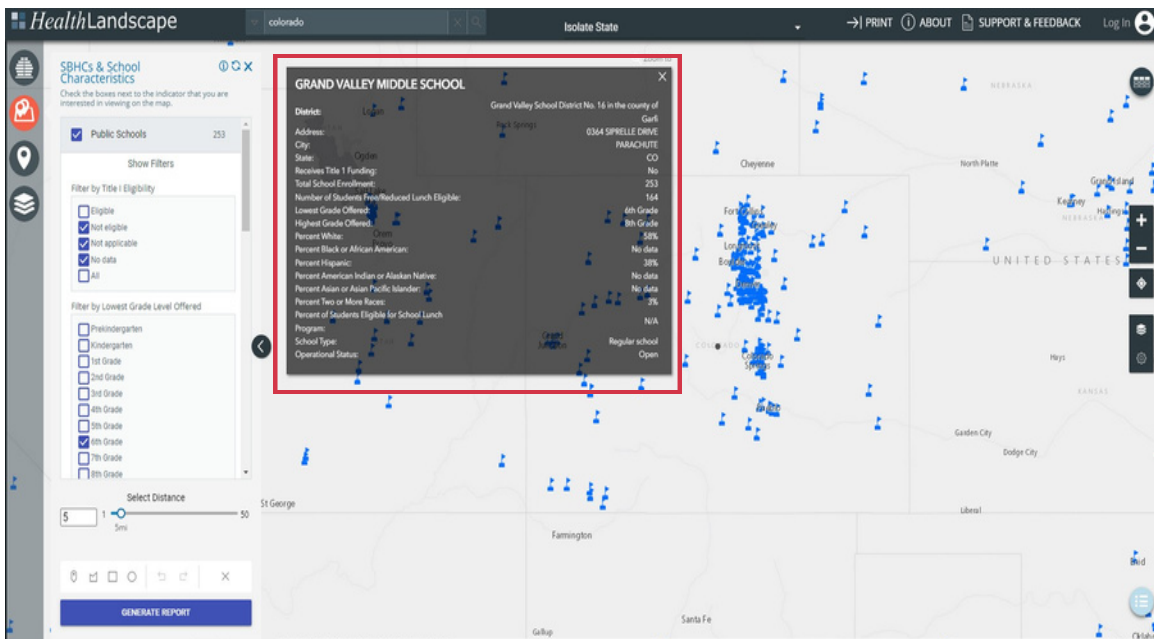


Use the checkboxes at the bottom of the school filter options to limit the displayed schools to those in a specific state.



## Learn More about a School

Clicking on a public school produces a pop-up box that lists the characteristics of the school and student population. It includes School District, Address, City, State, Title I Status, Total School Enrollment, Number/Percent of Students Eligible for the Free School Lunch Program, Lowest Grade Level Offered, Highest Grade level offered, Racial/Ethnic Characteristics of the Student Population, School Type, and the School's Operational Status. Filtering capabilities, such as Title I Eligibility or Grade Level, allow users to identify potential public schools of interest.

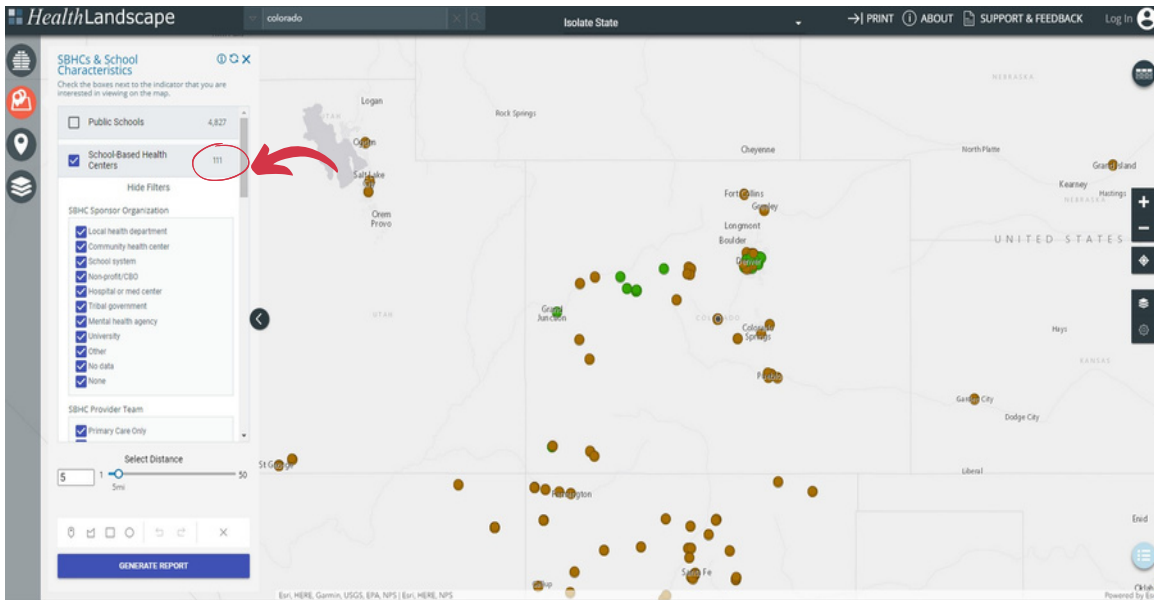


**Problem Solving Note:** If the pop-up is not working, check the layer order. The SBHCs & School Characteristics Function layer must be on the top. Modify the layer order in the Layer Controls feature (indicated by a gear) by using the three lines to capture the required data and dragging it to the desired location. Details are in the [Layer Control](#) section.

# School-Based Health Centers

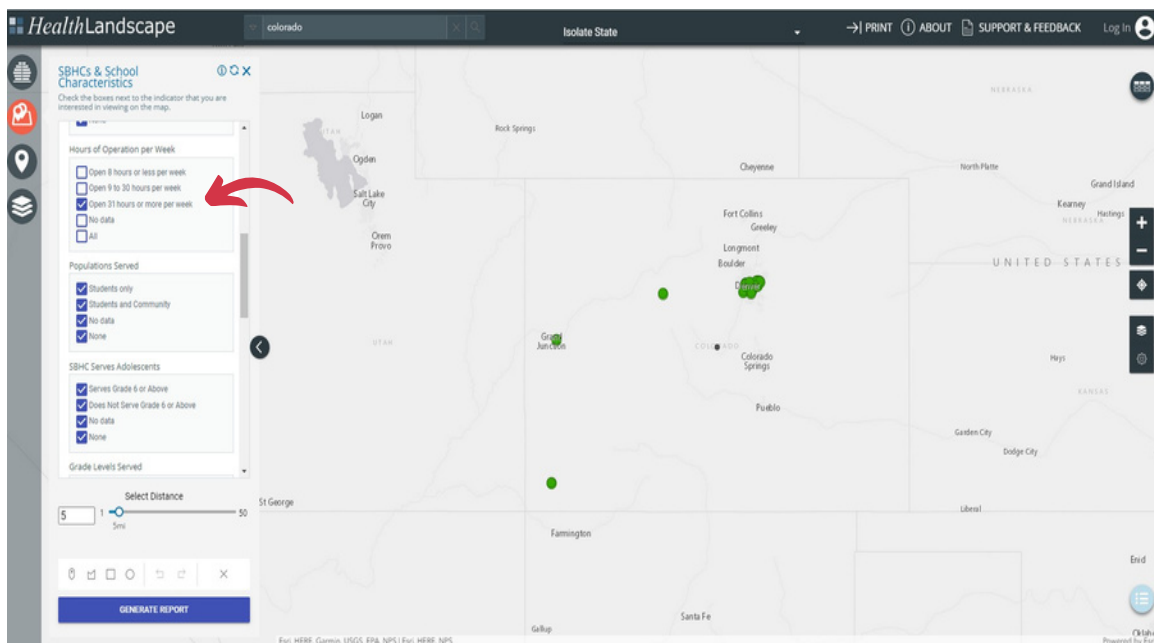
## Adding SBHC Locations

Click on the checkbox next to "School-Based Health Centers" to display all SBHCs. Green circles represent SBHCs that provided data for the Alliance's national SBHC census. SBHCs that did not respond during the last National Census of School-Based Health Centers, indicated with gold circles, cannot be filtered. As of the December 2022 version of this manual, the census data included is from the 2016-2017 National Census.

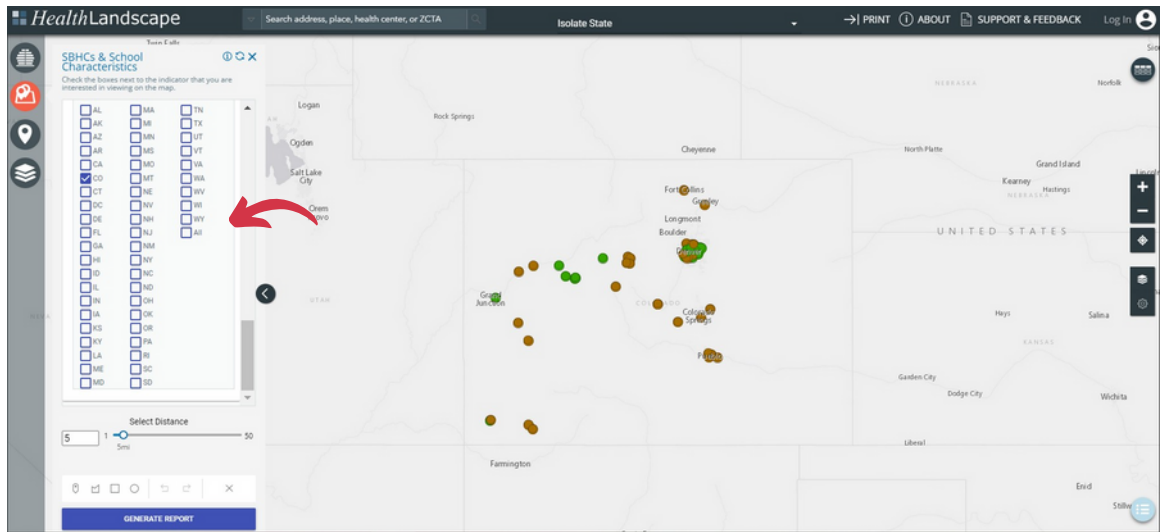


## Filtering by SBHC Characteristics

Various filters exist to customize the SBHCs displayed on the map. Options include Sponsor Organization Type, Staffing Profile, Hours of Operation, Populations Served, whether the SBHC Serves Adolescents, Grade Levels Served, and State. For example, Click on the "Open 31 hours or more per week" filter in the "Hours of Operation per Week" section to view only SBHCs open full-time (defined as a health center open 31 or more hours per week).

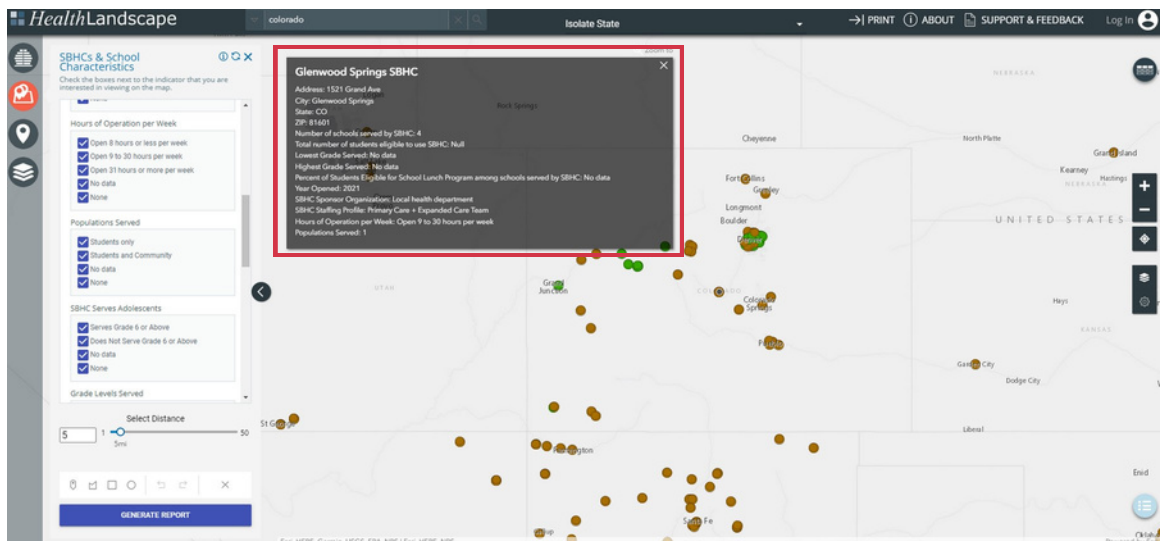


Use the checkboxes at the bottom of the SBHC filter options to limit the displayed SBHCs to those in a specific state.



## Learn More about an SBHC

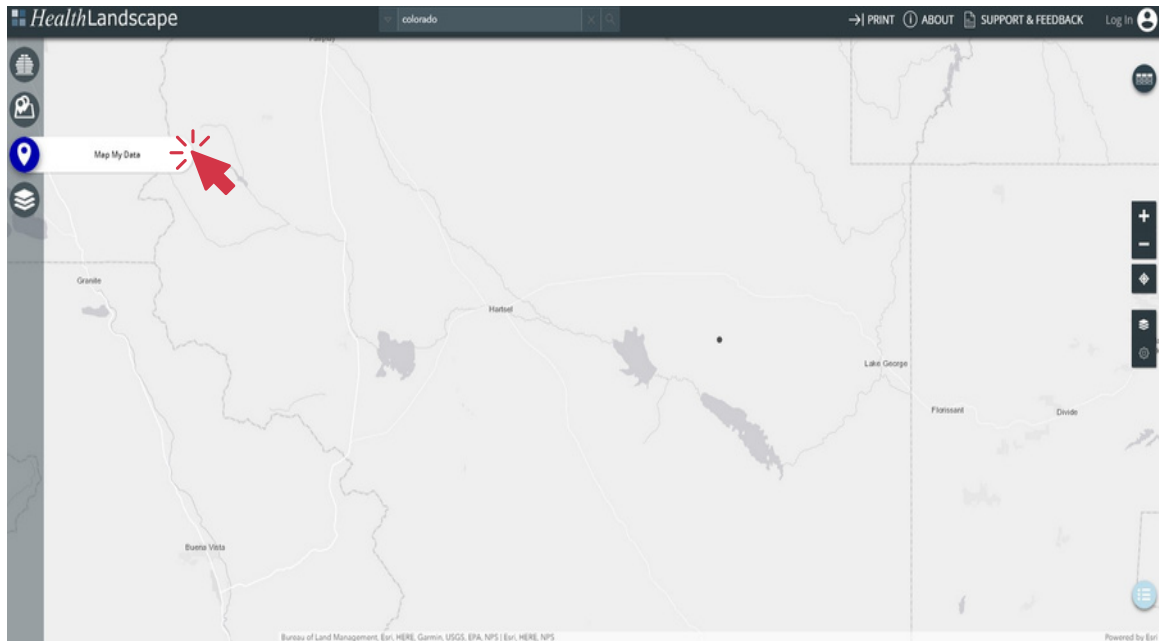
Clicking on an "SBHC" produces a gray pop-up box that lists SBHC characteristics. It includes the Address, City, State, the Number of Schools Served, the Number of Eligible Student Users, the Year the SBHC Opened, SBHC Sponsor Organization Type, SBHC Staffing Model, Hours of SBHC Operation, Grade Levels Served, and Population Served. SBHCs with No Census Data, represented by gold circles, will have no data for the gray boxes except Address, City, State, and Zip.



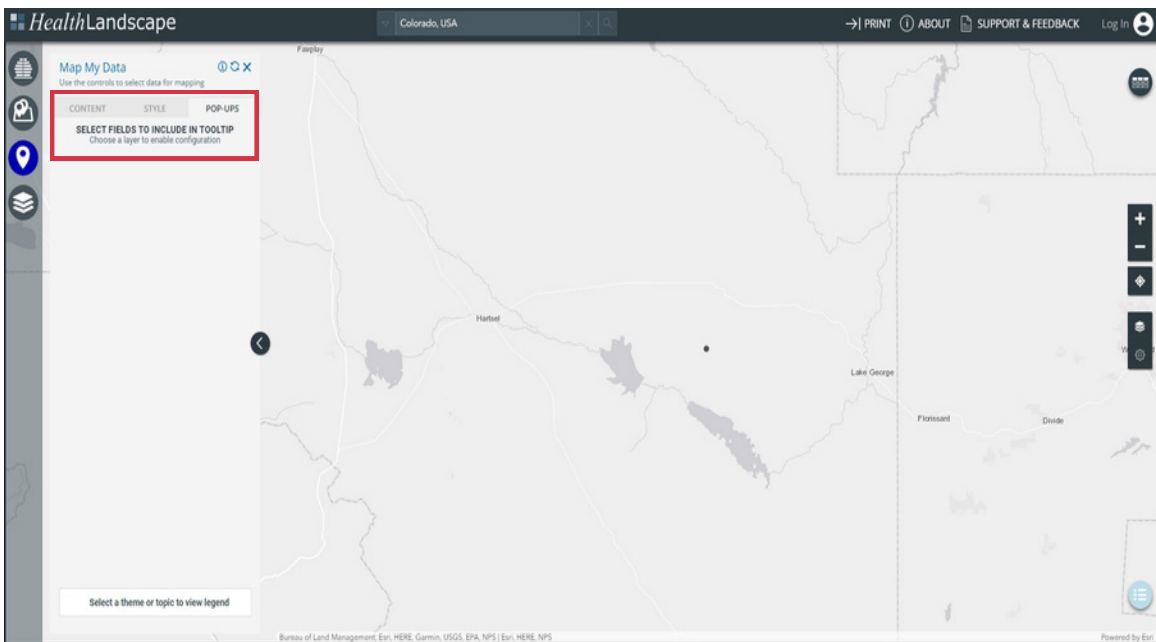
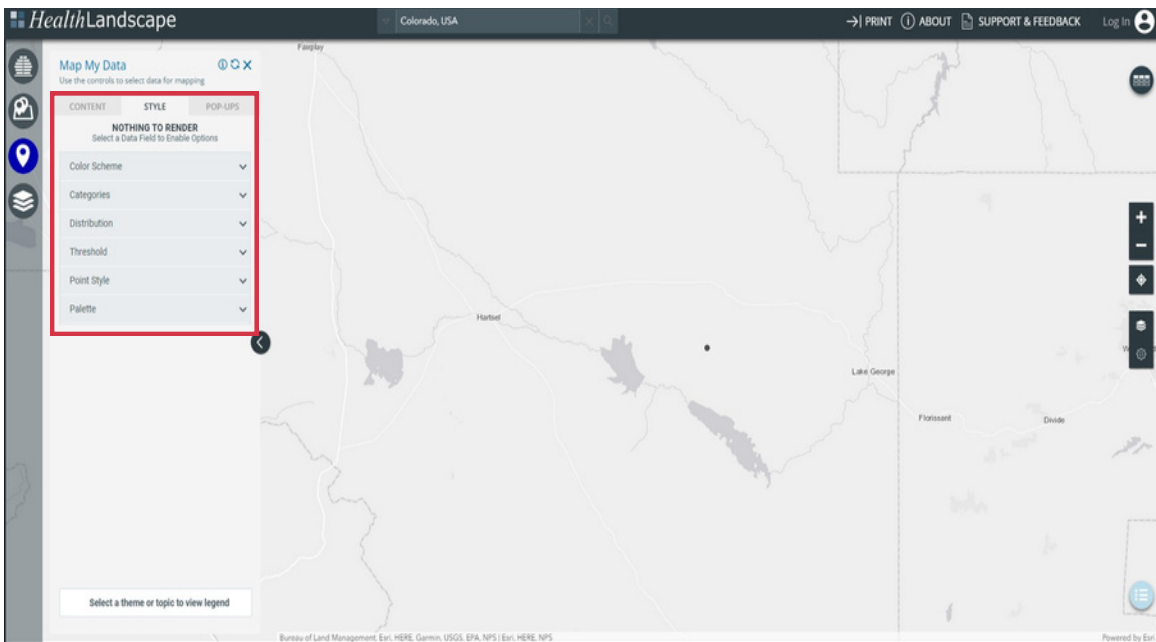
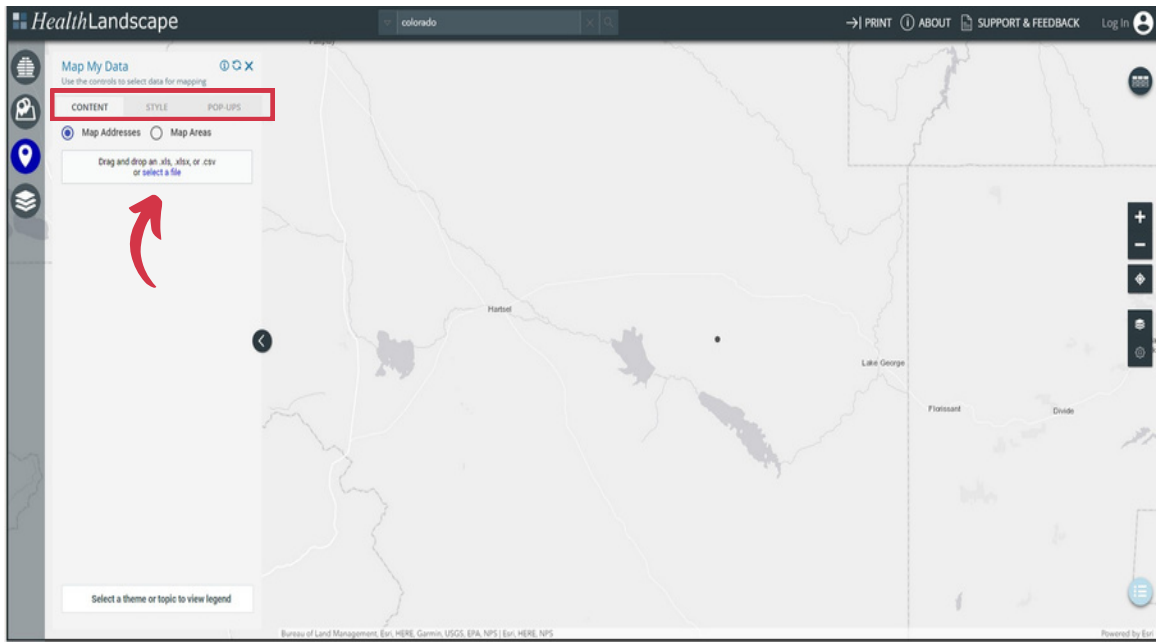
**Problem Solving Note:** If the pop-up is not working, check the layer order. The SBHCs & School Characteristics Function layer must be on the top. Modify the layer order in the Layer Controls feature (indicated by a gear) by using the three lines to capture the required data and dragging it to the desired location. Details are in the [Layer Control](#) section.

## Map My Data Function

The Map My Data function allows users to add their data. Users can map points (addresses) and aggregate geography data. Use this to explore custom data alongside the available indicators, school and SBHC locations, and other features.



1. After clicking the Map My Data button, users can choose between three tabs: Content, Style, and Pop-Ups.
  - a. **Content:** The content tab allows users to upload their data through either the map addresses or map areas. Users can drag and drop files as long as they are in the following formats: .xls, .xlsx, or .csv. Clicking "select a file" allows users to navigate to the file on their computer and select it to upload to the map.
  - b. **Style:** The style tab allows users to customize uploaded data. The options users can go through include: color scheme, categories, distribution, threshold, point style, and palette. Together, these allow for a customizable view of data representing exact information specific to the user.
  - c. **Pop-Ups:** The pop-ups tab allows users to select fields they want to include in tooltips. To do this, users must choose a layer from their uploaded data to enable the configuration.

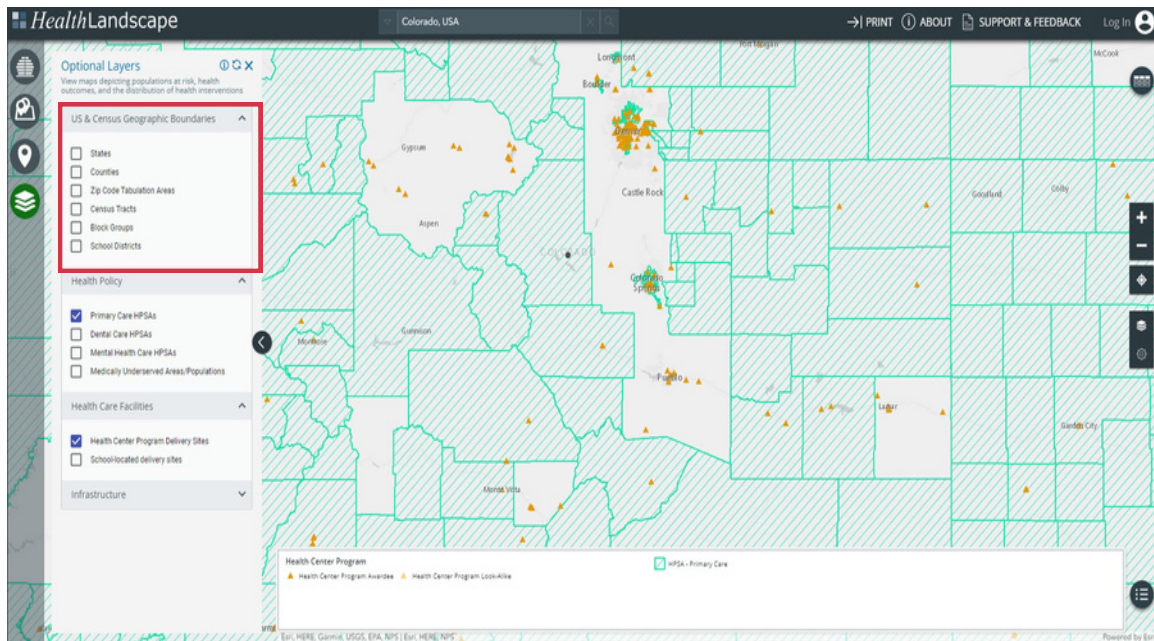


## Optional Layers Function

### U.S. & Census Geographic Boundaries

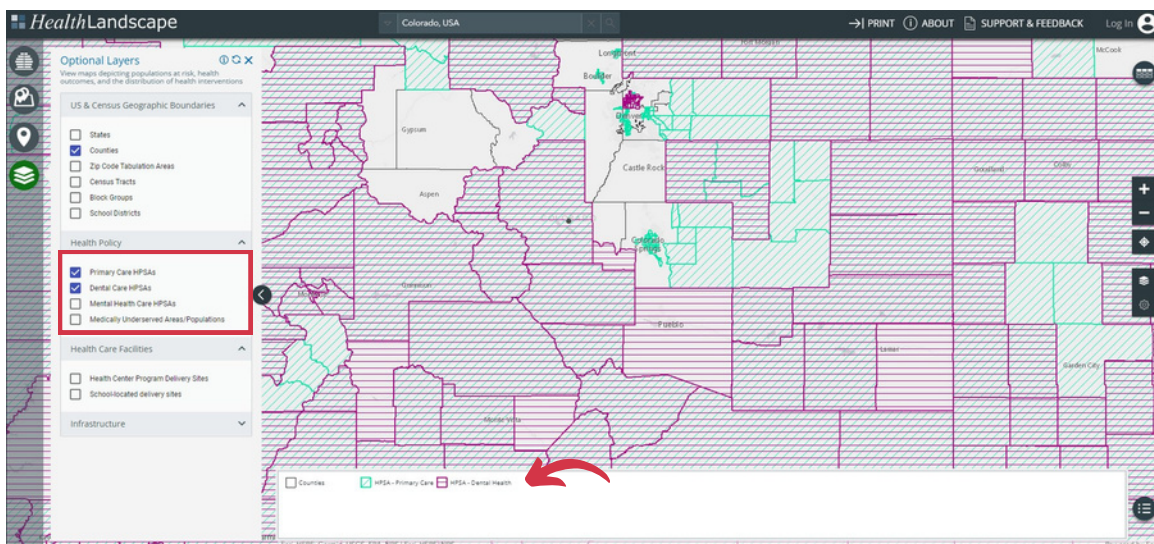
States, Counties, Zip Code Tabulation Areas, Census Tracts, Census Block Groups, and School Districts

The **Optional Layers** function allows users to view other health care access points, including hospitals, community health centers, and medically underserved and healthcare shortage areas. To display health care facilities, including hospitals, Health Center Program Delivery Sites, or Rural Health Clinics, click on the checkbox next to the corresponding facility type. The health care facilities selected will appear in the legend. To display health provider shortage areas or medically underserved areas, click on the corresponding checkbox. Shaded counties meet the indicator definition, and the shortage area type will appear in the legend. Users can select how the boundaries appear through the States, Counties, Zip Code Tabulation Areas, Census Tracts, Census Block Groups, and School District boxes.



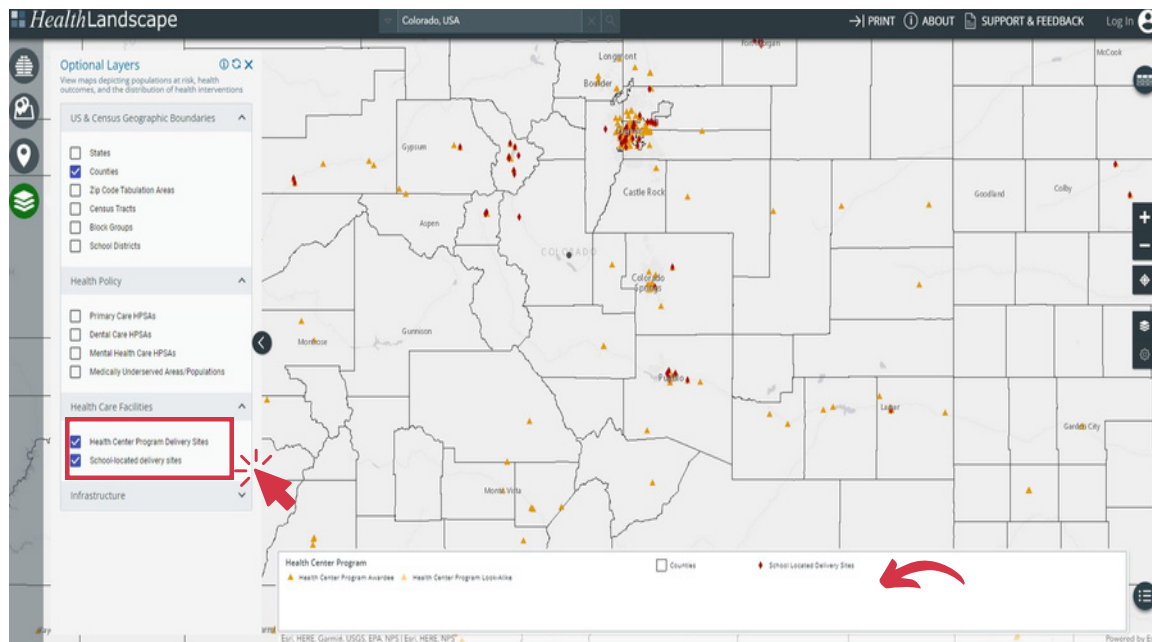
### Health Policy

This section allows users to view Health Professional Shortage Areas (HPSA). Users can select from "Primary Care", "Dental Care", "Mental Health Care", and "Medically Underserved Areas/Populations" (MUA/P). Counties that meet the indicator definition appear highlighted or shaded, and the area type appears in the legend. The key below indicates the meaning of the drawn borders. In this case, the green lines (diagonal) represent primary care areas, whereas the purple lines (horizontal) represent dental health.



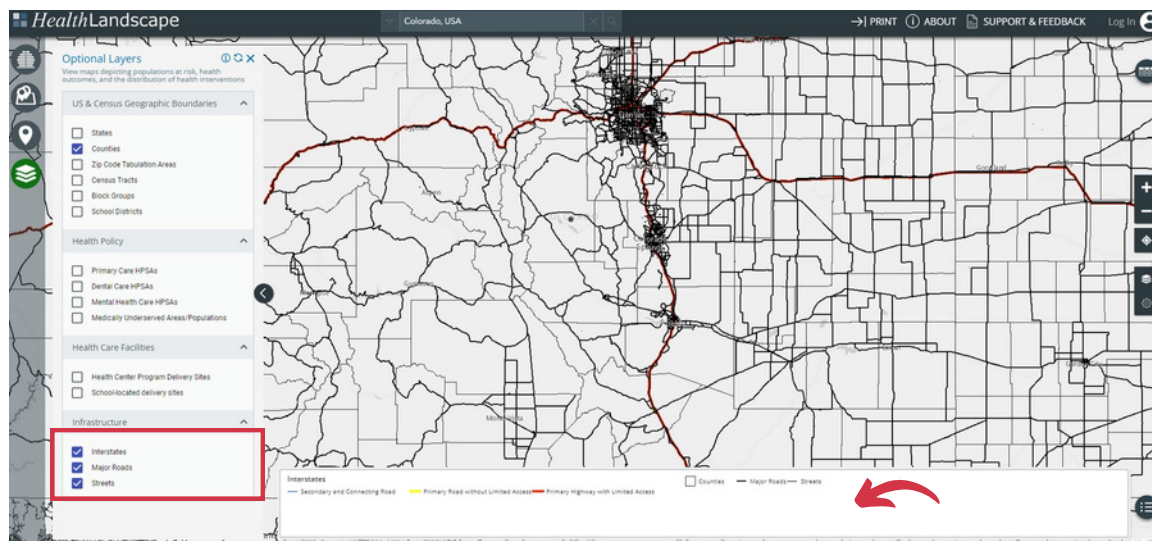
## Health Care Facilities

To display Health Care Facilities, Health Centers (including Federally Qualified Health Centers, Look-Alikes, and other HRSA Health Center Program grantees), and Health Center school-located delivery sites, click on the checkbox next to the corresponding facility type. The legend indicates the icon reflecting the facility type. The key at the bottom of the screen shows the meaning of each symbol. For example, when selecting the "School-Located Delivery Sites" and the "Health Center Program Delivery Sites", each has a unique identifier to differentiate it on the map. According to the legend at the bottom of the screen, red diamonds represent School-Located Delivery Sites, and a yellow triangle symbolizes broader Health Center Program Delivery Sites.



## Infrastructure

This section places Interstates, Major Roads, and Streets on the map. It allows users to see the division points of specific roadways and provides a key for identification purposes. Below, black lines represent major roads and streets, yellow lines indicate primary roads with limited access, and red lines show primary highways. A legend with details is at the bottom of the screen.

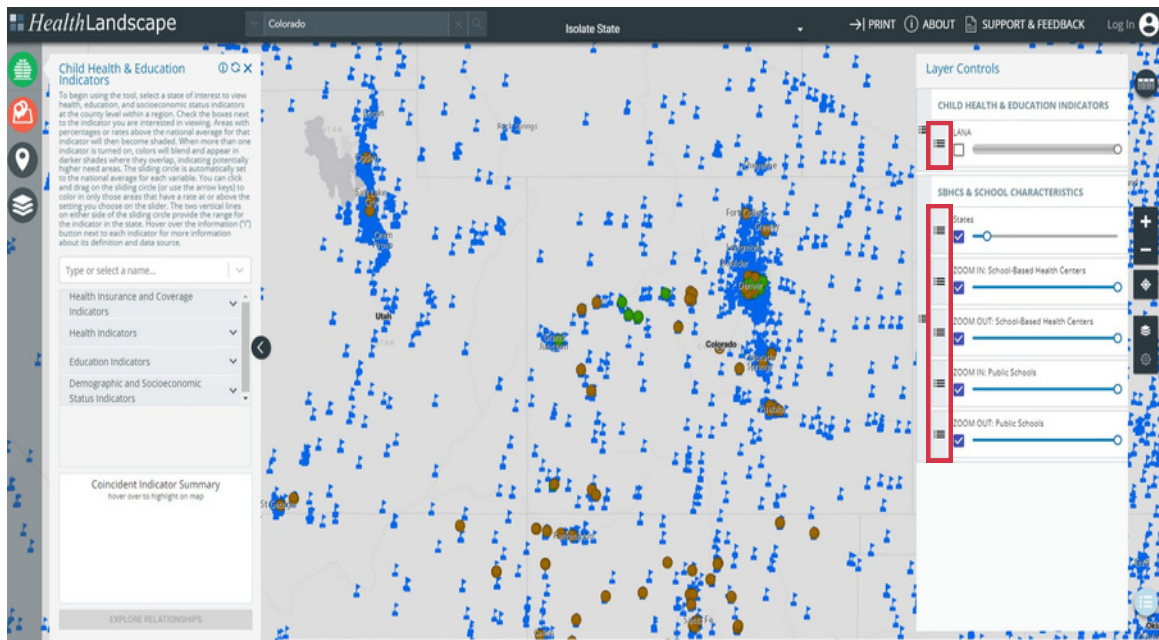


# Developing Resources

## Customizing View and Layer Control Details

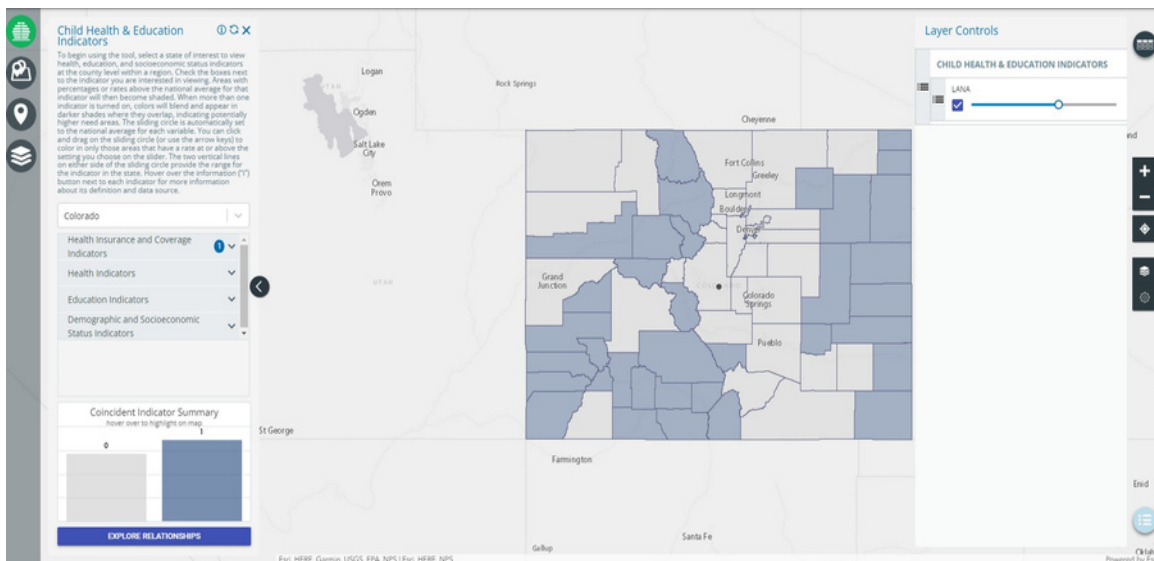
Utilizing the [Layer Control](#) feature can help users create custom views that draw attention to the most important aspects of a map. Each layer category has an icon to its left that looks like three dots. Clicking and dragging this icon can change the position of each layer in the stack and impact how they appear on the map. The layers at the top are the most prominent, and the layers at the bottom fall behind the upper ones.

Layer order is also helpful to keep in mind when activating pop-up boxes. They will only be active if the function they are a part of is the top layer. For example, if trying to learn more about a specific school, the layer for SBHCs & School Characteristics function must be the top layer (i.e., above Child Health & Education Indicators).



## Child Health & Education Indicators Layer Controls:

Activate this layer by engaging the [Child Health & Education Indicator Function](#). Once a user chooses a state (in this case, Colorado) and indicators of interest, the Layer Controls will customize the display. After checking the LANA control, dragging the sliding circle can allow the user to change the opacity of the highlighted counties.



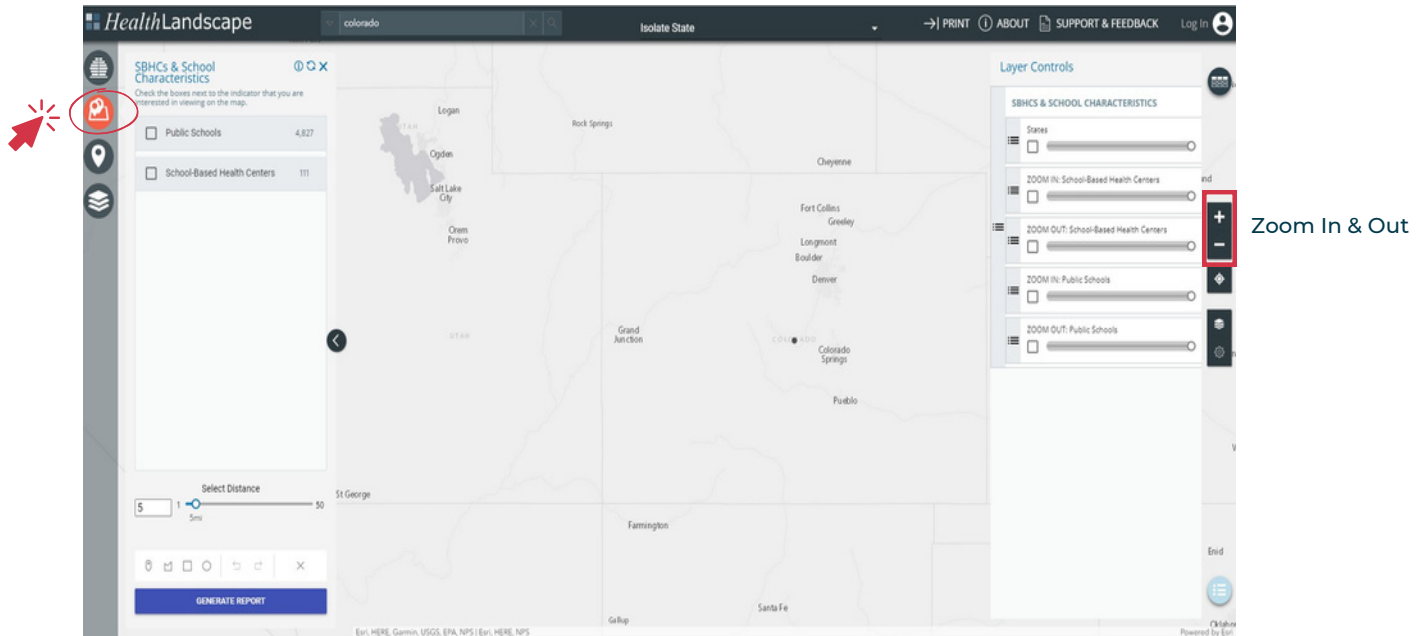


## SBHCs & School Characteristics Indicator Layer Controls:

Activate this layer by selecting the icon for the [SBHCs & Schools Characteristics Function](#). After choosing a state (Colorado for this example) and then clicking on the Layer Control gear, five options will appear: States,

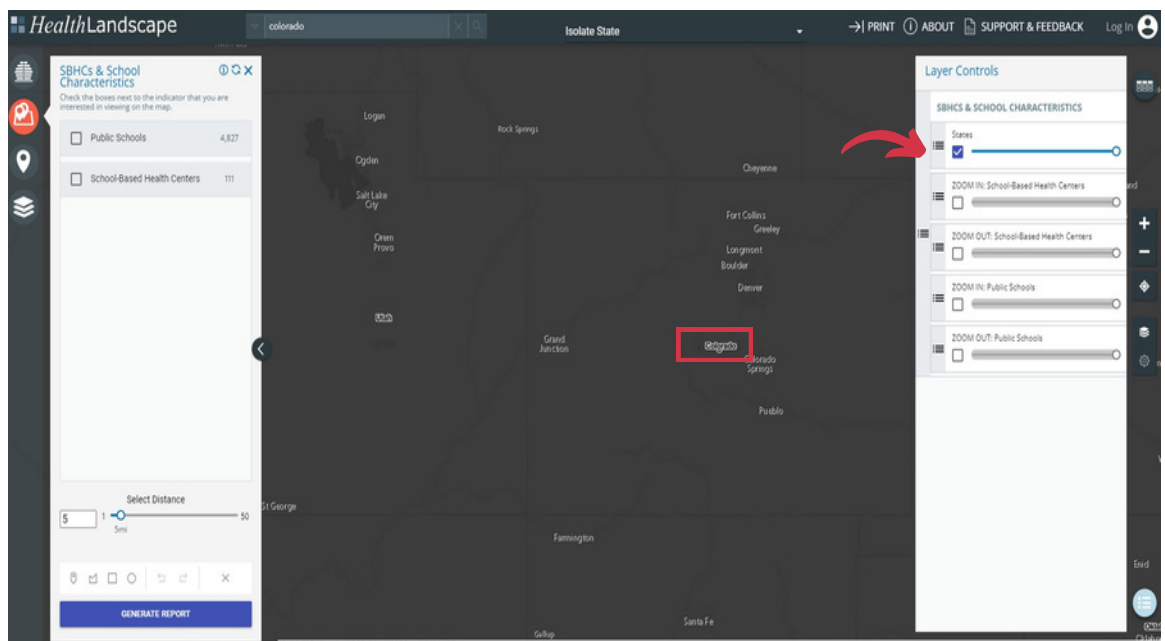
- Zoom In: School-Based Health Centers,
- Zoom Out: School-Based Health Centers,
- Zoom In: Public Schools, and
- Zoom Out: Public Schools.

To select an option, click on the checkbox beside the desired information.



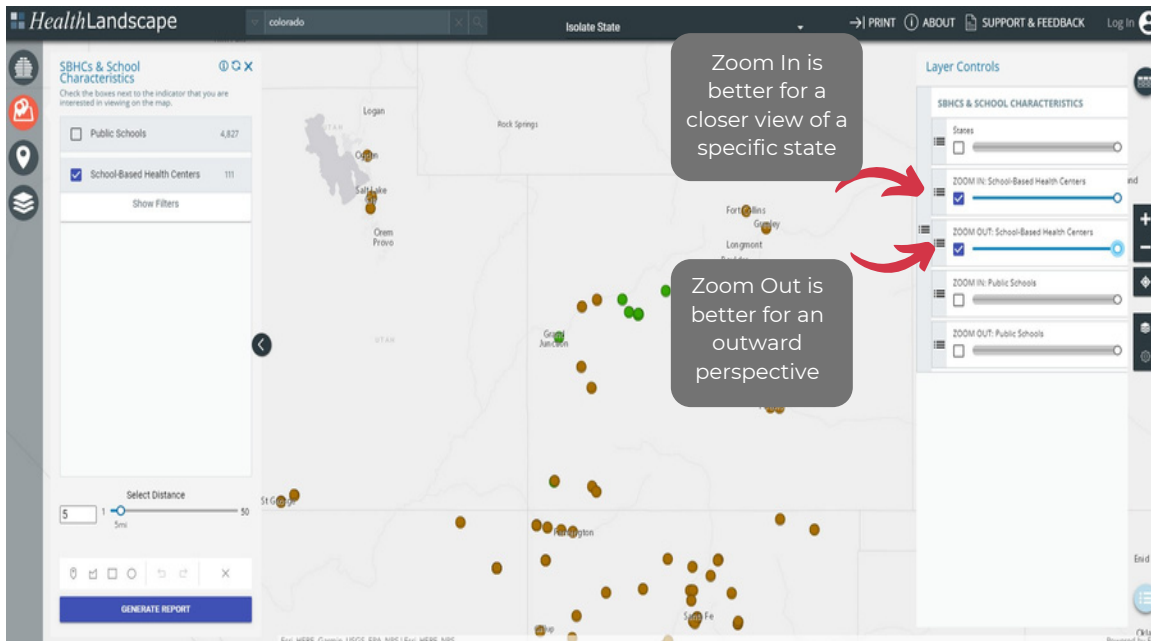
## States:

The State layer control displays the state name in bold font to differentiate it from neighboring states and counties. Moving the circle to the right darkens the map while dragging it left lightens it.



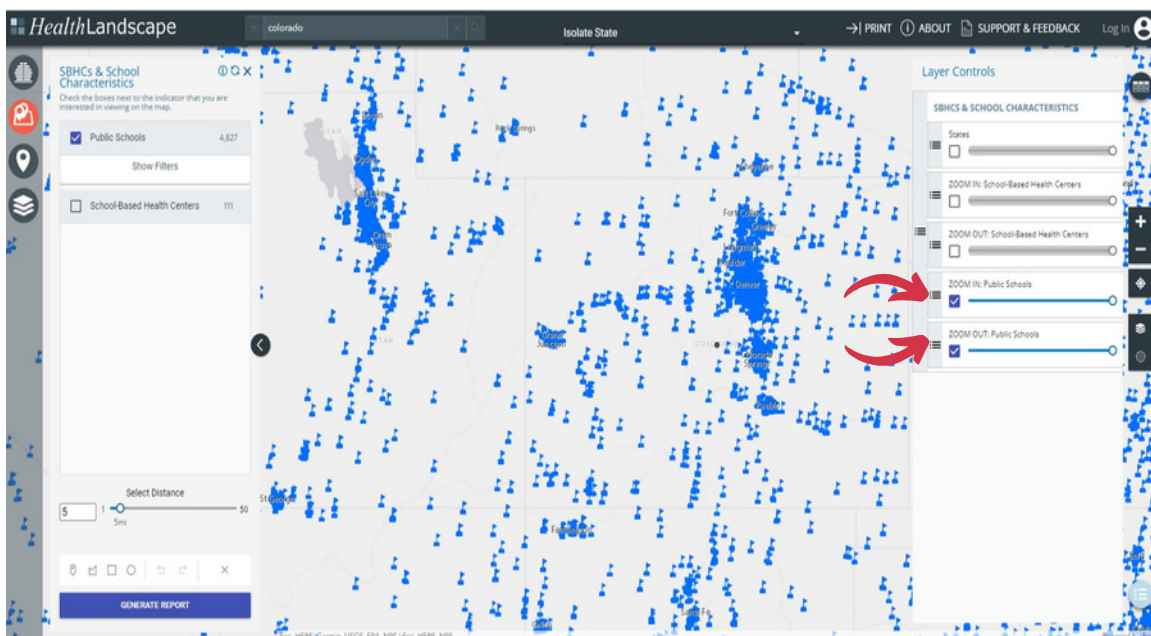
## Zoom In/Out: School-Based Health Centers:

The School-Based Health Center layer displays locations with identified SBHCs using two types of circles. The Zoom In and Out sections provide similar functionality but impact different views. Zoom In is better for a closer view of a specific state, and Zooming Out is better for an outward perspective. Dragging the circle left reduces opacity, whereas dragging it right makes the circles bolder.



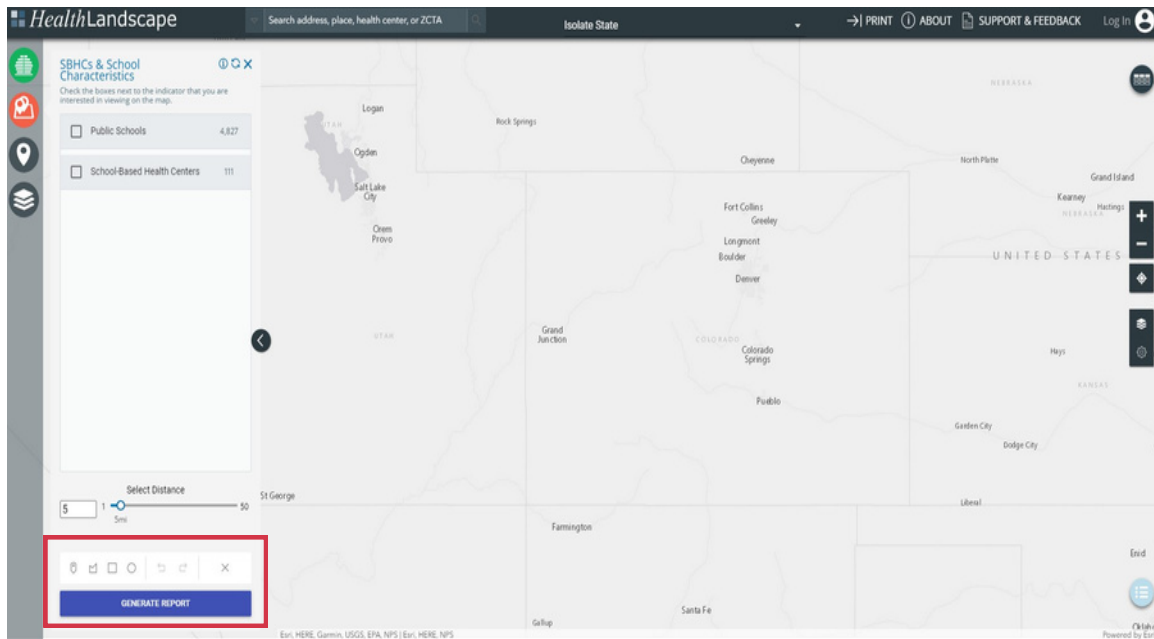
## Zoom In/Out: Public Schools:

The Public School layer, when selected, displays blue flags to indicate the location of a public school within the chosen state. The Zoom In section is better for close-up viewing, whereas the Zoom Out scale is better suited for a wide view of the state or region.

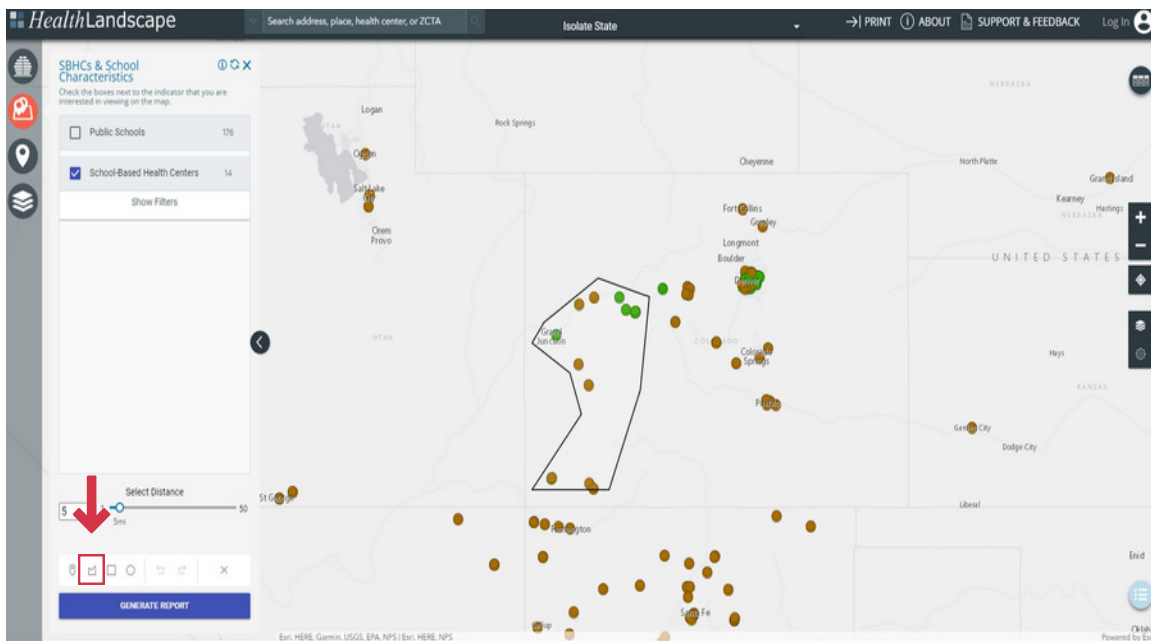


## Drawing Tools

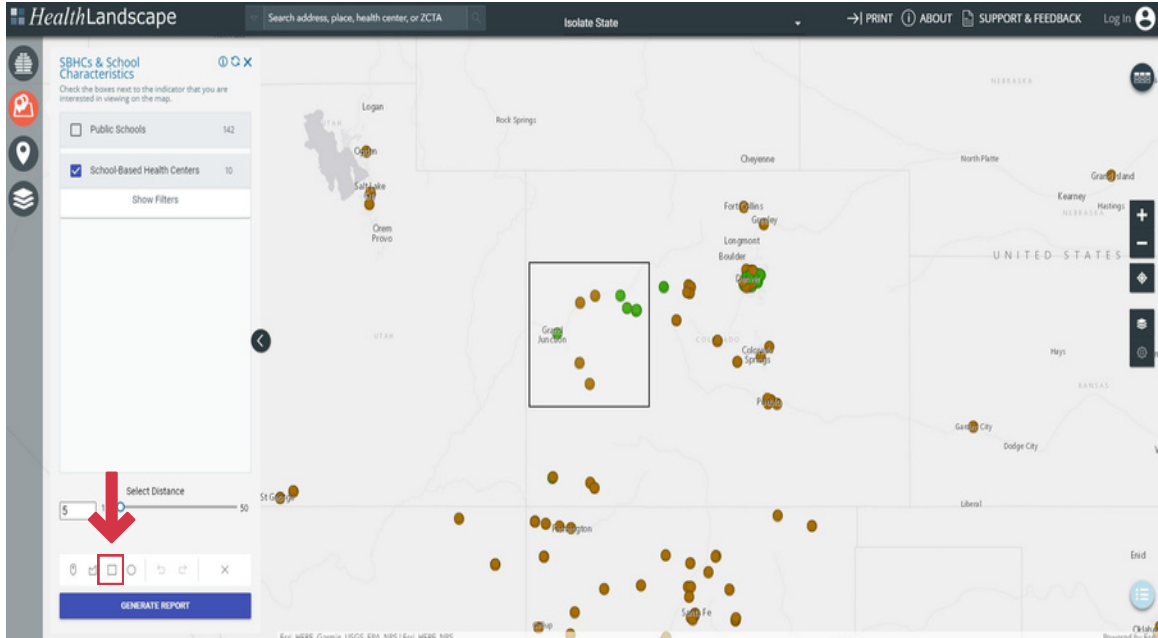
Users can use the Drawing tools to set boundaries around a specific map point by creating a free-drawn polygon, selecting a square, or selecting a circle shape on the map.



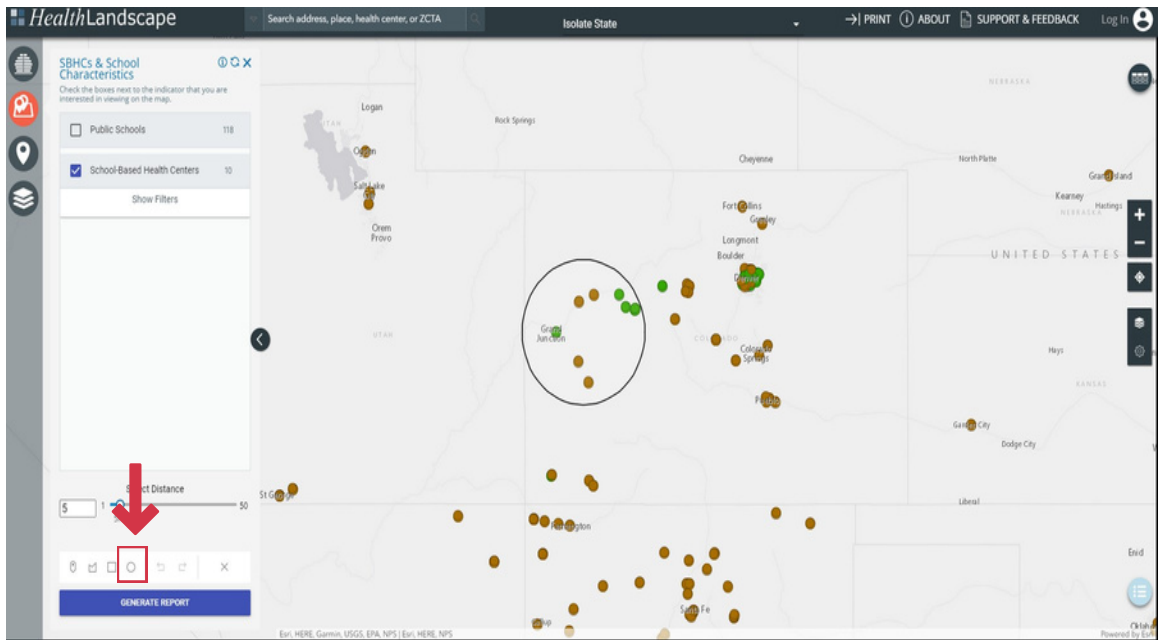
## Free-drawn Polygon Example:



## Square Example:



## Circle Example:



## Data Export

The **Data & Analysis** tab allows users to export data in tabular format (as a CSV file). Data exports are available for both Public Schools and School-Based Health Centers. The export will reflect the filters the user has selected. The variables included in the Public School data tab include **School Name, District, Street Address, City, State, and Free and Reduced Lunch Percentage**. The variables included in the School-Based Health Centers data tab include **School Name, Street Address, City, and State**.

The screenshot shows the HealthLandscape interface with the 'SBHCs & School Characteristics' data table. The 'Export' button is highlighted with a red arrow. A callout box on the right points to the 'Data & Analysis' tab.

SCHOOL NAME	DISTRICT	STREET ADDRESS	CITY	STATE	PERCENT OF STUDENTS RECEIVING FREE OR REDUCED LUNCH
ADAMS YOUTH SERVICE CENTER	School District 27	1933 EAST BRIDGE STREET	BRIGHTON	CO	20%
CENTRAL STATE ACADEMY	Nickerson	305 S. Nickerson	Nickerson	KS	3%
EARLY LEARNING CENTER AT PERI MACK	Westminster Public Schools	7125 MARIPOSA STREET	DENVER	CO	10%
ECSE - HOMEBASED	LINCOLN PUBLIC SCHOOLS	305 SOUTH 48TH STREET	LINCOLN	NE	1%
FLAMING GORGE SCHOOL	Daggett District	5TH AVENUE	DUTCH JOHN	UT	13%
HUGOTON LEARNING ACADEMY	Hugoton Public Schools	215 W 11th St	Hugoton	KS	21%
MCKINNON ELEMENTARY	Sweetwater County School District #2	US Highway 414	McKinnon	WY	20%
MOUNTVIEW YOUTH SERVICE CENTER	Jefferson County School District No. R-1	7862 WEST MANSFIELD PARKWAY	DENVER	CO	27%
PATHWAYS BEYOND EARLY STEPS TO SUCCESS BUILDING	COLUMBUS PUBLIC SCHOOLS	2508 27TH STREET	COLUMBUS	NE	11%
WICHITA LEARNING CENTER	Wichita	1847 N Chautauqua	Wichita	KS	4%
3-YEAR-OLD PRESCHOOL	SOUTHERN SCHOOL DISTRICT 1	313 W 157 STREET	BLUE SPRING	NE	No data
CAREER ENRICHMENT	ALBUQUERQUE PUBLIC SCHOOLS	807 MOUNTAIN RD NE	ALBUQUERQUE	NM	No data
CENTRAL VALLEY PK - GREELEY	CENTRAL VALLEY PUBLIC SCHOOLS	304 NORTH SHANNON STREET	GREELEY	NE	27%
CONTINUATION SCHOOL	ALBUQUERQUE PUBLIC SCHOOLS	5100 2ND ST NW	ALBUQUERQUE	NM	No data
EARLY LEARNING CENTER (0-3) AT KENNEDY	OMAHA PUBLIC SCHOOLS	3200 NORTH 30TH STREET	OMAHA	NE	No data

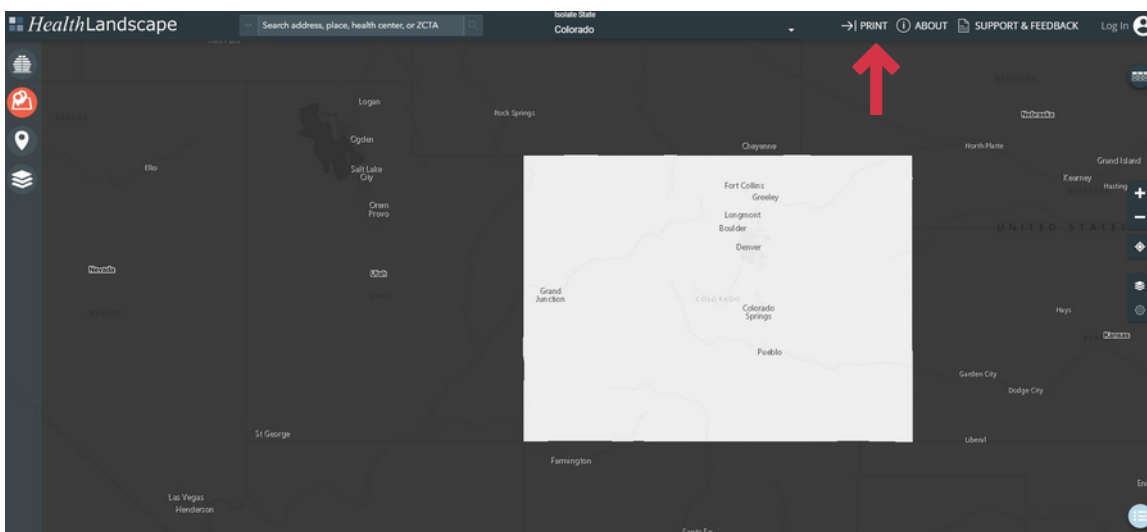
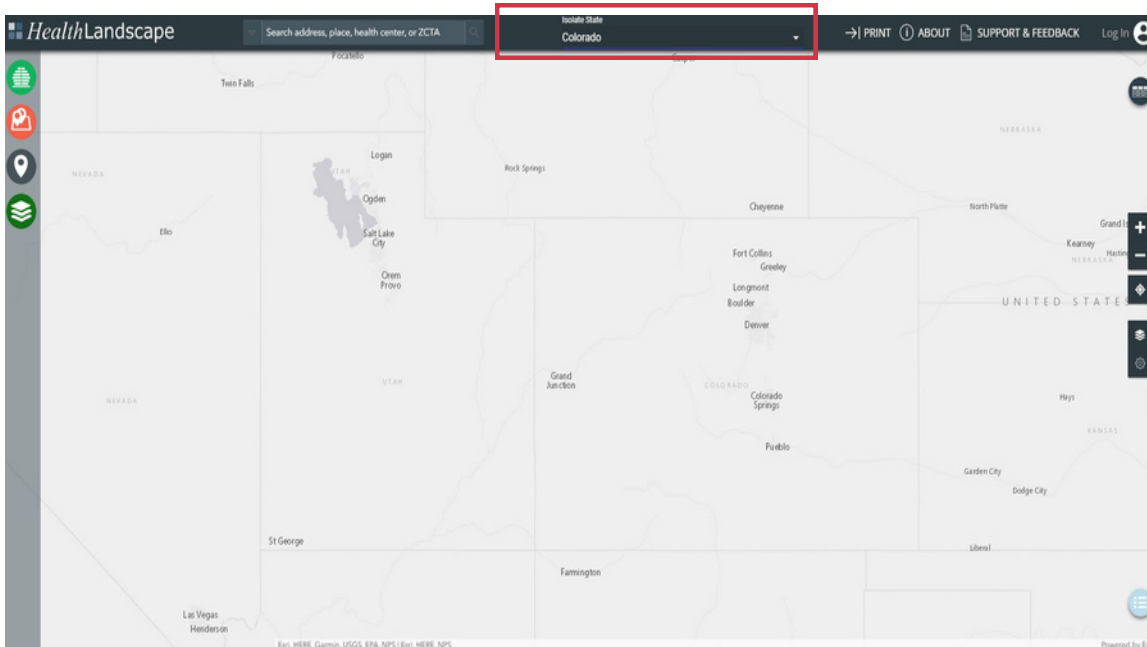
## Report

Use the options at the bottom of the panel in the **SBHCs & Public Schools Function** to generate a custom report of your area of interest based on activated filters. See the **Drawing Tools** section to learn about selecting the appropriate region. After limiting to a specific location, choose the **Generate Report** button to provide an overview of the selected data. Users can customize the title (the example below shows the default title of Public Schools and School-based Health Centers) and add notes up to 200 characters. Users can download the generated report as a PDF to make data easier to share with collaborators.

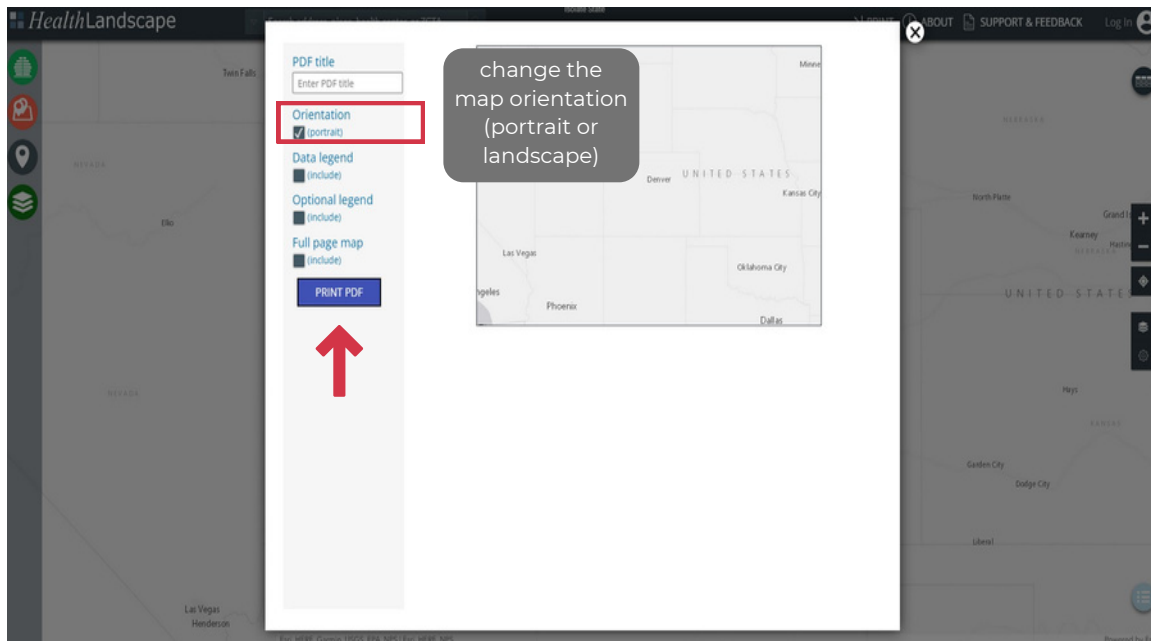
The screenshot shows the HealthLandscape interface with the 'Download PDF' button highlighted by a red arrow. A generated report preview is shown, titled 'Public Schools and School-Based Health Centers'. The report lists 43 Public Schools. A red box highlights the list of schools: FLAMING GORGE SCHOOL, MCKINNON ELEMENTARY, DESERT ELEMENTARY, and MANILA SCHOOL. The 'Generate Report' button is also highlighted with a red arrow.

## Print Map

If a user would like the map to focus on one state, the **Isolate State** function will gray out the surrounding states to bring the visual focus to one specific area. The printer output will reflect this. The SBHC & School Characteristics Function must be active to use this feature.



Use the **Print** button to create a PDF of the selected Map. In print view, users can move the map, adjust zoom levels, and add a title at the top of the box in the Title section. Use options to change the map orientation (portrait or landscape), include data and optional legends or make the map a whole page.



## Summary

The generation of reports and data exportation allows users to target and address specific needs. Users can download this information and format it as needed. Additionally, the information provides such an expansive overview that identifiable data are easy to isolate and qualify. Together, these items allow children and adolescents, especially those in underserved areas, to receive the care they desperately need. Through the histogram and line graph features, visuals can promote a powerful image of an organization's next steps might be to improve its caring capacities or connect with those in areas of success.

## Accessing Additional SBHC Data

To access additional data from the National School-Based Health Care Census, email [research@sbh4all.org](mailto:research@sbh4all.org).

## Recommended Citation

School-Based Health Alliance (2022). The School-Based Health Alliance Children's Health and Education Mapping Tool. Washington, DC: School-Based Health Alliance. <https://data.sbh4all.org/sbhadb/maps/>

## Funding and Development Acknowledgement

SBHA's Evaluation and Quality Panel provided initial support in shaping the vision of the Mapping Tool. SBHA received funding from the Atlantic Philanthropies, Aetna Foundation, Bechtel Foundation, and the Bureau of Primary Health Care to support the original development of the tool.

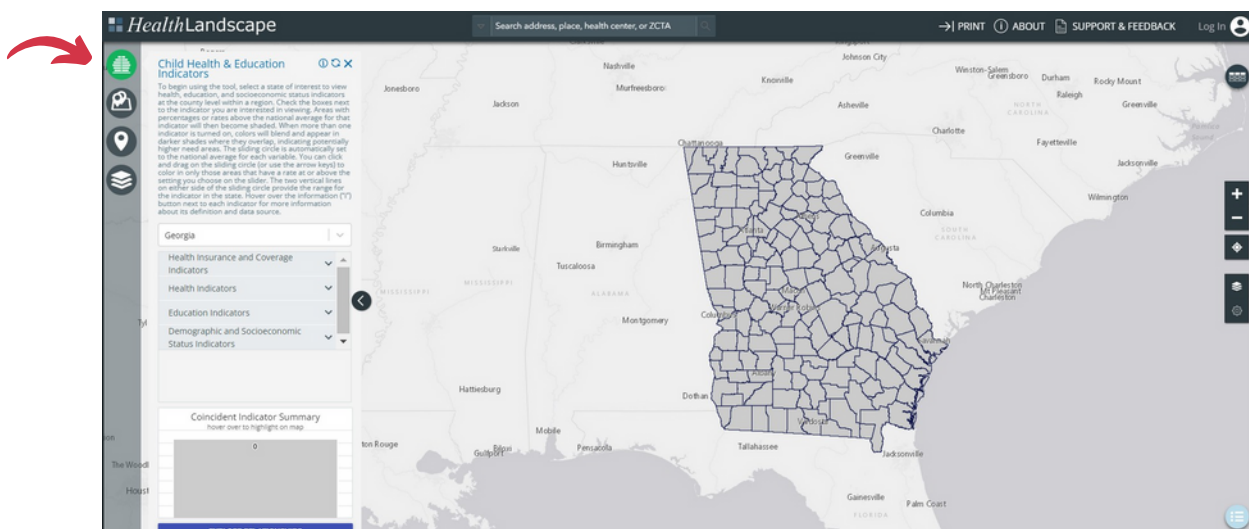
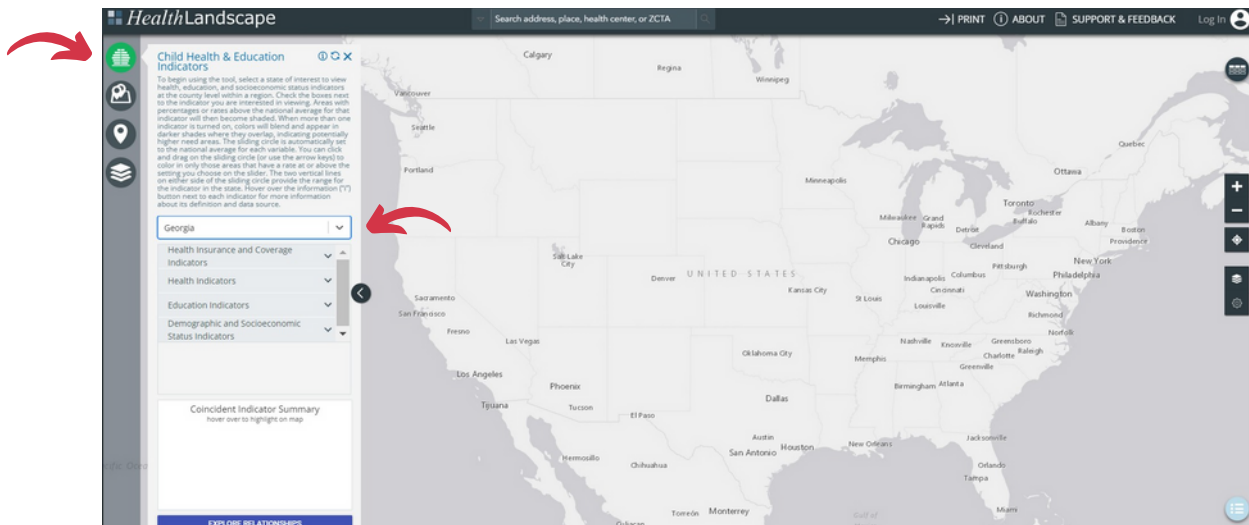
This publication was made possible by grant number 6 U3FCS41782-01-01 from the Health Resources and Services Administration (HRSA), Bureau of Primary Health Care. Its contents are solely the authors' responsibility and do not necessarily represent the official views of HRSA.

## Appendix A: Use Case Examples

### Use Case 1: Expanding SBHCs in Georgia and Addressing Social Determinants of Health

An SBHC advocate in the state of Georgia is interested in exploring possible locations of a new SBHC. The user is interested in identifying a potential school partner located near a Health Center that could serve as a sponsoring organization in a high-need area that does not currently have access to an SBHC.

1. Select Georgia from the drop-down in the Child Health & Education Indicators function. The view will narrow to the southeast and outline the counties.

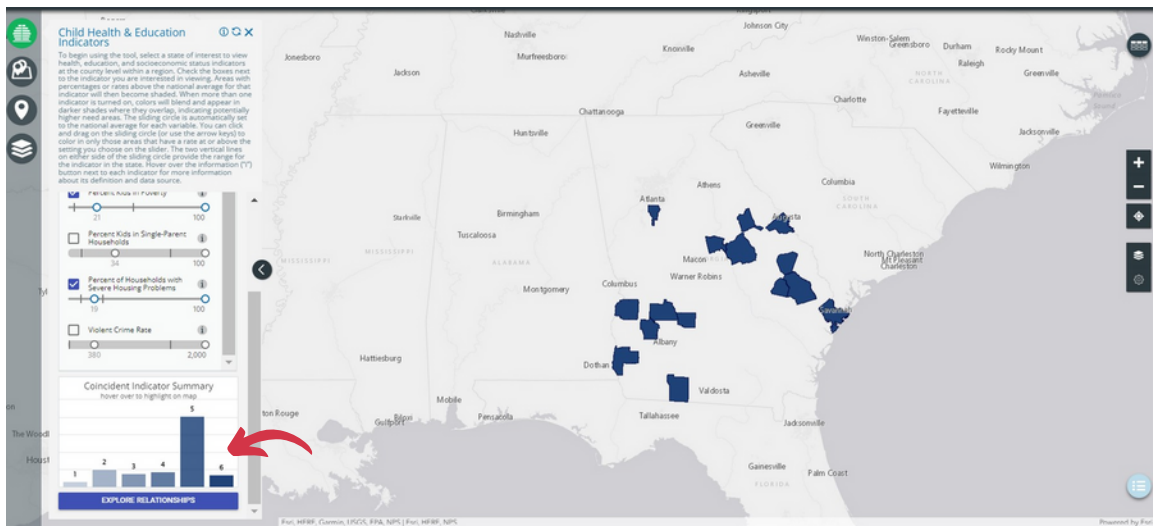


2. Add child health and education indicators of interest. In this example, the user selected
  - a. Health Insurance and Coverage Indicators- Under 18: Percent Uninsured
  - b. Health Indicators- Adult Population: Percent Obese, Total Population: Percent Food Insecure,
  - c. Demographic and Socioeconomic Status Indicators- Percent free Lunch, Percent Kids in Poverty, and Percent of Households with Severe Housing Problems.

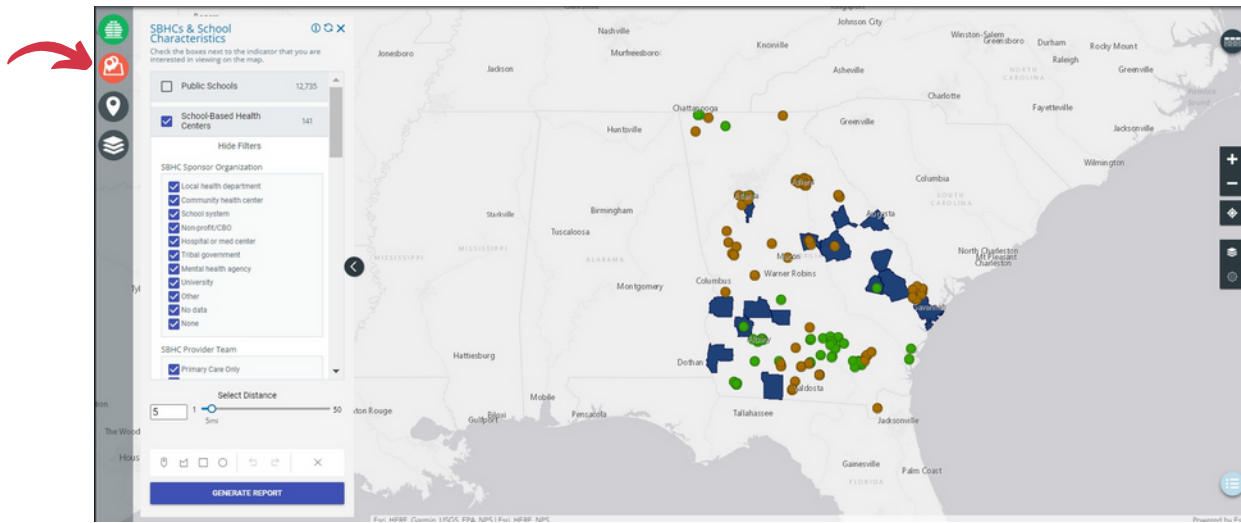
Each indicator highlights counties where the indicator of interest is higher than the national average or the value selected in the slider. The Mapping Tool does not represent variations for each indicator that may exist within a county or neighborhood.



3. Isolate the areas where all indicators overlap to identify counties with the most adverse social determinants of health exposures by clicking on the Coincident Indicator Summary histogram at the highest level.

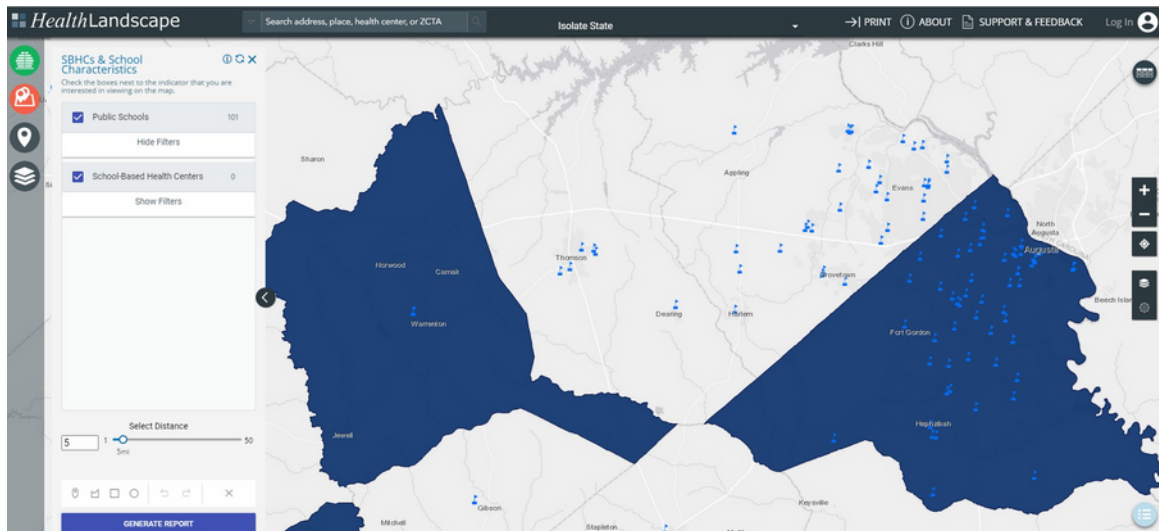


4. Add SBHCs to identify counties and areas that have existing SBHCs. The last National School-Based Health Care Census is used to populate locations.



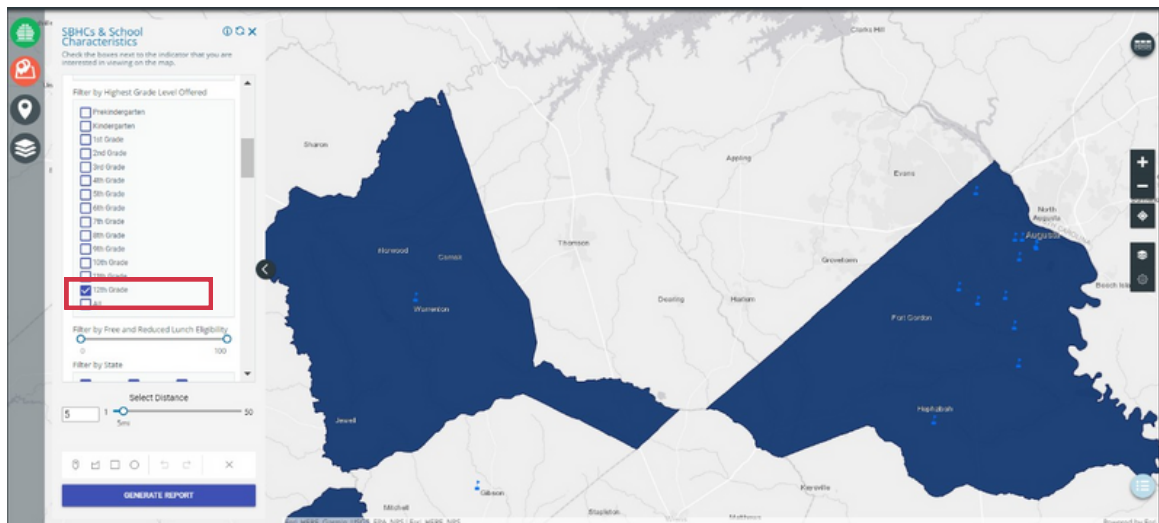
5. Identify counties with no SBHCs by adding SBHCs to the map in the SBHC & School characteristics layer. Brown or green dots indicate SBHCs.

6. Add public schools using the SBHC & School Characteristics layer. Here the user has zoomed in on the counties in the Augusta area identified in step 5 as having no SBHCs.

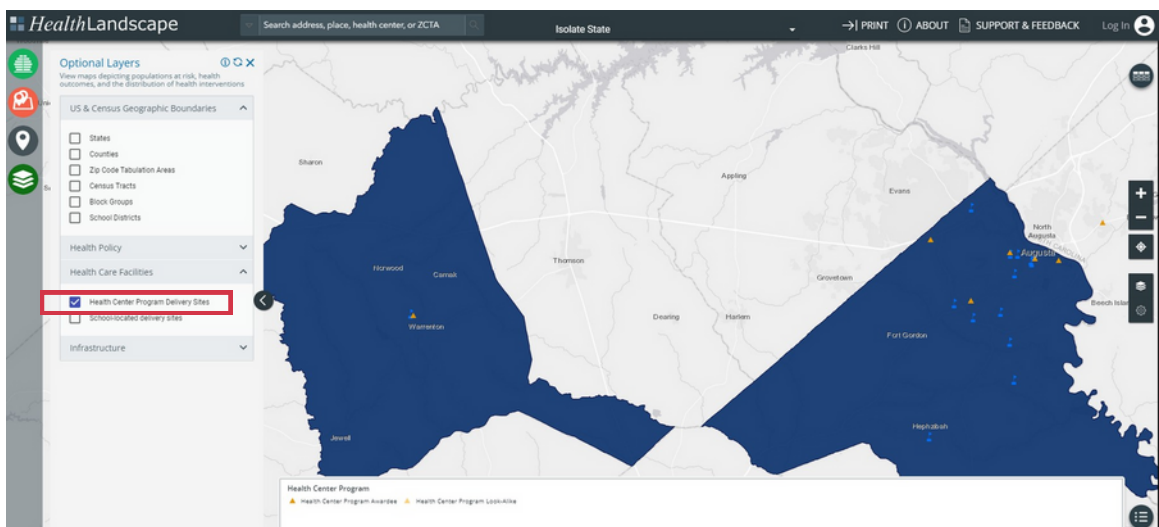


7. Limit the display to Title 1 eligible schools by clicking Show Filter and using the checkboxes to select only Title 1 Eligible schools to limit the results to schools with a high proportion of students from low-income families.

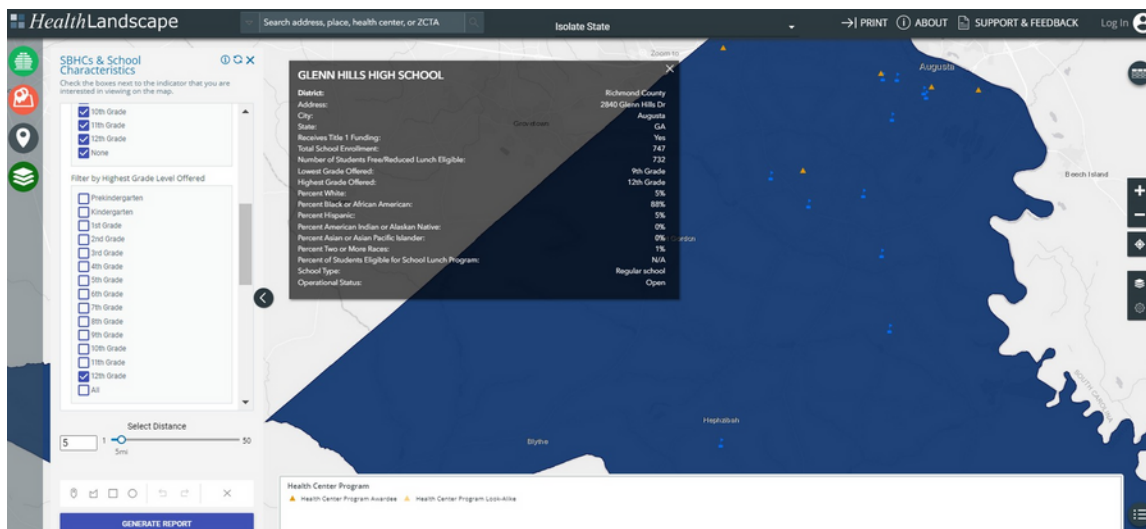
8. Limit to High Schools by selecting grade level as 12 and deselecting all lower grade levels.



9. Add Health Center locations to identify potential sponsoring organizations near schools of interest.



10. Identify possible school partners by exploring school characteristics. Clicking on a school will produce a pop-up highlighting school-level data, including the student body population and the number of students receiving free or reduced lunch.

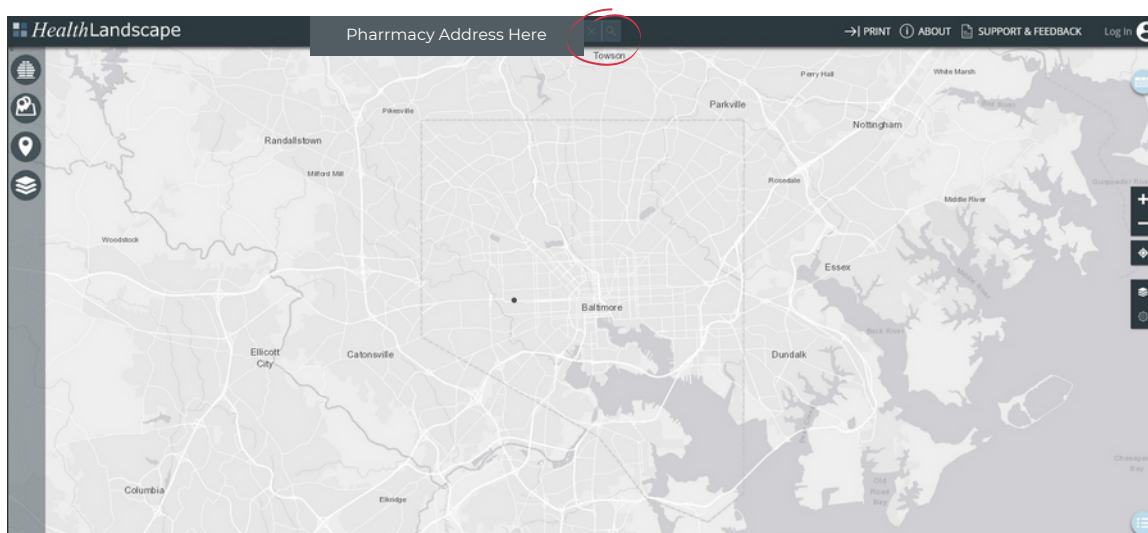


11. Leverage SBHC Visits to Address Social Determinants of Health through screenings for risk and protective factors that influence the child health and education indicators included in the example. SBHCs can help connect youth and families to insurance, provide physical activity and nutrition counseling, and engage other community resources providing wrap around services.

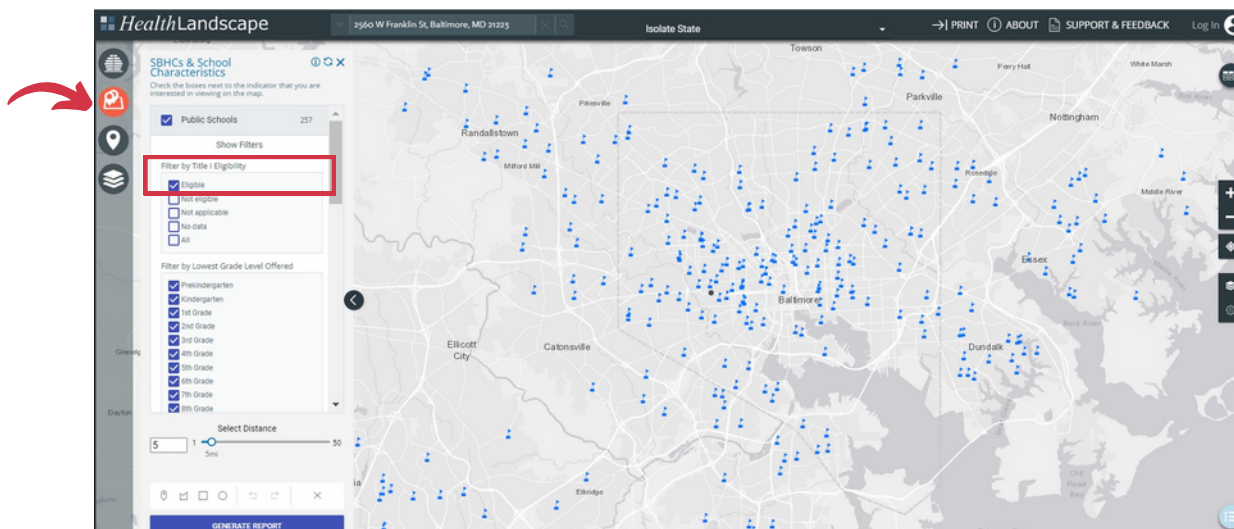
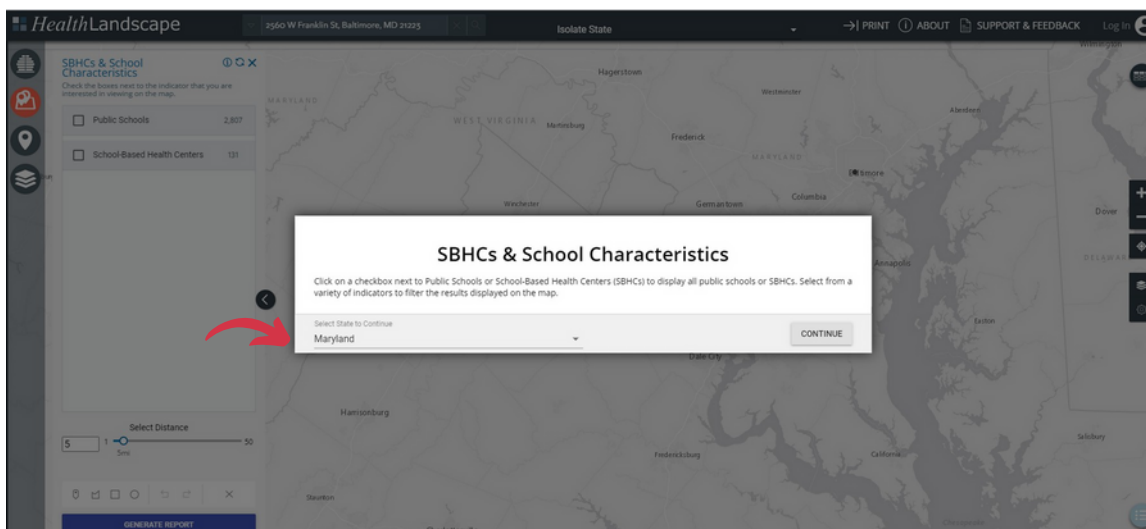
## Use Case 2: Baltimore Pharmacy COVID-19 Vaccination Clinic Collaboration

A pharmacy is interested in partnering with schools to deliver COVID-19 vaccines or other services. The pharmacy is interested in reaching schools with a high proportion of students from low-income families. To maximize outreach, the user would like to identify schools that do not have existing relationships with community medical organizations that would be able to provide vaccinations or services themselves.

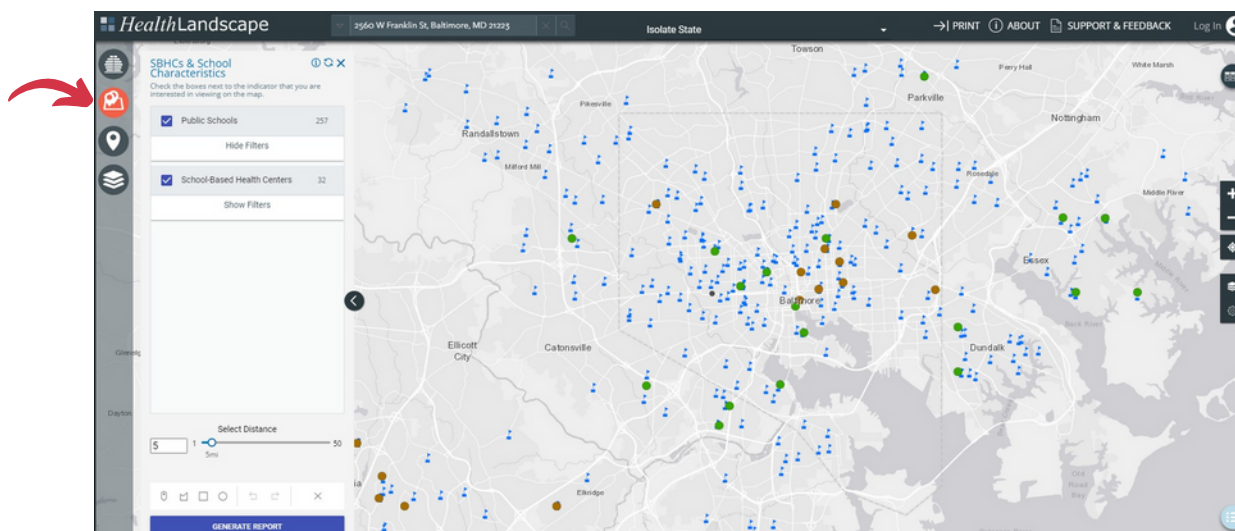
1. Add the location of the pharmacy in the search bar at the top of the screen and hit the search button (magnifying glass). The view will narrow to the area of interest and place a black dot at the address.



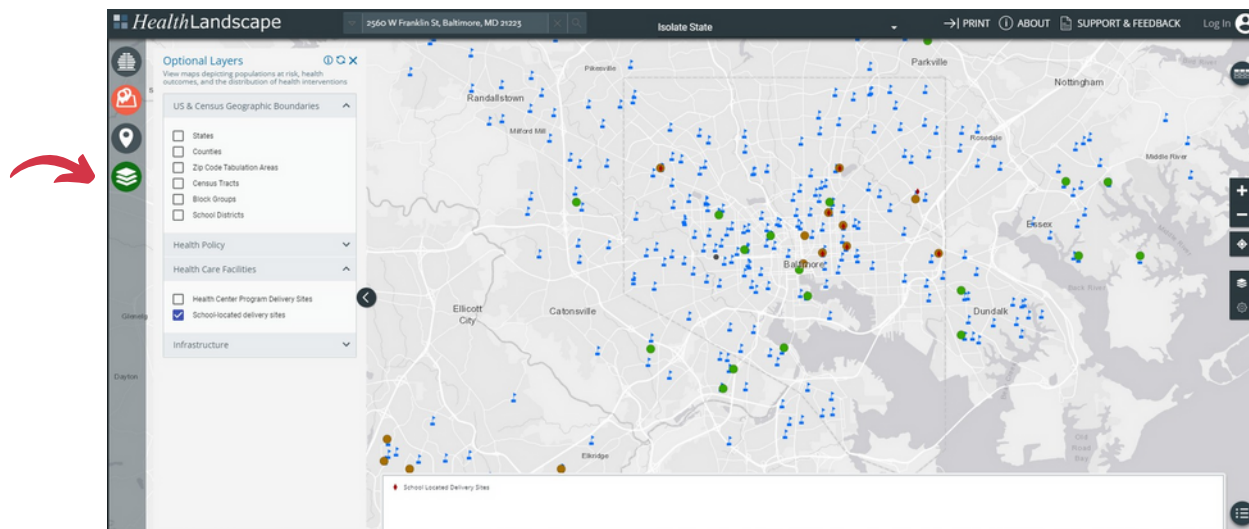
2. Add Title I eligible schools using the SBHC & School Characteristics function. Check the box to add public schools to the map. Click Show Filter and use the checkboxes to select only Title I Eligible schools to limit the results to schools with a high proportion of students from low-income families. If desired, filter by schools that serve the appropriate age range or are in the selected state.



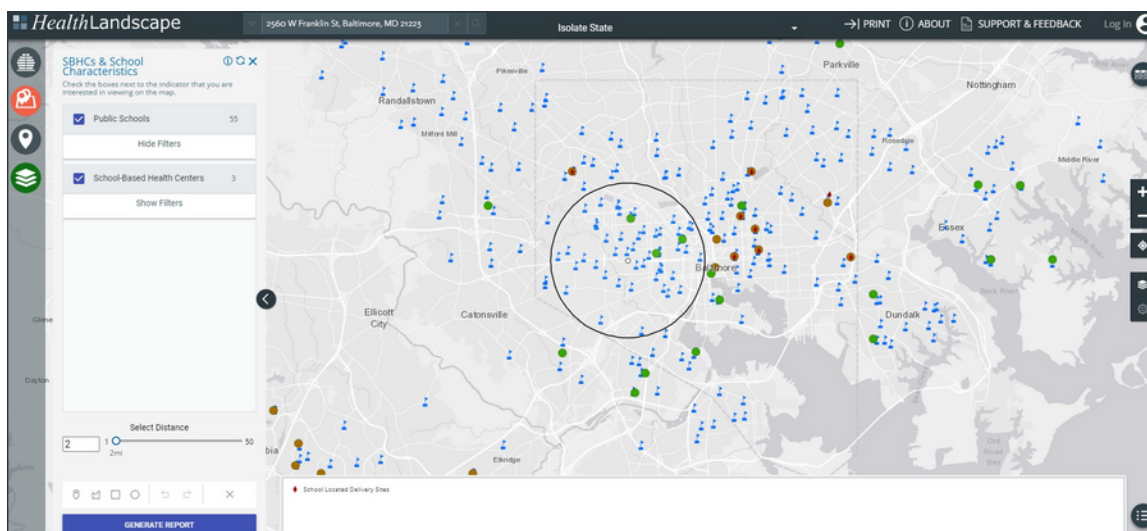
3. Add SHBCs in the SBHCs & School Characteristics function to reflect schools that have existing community medical partnerships through an SBHC.



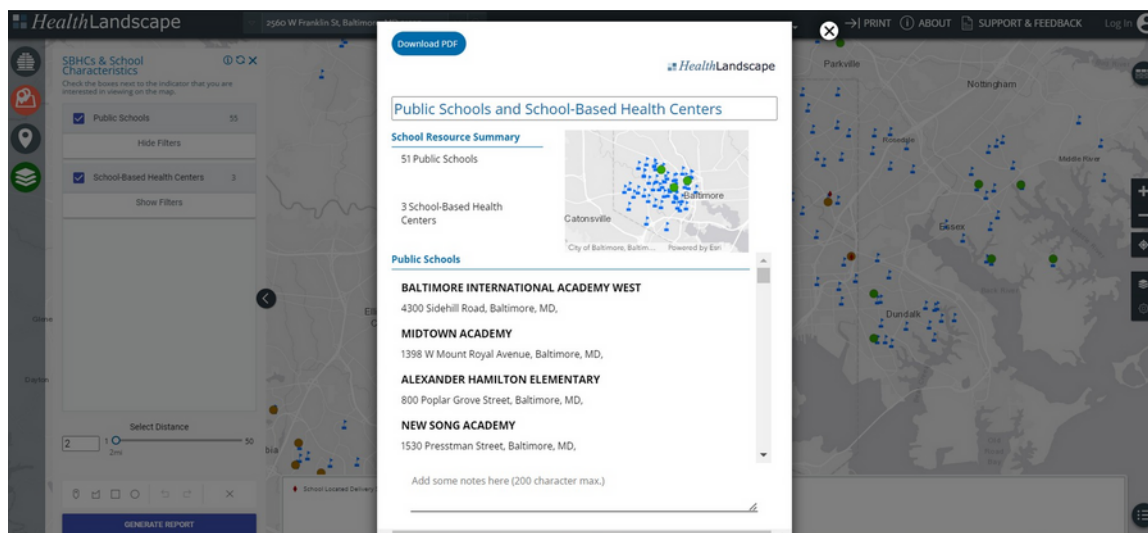
4. Add School located service delivery sites to represent schools that have existing medical partnerships with Health Centers delivering care at school locations. Note: Some may overlap with SBHCs that Health Centers sponsor.



5. Add a geographic boundary to reflect an area of interest. In this example, the user restricts to a 2-mile radius. Using the appropriate tool, users could create boundaries with a rectangle or free-form polygon.



6. Download a pdf report through the Generate Report button. From here, the user can begin outreach to the identified schools in the area.

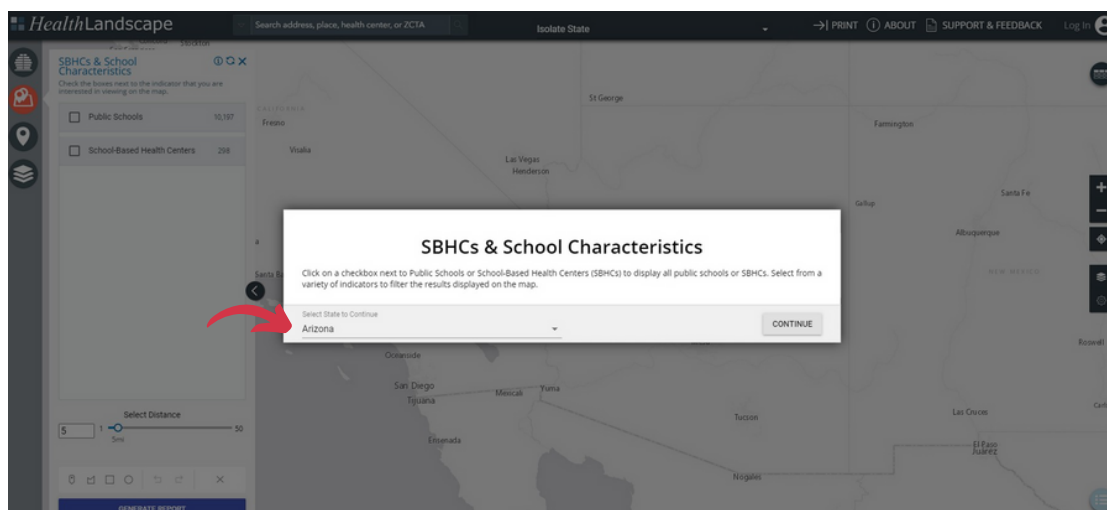


7. Optional: If the pharmacy is interested in collaborating with a Health Center to administer vaccines or host a broader health event, the user can add Health Center locations from the Additional Layers function to see convenient partners.

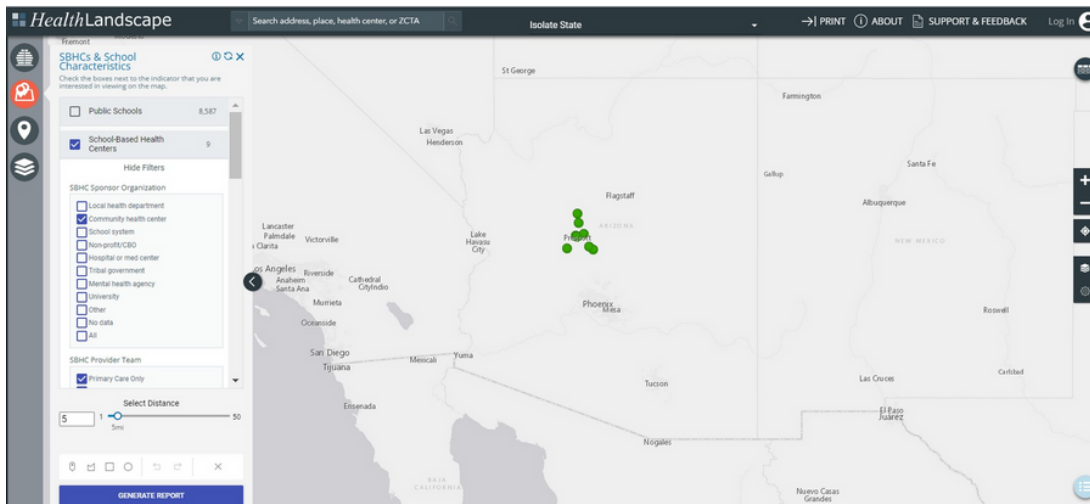
### Use Case 3: HRSA-sponsored SBHCs in Arizona medical-HPSAs

A user is interested in identifying locations needing additional healthcare providers with SBHCs sponsored by Health Centers. This approach could also identify areas requiring extra attention and resources during a public health emergency, such as that experienced during the COVID-19 pandemic.

1. Select State of Interest (Arizona) from the drop-down on the SBHCs & School Characteristics function home screen, then click continue.

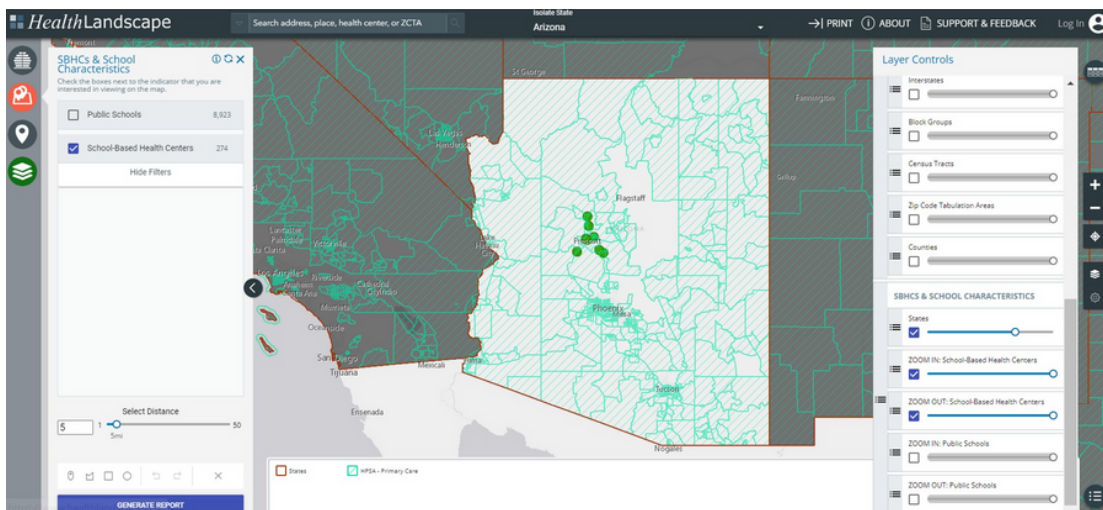


2. Add Health Center-sponsored SBHCs in the SBHCs & School Characteristics function. Use the filters under SBHCs to select only those sponsored by Health Centers in Arizona.



3. Add primary care HPSAs in the Optional Layers function using the checkbox in the Health Policy section.

4. Focus the map by adding display options. Here the user has added state boundaries and isolated the state. Use the Layer Controls feature as needed to arrange layers and change opacity.



5. Customize and print the map. After clicking the "Print" button, users can set the zoom and image orientation and add a title and legends.

