



LANCASTER COUNTY
Conservation District

Lancaster County Data Dashboard Documentation

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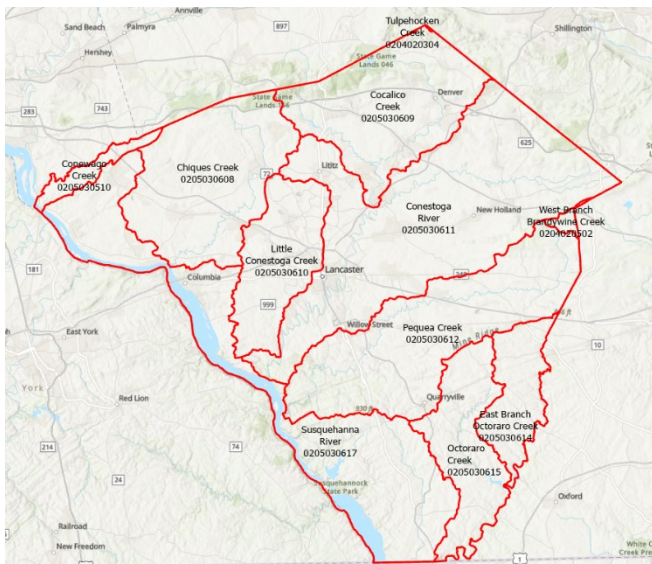
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Background:

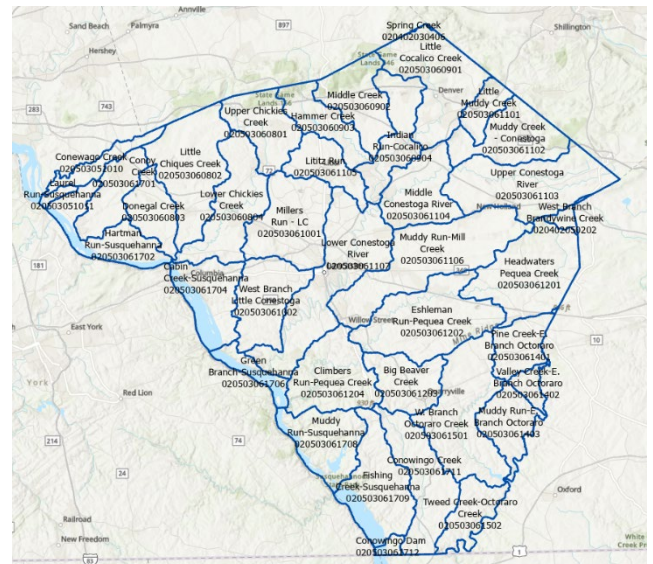
The Lancaster County Countywide Action Plan (CAP) Coordinators have been interested in a comprehensive data dashboard that captures all of the conservation efforts that have been done in the county to display the progress of the CAP. The dashboard encompasses best Management Practices that have been implemented and can be shown at a sub-watershed (HUC12) level*. There is also a water quality dashboard that shows in-stream monitoring unit data within the county from the Susquehanna River Basin Commission (SRBC), the United State Geological Survey (USGS), and the Lancaster County Conservation District (LCCD).

*A sub-watershed, or HUC12, is a smaller watershed that is within a larger watershed. HUCs are Hydrologic Unit Codes and act as a numbering system to pinpoint the region of watersheds. The more numbers in the HUC, the smaller the defined watershed is. These websites can help understand explore sub-watersheds (HUC12s) – [USGS](#) or [EPA How's my Waterway](#). The Lancaster County Conservation District also has a [Google Map](#) that displays Lancaster's sub-watersheds that users can explore and interact with. The maps below depict the difference between the HUC10s (watersheds) and the HUC12s (sub-watersheds) in Lancaster County.

Lancaster HUC10s – “Watersheds”



Lancaster HUC12s – “Sub-Watersheds”








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How to use and navigate the hub site:

1. Home Page

- a. This is the landing page of the hub site with narrative about the Lancaster Countywide Action Plan (CAP).
- b. There are progress bars of some Best Management Practice (BMP) goals as outlined by the Lancaster CAP - these will be periodically updated as needed.
- c. A search bar is included to search for data, map layers, dashboards, etc.
- d. Users can explore the dashboards by clicking the images or by selecting them at the top menu bar.
- e. Other resources are located at the bottom of the home page for more dashboards that may be of interest to viewers.

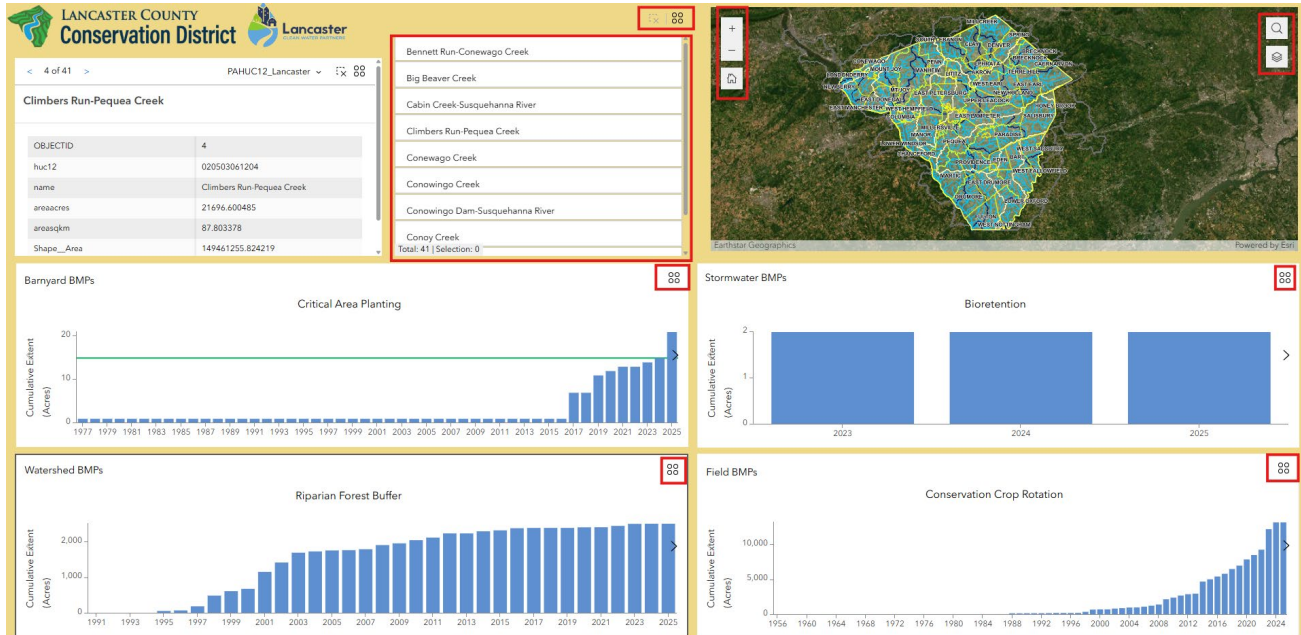
2. Best Management Practices Dashboard

- a. It is recommended to open the dashboard in a new tab to view at full screen level and a BMP description guide is included for more information regarding these BMPs. The BMPs listed are ones used for the Chesapeake Assessment Scenario Tool (CAST) Model and reflect how pollution loads/credits are calculated.
- b. Through interactive maps, charts, and lists, users can track BMP implementation, compare progress across watersheds, and visualize conservation impacts over time. As users zoom in, BMP data will filter. Please keep in mind data are aggregated by sub-watershed and will not narrow down any further. Data are also summarized by year of implementation.
- c. Mapping function:
 - i. Zoom in/out 
 - ii. Search for address using the magnifying glass icon 
 - iii. Layers/Legend using the “stacked” icon to toggle between layers of interest and their associated symbology 
- d. Sub-watershed selection/filtering
 - i. Users are able to select a sub-watershed from the list provided. Once selected, the sub-watershed (HUC-12) will be highlighted in the map.
 - ii. Using the four-circle icon at the top right of the list, users are able to set filters for the BMP data, zoom to a sub-watershed, and more.
- e. BMP graphs:
 - i. There are four categories of BMPS: Barnyard, Stormwater, Watershed, and Field BMPs.
 - ii. The data are cumulative as time (years) increases and aggregated by HUC12 (sub-watershed).
 - iii. Data can be exported into a simple excel sheet for manipulation or further analyses using the four-circle icon located on each graph.



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- f. **Data Source:** Data Warehouse from the Pennsylvania Department of Environmental Protection (a database managed by the state that encompasses multiple state and local organizations entering BMP data).



3. Stream Monitoring Dashboard:

- It is recommended to open the dashboard in a new tab to view at full screen.
- Designed for exploration and insight, the Stream Monitoring Dashboard allows users to track water quality parameters across different locations and time periods. Visualize trends through dynamic graphs and maps, filter by stream segments, and compare multiple monitoring sites side-by-side. Stay informed with up-to-date data integration and customize your view with interactive tools and graph toggles.
- Mapping function:
 - Zoom in/out
 - Search for address using the magnifying glass icon
 - Layers/Legend using the "stacked" icon to toggle between layers of interest and their associated symbology
- Stream data:
 - To view water quality data from a **SINGLE** stream, users need to click on the "Selection" tool before viewing stream data. Once that button is



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- selected, users can then click on a **red stream segment** and view the associated data.
- ii. To view and compare water quality data from MULTI-STREAM segments, click on the blue button to toggle to that view. From there, users need to click on the “Selection by rectangle” tool. Draw a rectangle on the map that encompasses the stream segments of interest to view their associated data. It is **not** recommended to view more than 3 stream segments at a time – doing so may result in a cluttered dashboard.
 1. Zoom in on the red stream segments for stream reach IDs (COMIDs) as in-stream monitoring unit identifications have been obstructed to protect private landowner information.
 2. To explore the map further, users should unselect the “Select by rectangle tool” to continue with the mouse dragging function.
 - iii. Users are able to export the water quality data using the four-circle icons located on each graph.
 - iv. **Special note:** the red stream segments on the map indicate that a continuous in-stream monitoring unit is located somewhere within that stream reach. Some units do not record the water quality parameters listed in the dashboard (some only record water discharge), so there may not be data displayed.
- e. **Data sources:** Continuous in-stream monitoring units located in the county from the United States Geological Survey (USGS), Susquehanna River Basin Commission (SRBC), and the Lancaster County Conservation District (LCCD). These units collect water quality data every 15-30 minutes. To reduce the amount of data points displayed on the dashboard and decrease processing time, data were averaged by month. The years 2020 through 2024 were utilized in the dashboard, if applicable to the unit.
- i. If users are interested in ALL of the data, they can visit the sites linked above to explore more or reach out to Noelle Cudney.



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Single Stream View

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This Stream Monitoring dashboard is used to visualize water quality trends and compare common attributes over time. It can be used to identify long-term changes of stream monitoring sites.

Use the selection tool to the right and click on a **RED** stream monitoring site on the map to display the associated data for that location.

Switch to multi stream select view

Layers
 LCCD Stream Monitoring Flowline Join (47)

Water temperature: Line Graph

Water Temperature by Year

Month	2021	2022	2023	2024
1	5	5	5	5
2	5	5	5	5
3	5	5	5	5
4	5	5	5	5
5	10	10	10	10
6	15	15	15	15
7	20	20	20	20
8	20	20	20	20
9	15	15	15	15
10	10	10	10	10
11	5	5	5	5
12	5	5	5	5

Dissolved Oxygen

Dissolved Oxygen by Year

Month	2021	2022	2023	2024
1	10	10	10	10
2	10	10	10	10
3	10	10	10	10
4	10	10	10	10
5	10	10	10	10
6	10	10	10	10
7	10	10	10	10
8	10	10	10	10
9	10	10	10	10
10	10	10	10	10
11	10	10	10	10
12	10	10	10	10

Specific Conductivity

Specific Conductivity by Year

Month	2021	2022	2023	2024
1	500	500	500	500
2	500	500	500	500
3	500	500	500	500
4	500	500	500	500
5	500	500	500	500
6	500	500	500	500
7	500	500	500	500
8	500	500	500	500
9	500	500	500	500
10	500	500	500	500
11	500	500	500	500
12	500	500	500	500

Turbidity

Turbidity by Year

Month	2021	2022	2023	2024
1	10	10	10	10
2	10	10	10	10
3	10	10	10	10
4	10	10	10	10
5	10	10	10	10
6	10	10	10	10
7	10	10	10	10
8	10	10	10	10
9	10	10	10	10
10	10	10	10	10
11	10	10	10	10
12	10	10	10	10

Multi-Stream View

LANCASTER COUNTY Conservation District Lancaster

This Stream Monitoring dashboard is used to visualize water quality trends and compare common attributes over time. It can be used to identify long-term changes of stream monitoring sites.

Click on a **RED** stream monitoring site on the map to display the associated data for that stream monitoring site

Switch to single stream select view

Layers
 LCCD Stream Monitoring Flowline Join (74)

Water Temperature: Line Graph

Water Temperature by Year

Year	57462629	57462643
2020	15	15
2021	15	15
2022	15	15
2023	15	15
2024	15	15

Dissolved Oxygen

Dissolved Oxygen by Year

Year	57462629	57462643
2020	10	10
2021	10	10
2022	10	10
2023	10	10
2024	10	10

Specific Conductivity

Specific Conductivity by Year

Year	57462629	57462643
2020	500	500
2021	500	500
2022	500	500
2023	500	500
2024	500	500

Turbidity

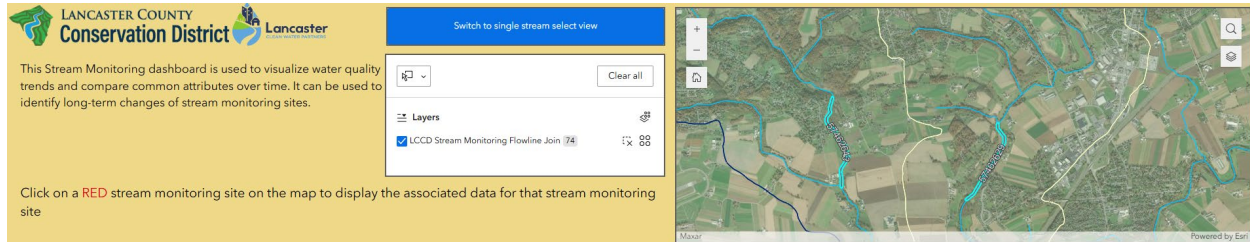
Turbidity by Year

Year	57462629	57462643
2020	10	10
2021	10	10
2022	10	10
2023	10	10
2024	10	10



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Picture of multi-stream view showcasing the COMID labels once the user is zoomed in



4. *Submit a Request*

- a. Users can complete this form to submit a question, concern, comment, or even correct any data / provide missing data.
 - i. Files can be uploaded through this form
 - ii. Users can also pinpoint exactly where the data is missing or incorrect via a map in the form
- b. Noelle Cudney will receive an email when a form is completed by a user.
 - i. A follow-up email can be requested if the user would like further communication.

5. *Additional Resources*

- a. This page contains a list of various resources that may be helpful to the user.

Dashboard Updating Schedule:

The goal is to update the data associated with this dashboard twice a year (every 6 months), however there may be some delays if data are not available or if major formatting changes are necessary.

Mapping Layer Sources and Names in the Maps:

From PASDA

PA Counties:

- <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=24>
- **Named: Pa County 2025 04**

PA Municipality Boundaries:

- <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=41>
- **Named: Pa Municipalities 2025 04**

PA Watersheds:

- HUC10 - <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=2098>



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- **Named: PA HUC10**
- HUC12 - <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=2099>
 - **Named: PA HUC12**

PA Streams:

- NHD Flowline - <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=364>
 - Captures all of PA's streams within the Susquehanna
 - **Named: NHDFlowlineSusquehanna**
- Streams Chapter 93 Designated Use - <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=1098>
 - DEP's GIS Layer for CWF, WWF, TSF, EV, HQ, etc.
 - Captures all of PA's Streams with its designated use
 - **Named: Streams CH93 Designated Use 2025 04**
- Attaining Streams List - <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=887>
 - DEP's GIS Layer for streams that have reached the "attaining" level for fish consumption, aquatic life, recreation, etc.
 - **Named: Integrated List Attaining 2025 04**
- Non-Attaining Streams List - <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=888>
 - DEP's GIS Layer for streams that have the "non-attaining" status for fish consumption, aquatic life, recreation, etc. and the impairment causes.
 - **Named: Integrated List NonAttaining 2025 04**

Land Use

- NLCD 2019 Land Use/Land Cover - <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=2532>

Easements

- *Conservation Easements*
 - <https://mapservices.pasda.psu.edu/server/rest/services/pasda/WeConservePA/MapServer/0>
 - **Named: Conservation Easements 202506**
- *Farm Easements*
 - <https://mapservices.pasda.psu.edu/server/rest/services/pasda/WeConservePA/MapServer/1>
 - **Named: Farm Easements 202506**