Appendix B
ALCOSAN CtS Web Map Resources

B-1. ALCOSAN CtS Web Map Data Dictionary

Data Dictionary last updated: 7/29/20

CtS Web Map Data Dictionary

Category	Map/Data Layer	Description	Source	Year
Project Layers	GSI Opportunities identified in CtS	Locations of potential GSI project opportunities identified using the CtS framework for project identification.	ALCOSAN/Jacobs	Created by ALCOSAN/Jacobs - 2019
	DSIR Opportunities identified in CtS	Locations of confirmed potential DSIR opportunities under evaluation.	ALCOSAN/ Jacobs	Created by ALCOSAN/Jacobs - 2019
	I/I Opportunities identified in CtS	Locations of potential I/I opportunities	ALCOSAN/ Jacobs	Created by ALCOSAN/Jacobs – 2019 and 2020
	SS Opportunities identified in CtS	Locations of potential SS opportunities	ALCOSAN/ Jacobs	Created by ALCOSAN/Jacobs – 2019
	Awarded GROW Projects through 2020	Locations of GROW Cycle 1, 2, 3, and 4 projects that have been awarded GROW funds	ALCOSAN/ Jacobs	Created by ALCOSAN/Jacobs - 2020
	Completed demonstration projects from MSRS	Locations of completed demonstration projects identified in Municipal Source Reduction Studies.	CDM	Provided May 2018
	Other opportunities identified in MSRS	Locations of potential projects identified in Municipal Source Reduction Studies.	CDM	Provided May 2018
	Completed projects identified in 3RWW GI Atlas	Locations of completed GSI projects identified in the 3RWW Green Infrastructure Atlas.	3RWW	Provided Jan. 2018
	POC Subcatchments	This layer was created by dissolving the ALCOSAN "MasterMergedSheds_v6_2" GIS layer by the "POC" attribute.	ALCOSAN	Provided by ALCOSAN - Sept. 2017
	ALCOSAN Service Area	Boundary of ALCOSAN service area	ALCOSAN	Provided by ALCOSAN - Sept. 2017
	ALCOSAN Planning Basins	Boundaries of the seven ALCOSAN Planning Basins	ALCOSAN	Provided by ALCOSAN - Sept. 2017
Constraint Analysis Layers	Buildings with 10 ft Buffer	Building footprints with a 10-ft buffer on building exterior	Allegheny County (Building Footprints), Jacobs generated the 10-ft buffer	Building footprint layer downloaded from Allegheny County in 2017. Data last updated in 2016.

Category	Map/Data Layer	Description	Source	Year
	Absolute Constraints Layer	This layer represents physical "absolute" constraints for GSI implementation. See separate table for layer components.	Jacobs	Created by Jacobs - 2018
	Relative Constraints Layer	This layer represents physical "relative" constraints for GSI implementation. See separate table for layer components.	Jacobs	Created by Jacobs - 2018
Overflow Reduction Efficiency Layers (existing conditions)	DSIR Overflow Reduction Efficiency	This layer shows the DSIR (Direct Stream Inflow Removal) ORE for select tributary areas to DSI locations. The ORE data layers were created based on the ALCOSAN "MasterMergedSheds_v6_2" GIS layer and the Existing Conditions SWMM input files	Jacobs	Created by Jacobs - 2018
	GWI Overflow Reduction Efficiency	This layer shows the GWI (Groundwater Infiltration) ORE for select MeterSheds/ MonitorSheds/subcatchments. The ORE data layers were created based on ALCOSAN's flow meter and monitoring shed GIS layers.	Jacobs	Created by Jacobs – 2019/2020
	GSI (Combined) Overflow Reduction Efficiency	This layer shows the GSI ORE for individual or groupings of subcatchments. (As described in Appendix C, some subcatchments in the combined system were grouped into geographic units for the ORE analysis.) The ORE data layers were created based on the ALCOSAN "MasterMergedSheds_v6_2" GIS layer and the Existing Conditions SWMM input files	Jacobs	Created by Jacobs - 2018
	I/I (Sanitary) Overflow Reduction Efficiency	This layer shows the I/I ORE for individual or groupings of sewersheds. (As described in Appendix C, some sewersheds in the combined system were grouped into geographic units for the ORE analysis.) The ORE data layers were created based on the ALCOSAN "MasterMergedSheds_v6_2" GIS layer and the Existing Conditions SWMM input files	Jacobs	Created by Jacobs - 2018
Planning Level Cost	Planning Level Capital Cost Per Acre – For GSI Projects	This layer links a pre-determined planning level capital cost per acre (for GSI implementation) with the relative constraint score for an area.	Jacobs	Created by Jacobs - 2019
Opportunity Category (Parcel Ownership)	Opportunity Category (Parcel Ownership) Layer	This layer categorizes parcels by their ownership category. See separate table for layer components.	Jacobs	Created by Jacobs - 2018
Other Data Layers	Allegheny County Environmental Justice (EJ) Index	The environmental justice (EJ) index unique to Allegheny County was created to identify high priority communities based on community-identified socio-demographic metrics in order to target interventions.	Allegheny County Health Department	Provided by ACHD in 2020 (data is from the 2019 EJ Update)

Category	Map/Data Layer	Description	Source	Year
Municipal Boundaries	Municipal Boundaries	Municipal boundaries within Allegheny County	Allegheny County	Downloaded from Allegheny County - 2017
Topographic	World Topographic Map	Basemap topographic/aerial imagery	ArcGIS Online (ESRI)	2018/2019 - Updates regularly based on satellite imagery

Constraints Layers – Layer Components

Constraint Type	Data Input Feature	Specific Data Sources (original file names)	Source	Year
Relative	Streets	AlleghenyCounty_StreetEOP2016	Allegheny County	2016
Relative	Cemeteries	Allegheny_County_Cemetery2002	Allegheny County	2002
Absolute	Railroads	Allegheny_County_RRLines2006	Allegheny County	2006
Absolute (Slopes > 25%); all else relative	Slopes	Allegheny_County_Slopes201001	Allegheny County	2010
Absolute (surface water); all else relative	Hydrologic soil groups	Allegheny_wss_SSA_PA003_soildb_PA_2003_ [2014- 09-15]	Soil Survey Geographic (SSURGO) database for Allegheny County; U.S. Department of Agriculture, Natural Resources Conservation Service	2003
Relative	Depth to water table			2003
Absolute (less than 1.1 feet); all else relative	Depth to bedrock			2003
Absolute	National Wetland Inventory	Allegheny_County_NWI2000	U.S. Fish & Wildlife Service, via Allegheny County	2000
Absolute	Streams/water way/surface water	Allegheny_2010_LandUse; Allegheny_wss_SSA_PA003_soildb_PA_2003_ [2014- 09-15]	Allegheny County; Soil Survey Geographic (SSURGO) database for Allegheny County; U.S. Department of Agriculture, Natural Resources Conservation Service	2010; 2003
Relative	FEMA 100-year floodplain	National Flood Hazard Layer - Allegheny County	Federal Emergency Management Agency (FEMA) via PASDA http://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=2282	2016
Absolute	FEMA Floodway			2016
Relative	Brownfields	Brownfields_acres_frs.gdb	Environmental Protection Agency via https://www.epa.gov/enviro/geospatial-data-download-service	2017
Relative	Abandoned	ALCOSAN_Abandoned_Mine_Land_Inventory	Environmental Protection Agency via	2017

Constraint Type	Data Input Feature	Specific Data Sources (original file names)	Source	Year
	Mines		https://www.epa.gov/enviro/geospatial-data-download-service	
Absolute	Superfund sites	LandRecyclingCleanupLocations2017_10.shp	PA Dept. of Environmental Protection via http://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=279	2017
Absolute (parcels containing)	Fuel sites	StorageTankLocations2017_10.shp	PA Dept. of Environmental Protection via ftp://ftp.pasda.psu.edu/pub/pasda/dep/historic/StorageTankLocations/	2017
Relative	ALCOSAN sewer pipes	ACSA_StructuresInterceptors.gdb/Pipes	ALCOSAN	2017
Relative	PWSA sewer main	PWSA_GIS.gdb/Sewer Main	ALCOSAN	2017
Relative	Wooded areas/ forest cover	Allegheny_County_Wooded_Area_Boundaries	Allegheny County	2011

Opportunity Category Layer – Layer Components

Data Layer	Source	Provider	Year
Parcels	Allegheny County	ALCOSAN	2017
Parcel Assessment Data	Allegheny County	ALCOSAN	2017
CSS Boundaries	CSS Boundaries are based on the GSI-ORE layer. Jacobs developed the GSI-ORE data layer based on the ALCOSAN "MasterMergedSheds_v6_2" GIS layer and the Existing Conditions SWMM input files	ALCOSAN/ Jacobs	GSI-ORE data layer developed in 2018
Parks	Allegheny County	Allegheny County	Data is from 2000, downloaded Sept. 2017

B-2. ALCOSAN CtS Web Map Instruction Manual

Instructions last updated: 8/14/20

An online interactive Controlling the Source (CtS) Web Map has been created to accompany the methodology for identifying and evaluating GSI and other source control opportunities. Below is an overview of how to navigate the Web Map and an explanation of the different layers of information that the Web Map contains.

B-2.1. General Overview of How to Use the Web Map

Controlling the Source (CtS) Web Map - Instructions
Upon opening the CtS Web Map, the map will automatically zoom to the full ALCOSAN service area.
To navigate within the map, either use the mouse to manually zoom in/out and pan or use the address/place search bar at the top to enter a specific address.

To view the Web Map in Full Screen mode, select the Full Screen icon on the left-hand side. To exit Full Screen mode, press Escape on your keyboard.
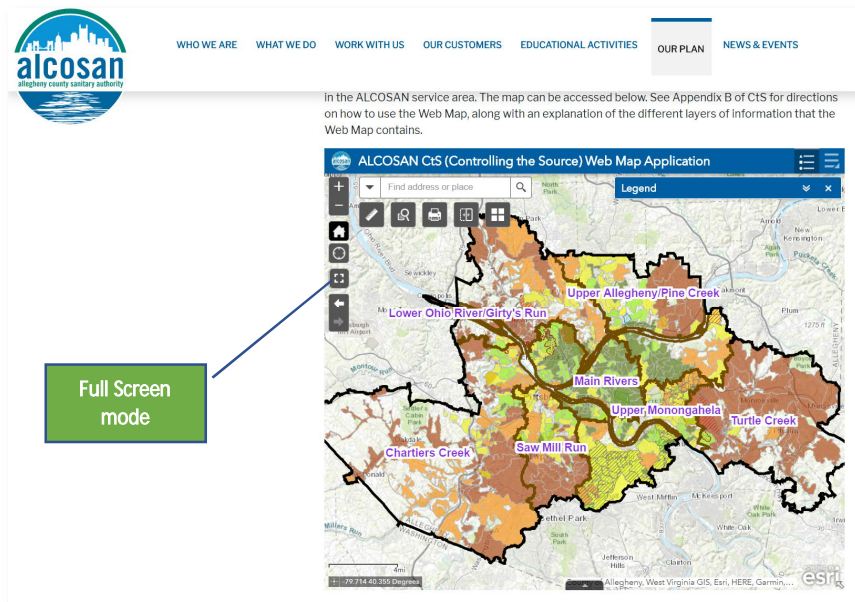
*Please note that these instructions are written based on viewing the Web Map with Google Chrome and there may be minor differences when viewing the map using a different internet browser.

The Web Map platform offers numerous interactive features that are called out on the screenshot below. The upper left contains the Address Search Bar and different viewing and zooming options. It also contains useful functions such as the Measurement tool, Query tool, Print, Swipe, and Basemap Gallery. The Expandable Toolbar in the upper right contains the Legend, Layer List, Map Information, and other functions such as Share, which provides several options for easily sharing the map with others.
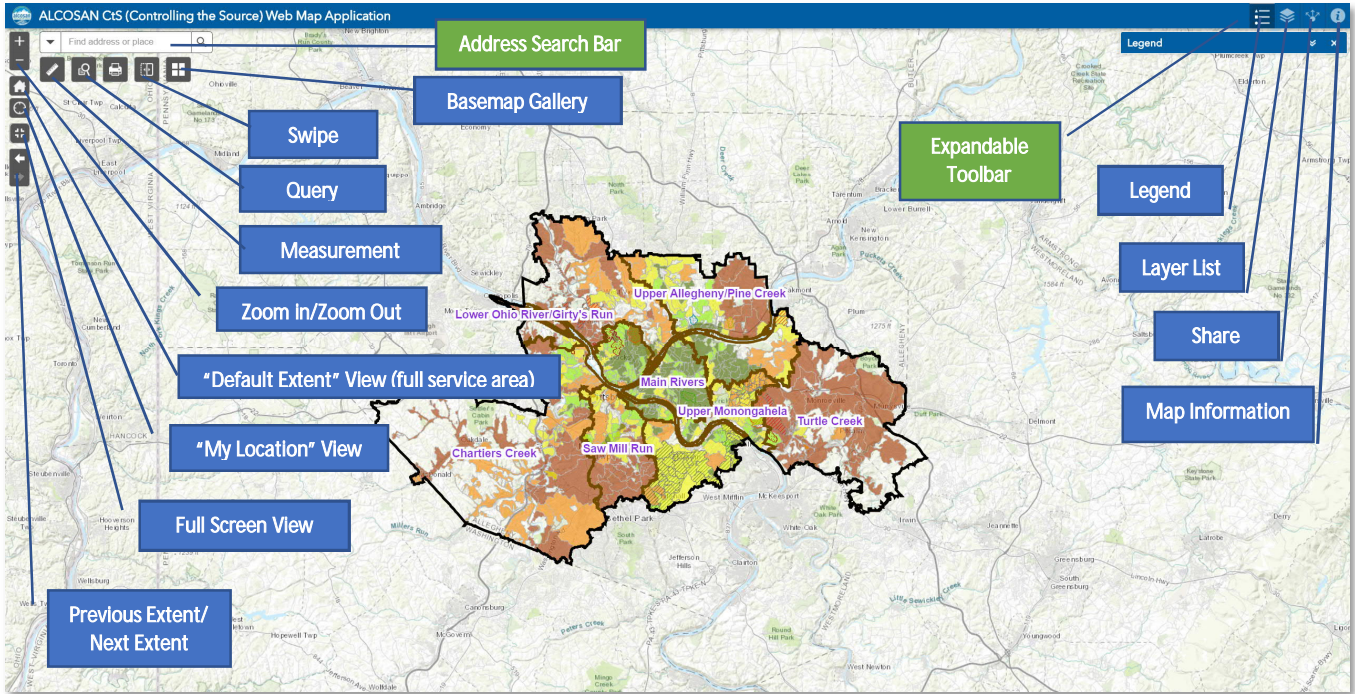
The Legend displays all <u>visible</u> map layers with each layer's associated symbology. As you zoom in and out of the map, different layers are programmed to automatically turn on and off for map clarity. The Legend will automatically update to reflect which layers are visible depending on what scale the map is displaying at.
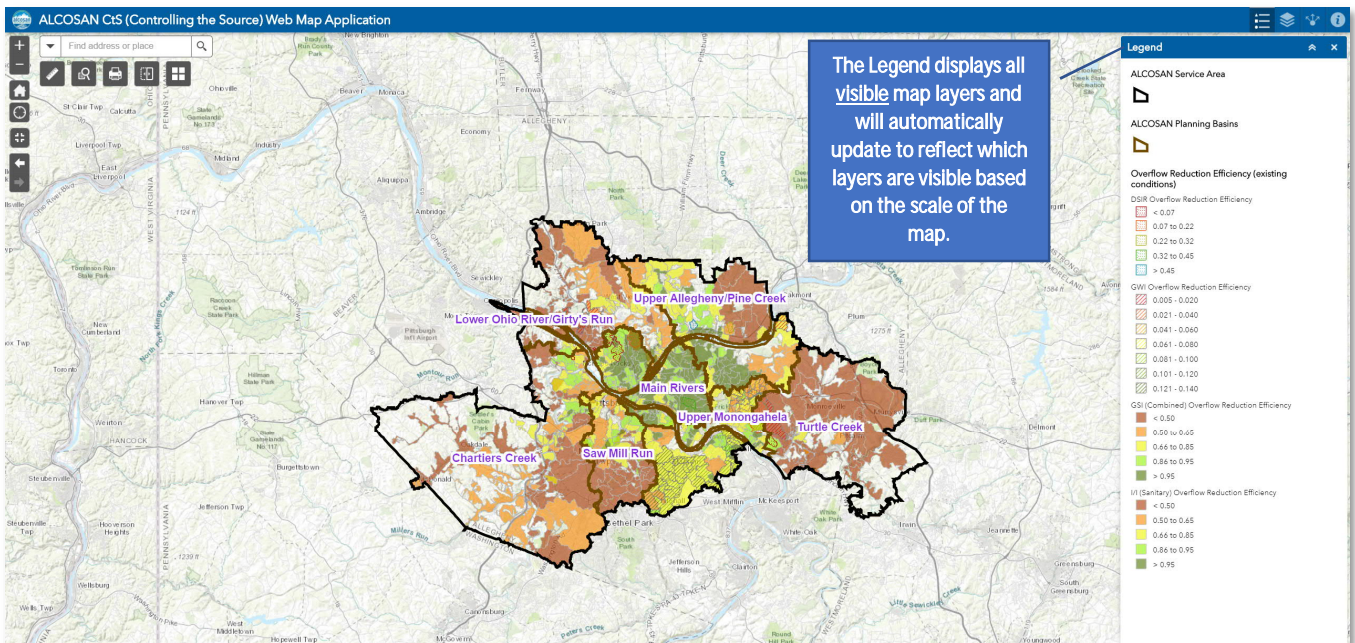
The Layer List displays a comprehensive list of all available map layers. A check in the box next to the layer name indicates if the layer is turned on. The map user can turn off layers by unchecking the box next to the layer name. Layers that have "greyed out" names are not visible at the current scale of the map. Try zooming in closer to enable those layers to turn on.
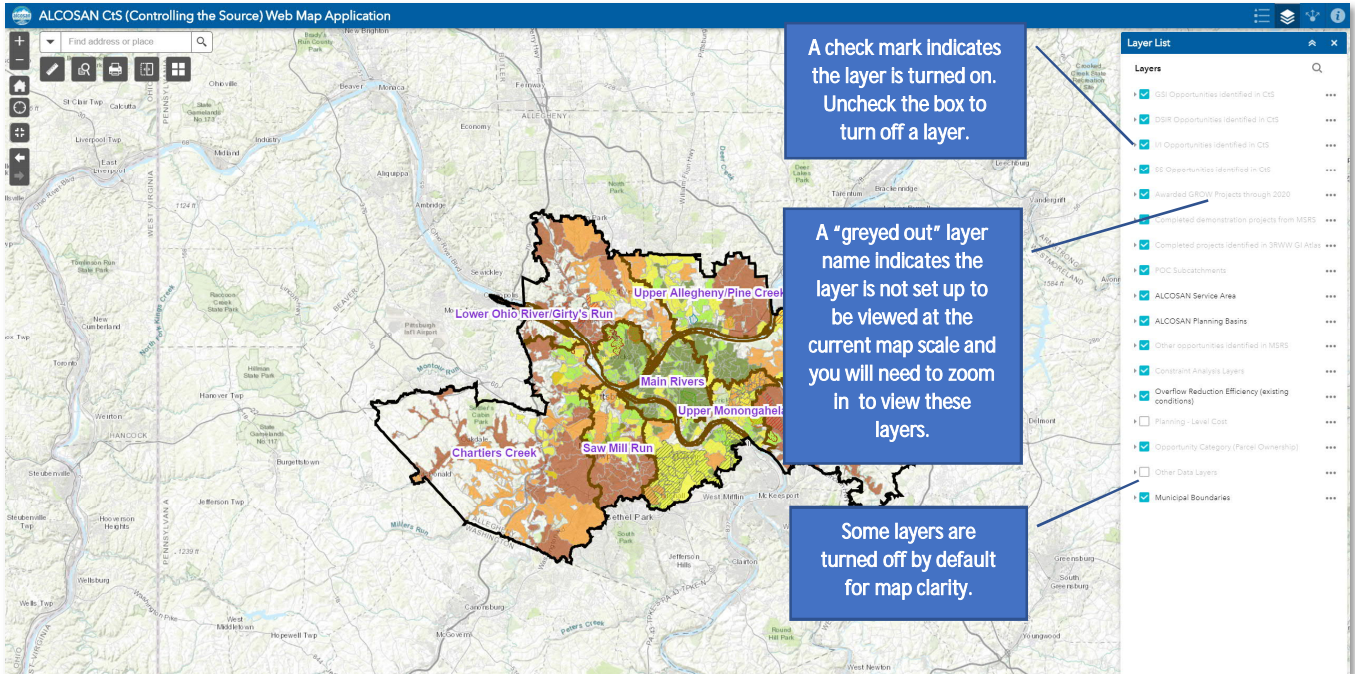
The Basemap Gallery enables the map user to change the background imagery of the map from the default topographic basemap to other options such as aerial imagery (listed as "Imagery" in the array of basemap options).
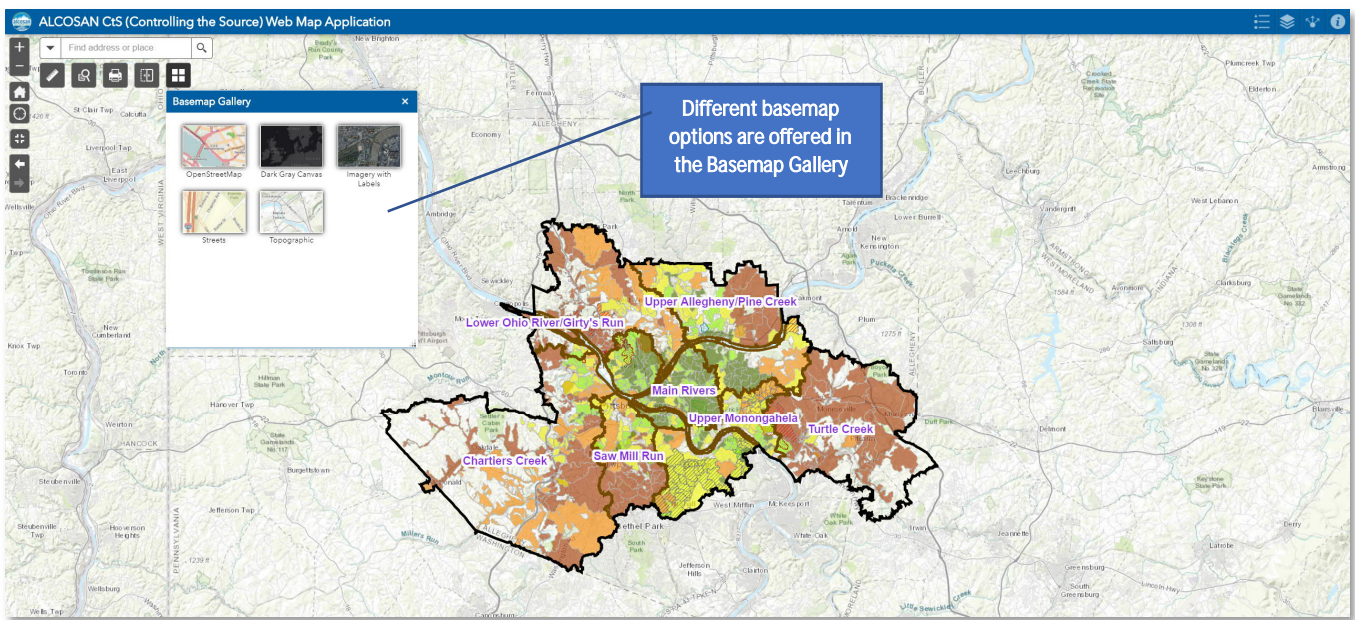
The Swipe function enables the map user to select a specific layer that will reveal itself by swiping left and right. In the example screenshot below, the Overflow Reduction Efficiency (ORE) layers are selected as the "Swipe" layer. Dragging the swipe bar in the middle of the screen to the left and right enables the ORE layers to swipe on and off, while leaving the other layers intact.
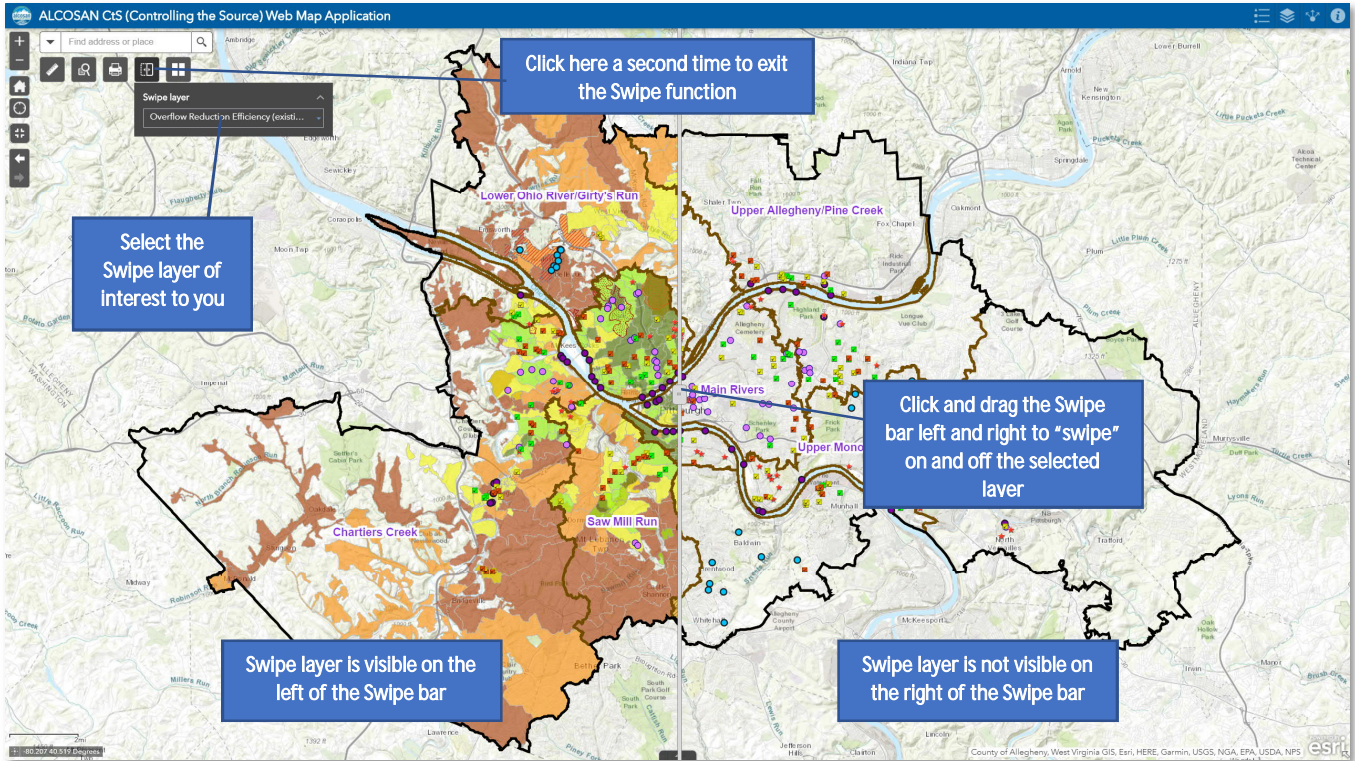
The Query function enables the map user to select a specific layer from the map to be able to sort through that layer's features in a list format, find specific features of interest, and then zoom to that feature of interest.
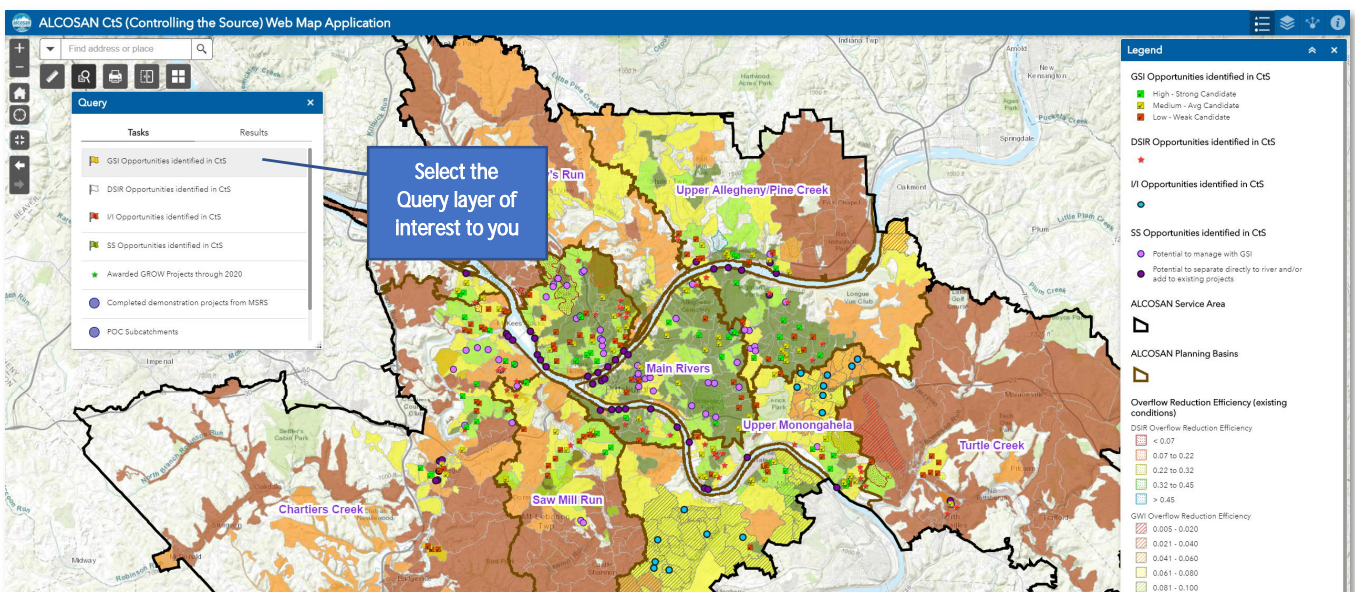
Sort through the Results of the queried layer of interest to find a specific feature. Double clicking on the chosen feature in the Results list will zoom you to that feature on the map and show the associated attributes in the pop-up legend.
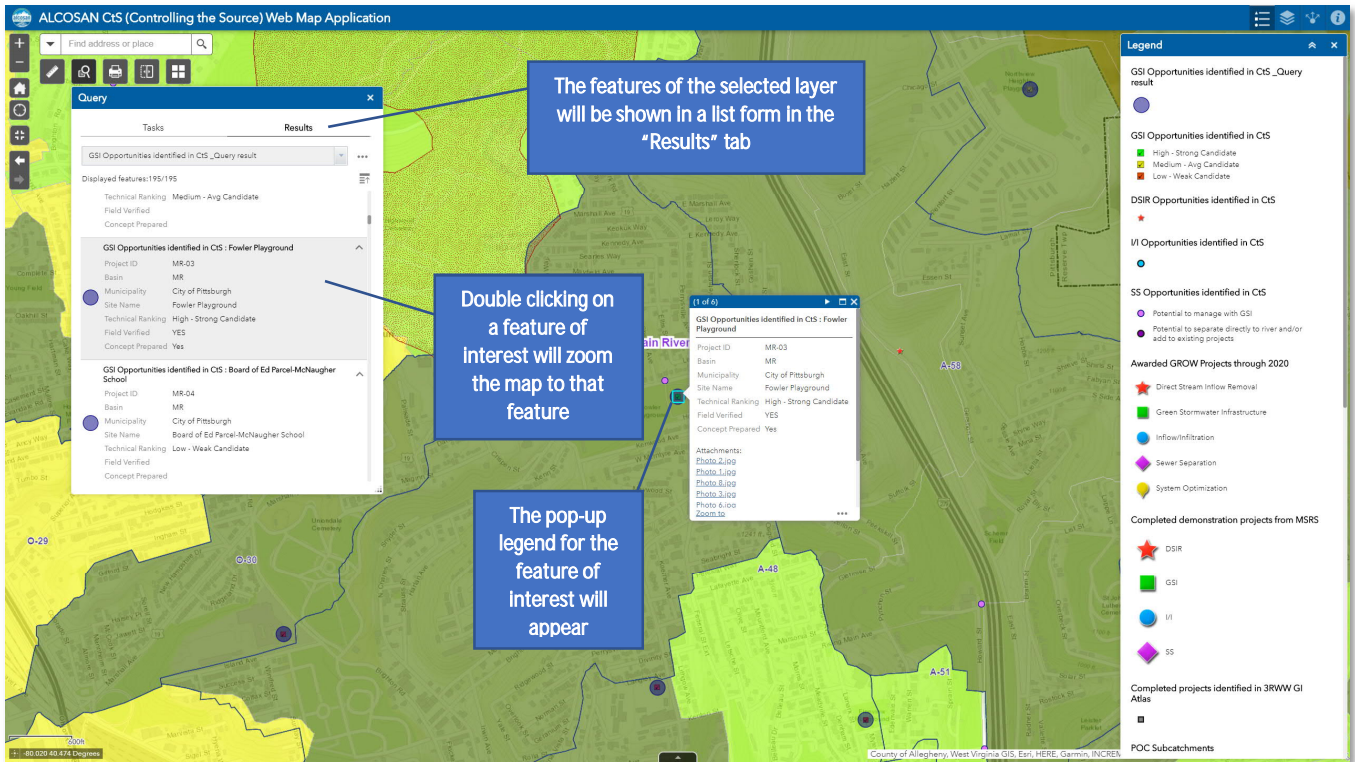
To exit the Query and remove the result, click on the three dots and then select "Remove this Result".
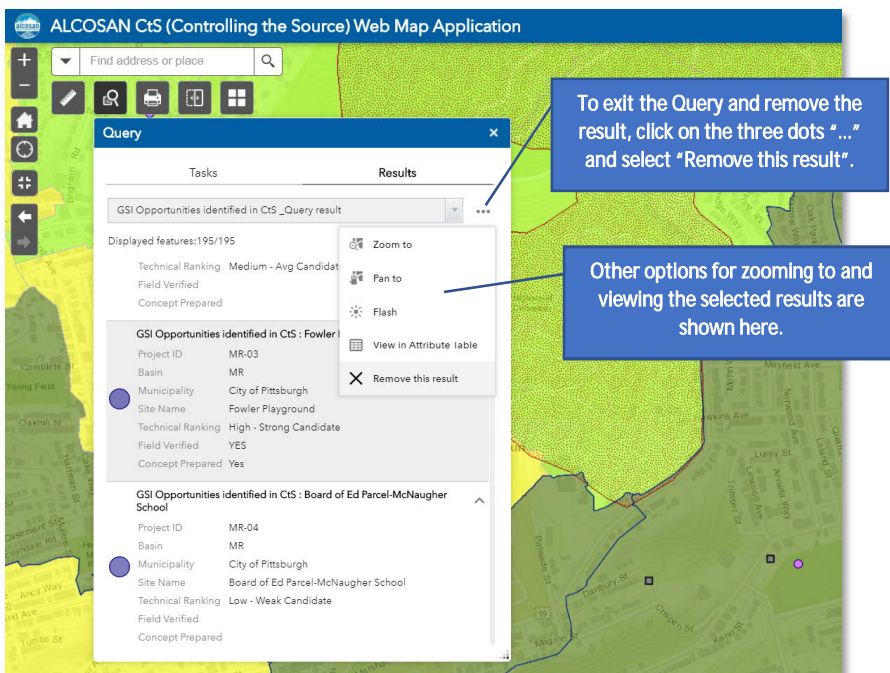
B-2.2. How to Turn Map Layers On and Off

As mentioned, the Layer List displays a list of all available map layers. A check in the box next to the layer name indicates if the layer is enabled. Layers with "greyed out" names are not visible at the current scale of the map. Try zooming in closer to enable those layers to turn on.

The map user can turn different data layers on and off by checking and unchecking the box next to each layer name. The Web Map contains several data layers that are turned off by default (for map clarity) that may be relevant to your analysis such as the following:

- o Planning Level Capital Cost Per Acre – For GSI Projects
- o Allegheny County Environmental Justice (EJ) Index

To view a layer that is turned off by default, simply check the box to the left of the layer name in the Layer List to turn it on in the map:


The layer will now be visible in the map and its associated attributes can be viewed in the pop-up legend that appears when clicking on a point in the map.

Return to the Legend tab to see the symbology of the newly added layers.
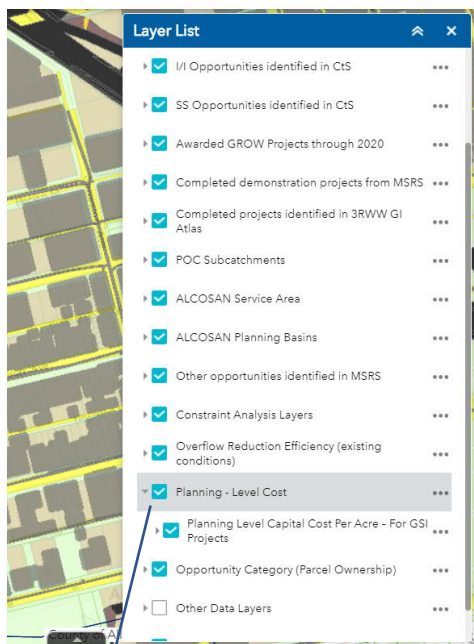
Check the box next to a layer name to turn on a layer. Return to the Legend tab to see the layer symbology.

B-2.3. How to Use the Pop-Up Legends

The Web Map is designed so that the map user can click on a point on the map and view a pop-up legend that displays important attribute data for all data layers that apply to that area. For example, clicking on the map in the area below reveals a pop-up legend showing the Planning Basin layer attributes. The numbers "2 of 10" at the top of the pop-up legend indicate that there are 10 data layers that apply to that specific area on the map. Click through the pop-up legend using the arrow at the top of the pop-up legend to view the attribute data for the other layers (the feature being described is highlighted in bright blue as the user clicks through the pop-up legend).
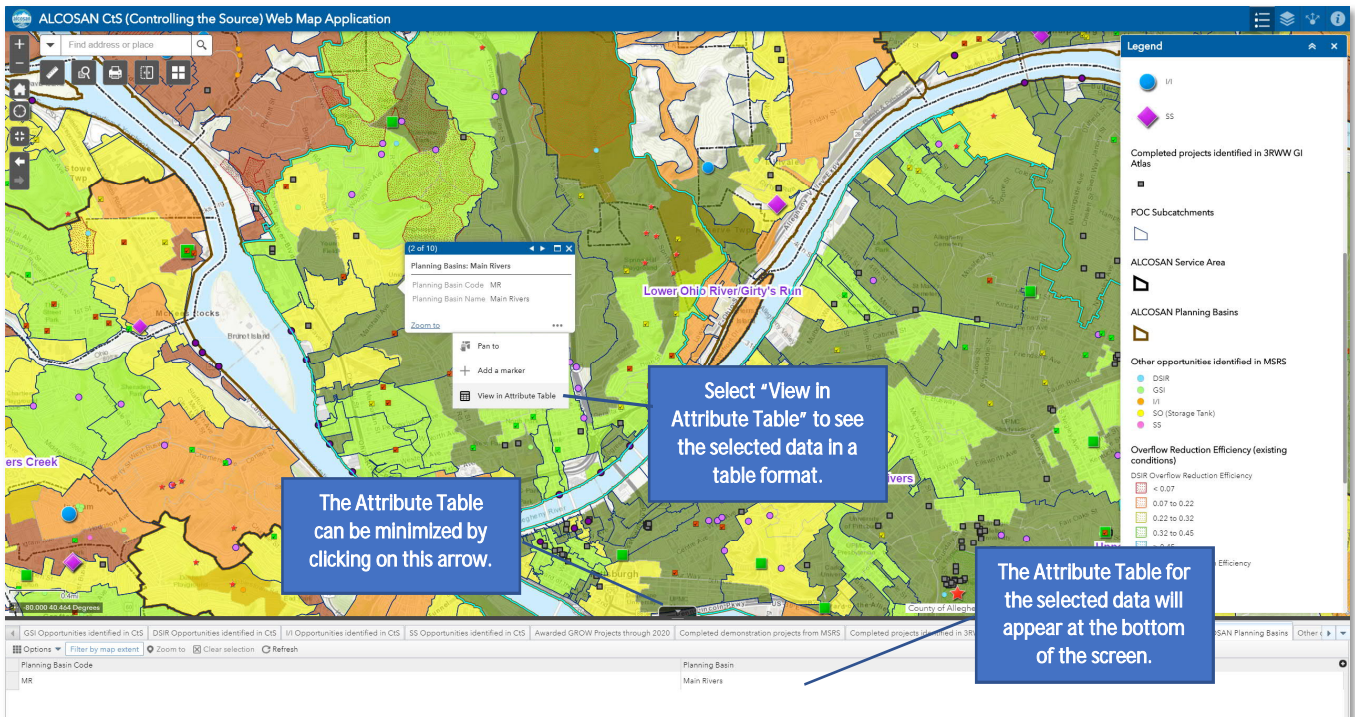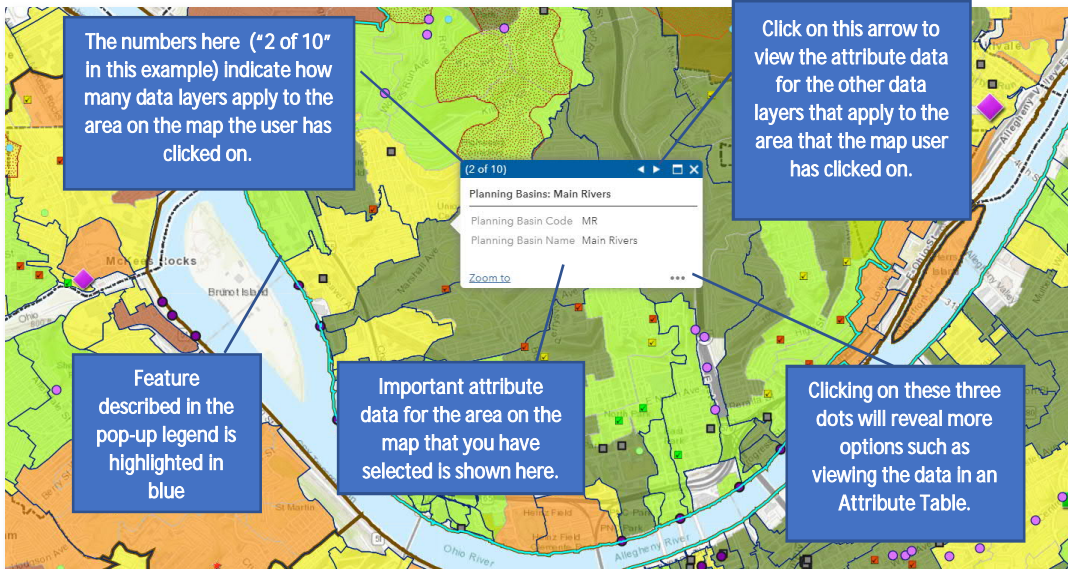
B-2.4. Introduction to Specific Data Layers in the Web Map

ALCOSAN Service Area and Planning Basins

The ALCOSAN Service Area and ALCOSAN Planning Basin layers are shown upon opening the map. Use the mouse to click directly on an area to see the associated Planning Basin name.   The full name and abbreviation for the Planning Basin are provided in the pop-up legend.

Clicking on a point will reveal a pop-up legend that shows the Planning Basin name.
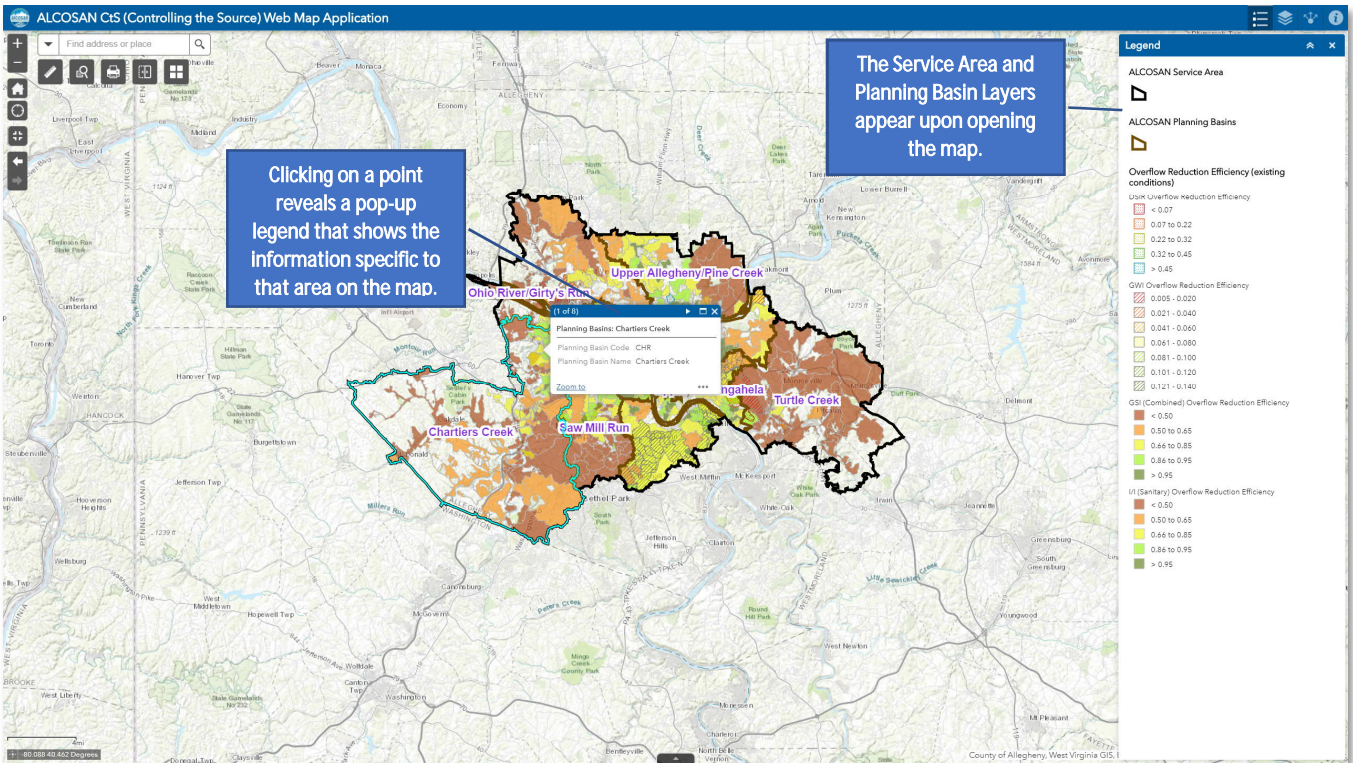
ALCOSAN Point of Connection (POC) Subcatchments

Controlling the Source (CtS) Web Map - Instructions

The Point of Connection (POC) Subcatchments layer is set to turn on only when the map is zoomed in to a scale of 1:80,000 or closer. Use the mouse to click directly on an area to see the associated POC Subcatchment name (ID).

Clicking on a point will reveal a pop-up legend that shows the POC subcatchment name (ID).
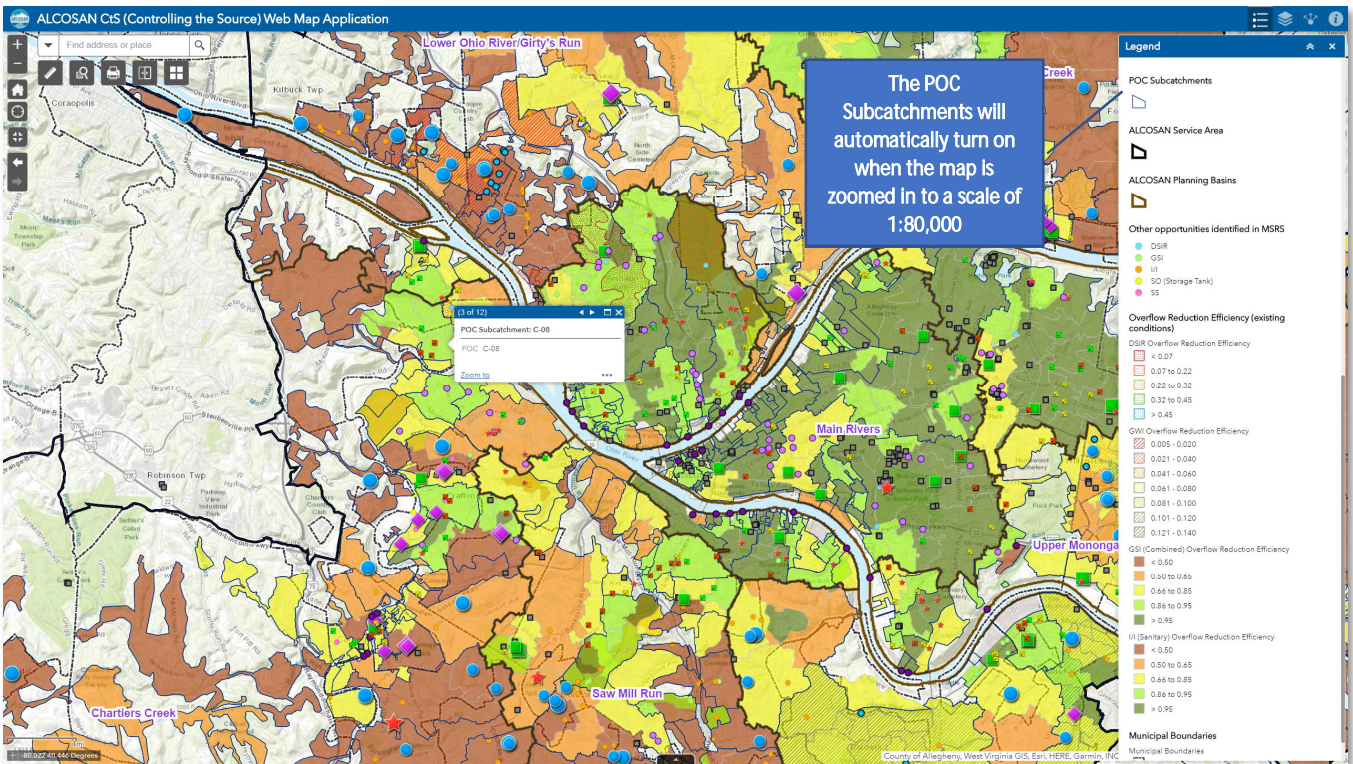
Municipal Boundaries

Controlling the Source (CtS) Web Map - Instructions

The Municipal Boundaries layer is set to turn on only when the map is zoomed in to a scale of approximately 1:100,000. Use the mouse to click directly on an area to see the associated municipality name.

Clicking on a point will reveal a pop-up legend that shows the municipality name.

Clicking on an area on the map reveals a pop-up legend with the municipality name.
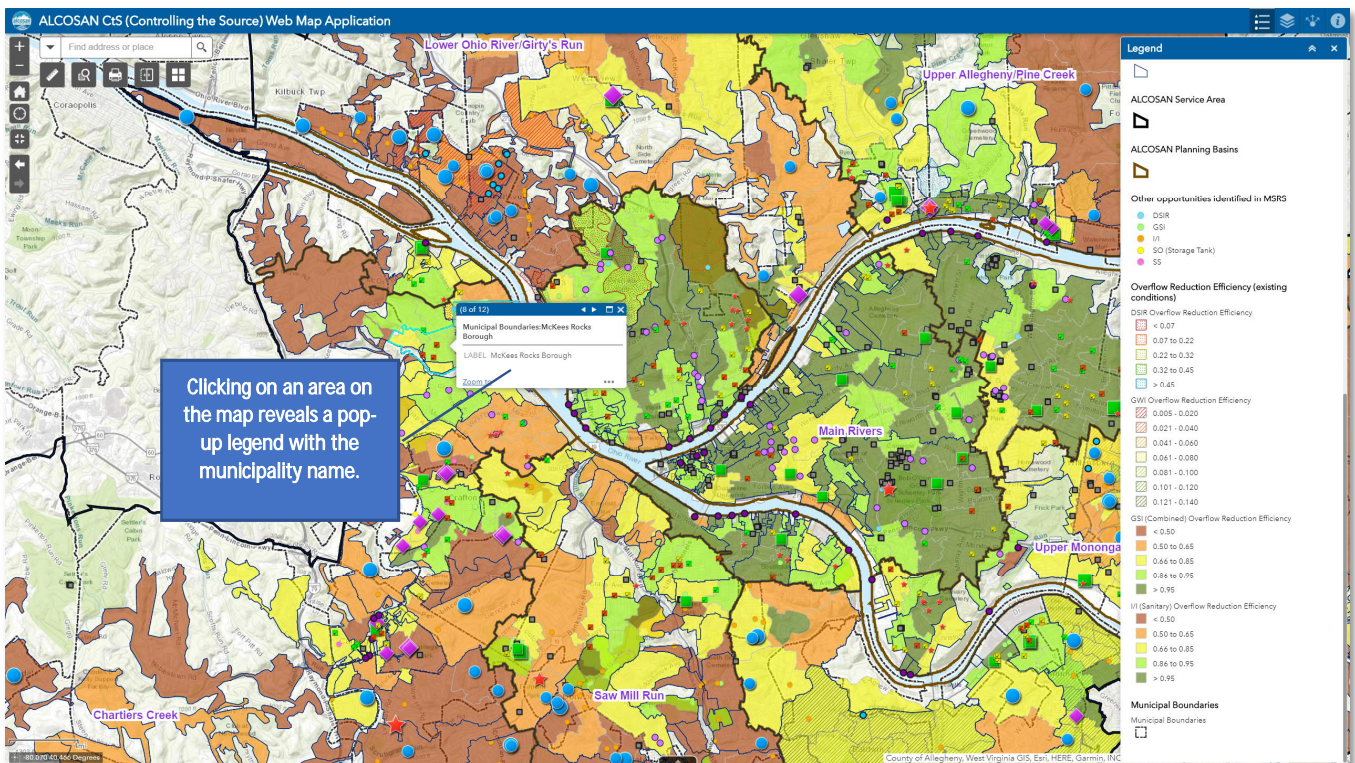
Overflow Reduction Efficiencies (OREs)

Controlling the Source (CtS) Web Map - Instructions

The Overflow Reduction Efficiency (ORE) layers are automatically shown upon opening the map. Use the mouse to click directly on an area to see the associated ORE value, whether it is the GSI, I/I, DSI, or GWI ORE. A legend will pop up displaying the ORE value(s).

As discussed in the report, the GSI (Combined) Overflow Reduction Efficiency value is based on reducing impervious area in the hydrology and hydraulic model. These values may not be representative of detention only GSI practices which will have a lower ORE.

For sanitary areas, the I/I (Sanitary) Overflow Reduction Efficiency field in the pop-up legend will display the associated I/I ORE.

In select sewersheds, the DSIR and GWI OREs are also available and shown as the DSIR Overflow Reduction Efficiency and GWI Overflow Reduction Efficiency fields in the pop-up legend.
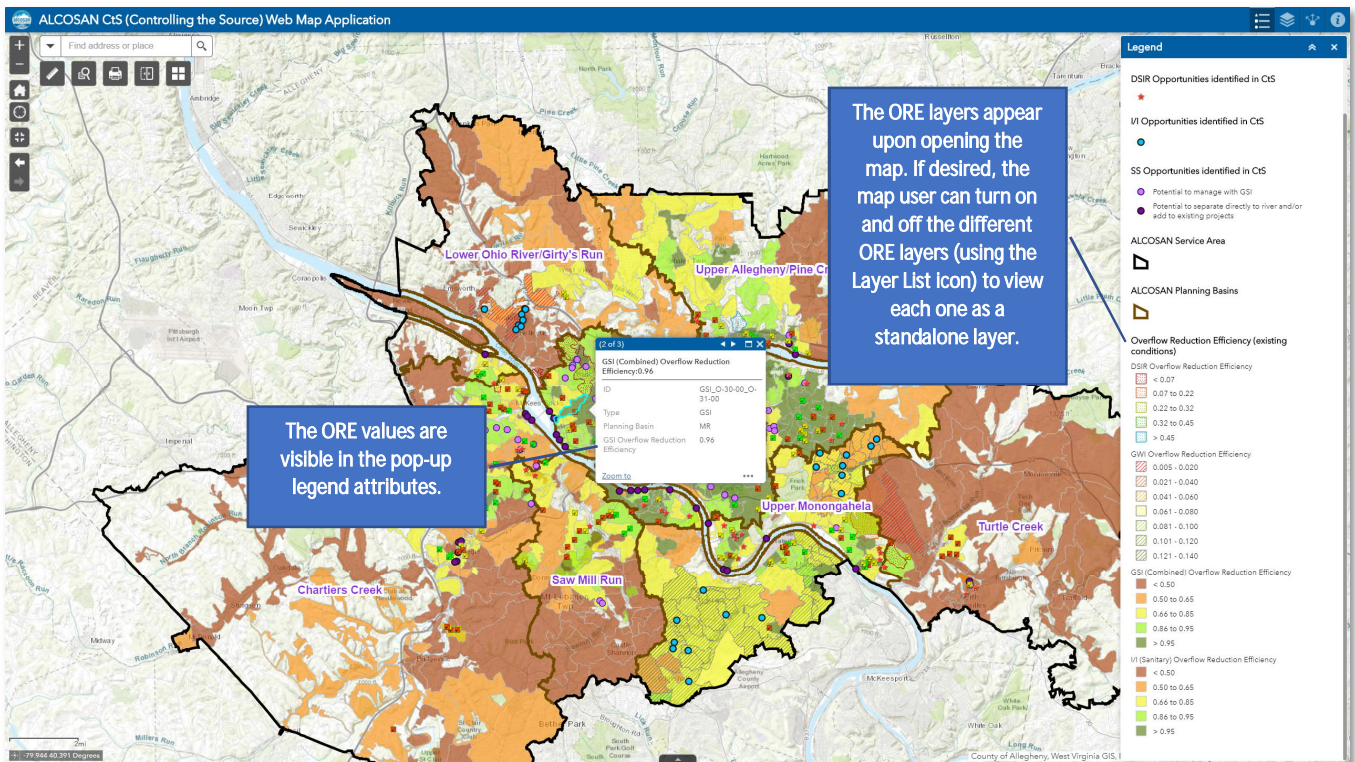
Constraints Layers

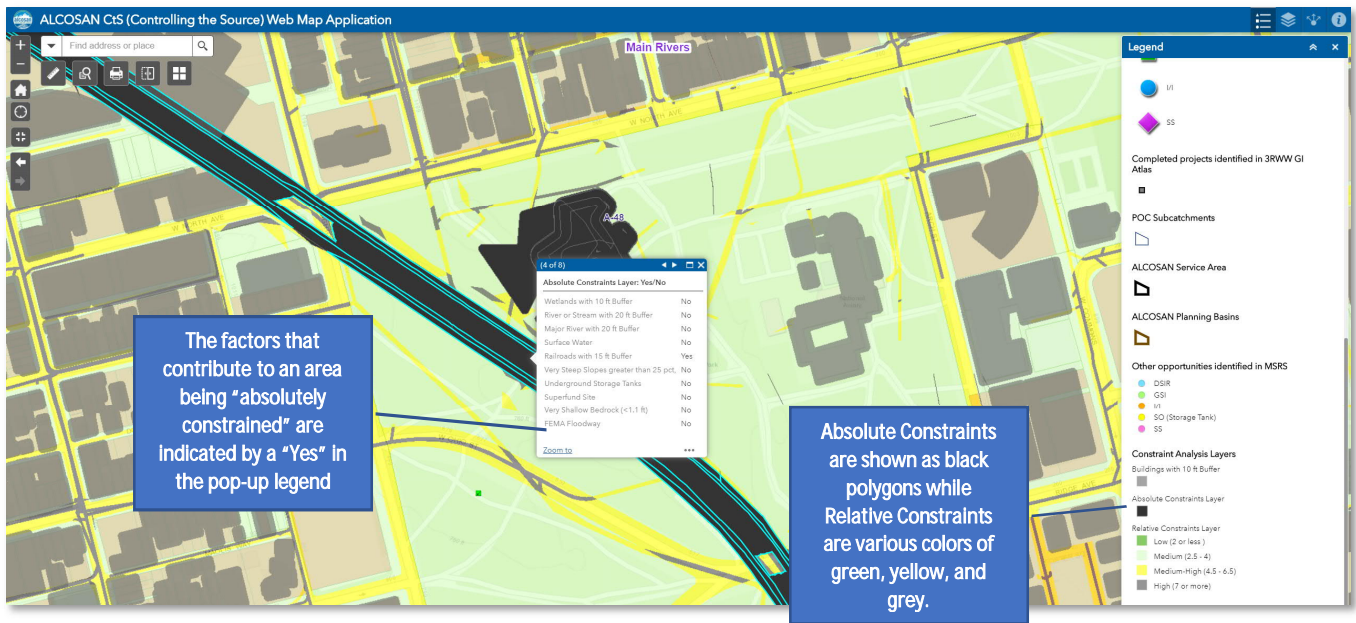### Controlling the Source (CtS) Web Map - Instructions

The Constraints layers are set to turn on only when the map is zoomed in to a scale of 1:5,000 or closer. Manually zoom in and pan using the mouse (and +/- buttons) or use the address/place search bar at the top to enter a specific address to search for.
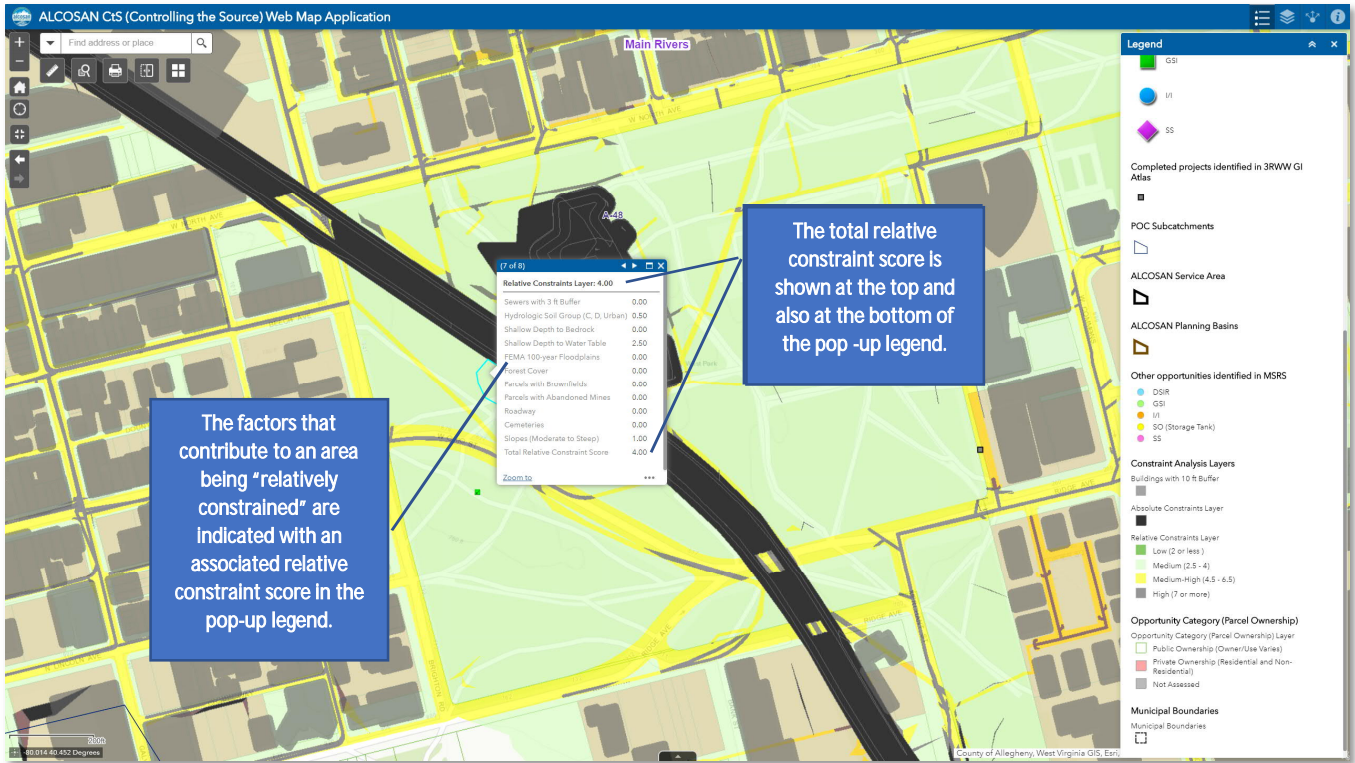
The Absolute Constraints are displayed as black polygons. Clicking on this layer will reveal a pop-up legend that shows which factors are contributing to a site being "absolutely constrained," indicated by a "Yes" value.

The total Relative Constraint scores are displayed in various colors of green, yellow, and grey. Clicking on this layer will reveal a pop-up legend that shows which factors are contributing to a site being "relatively constrained" and will reveal the Total Relative Constraints score for that location.

Buildings are shown as a medium-grey, with a built-in 10-foot buffer around each building footprint.

The factors that contribute to an area being "absolutely constrained" are indicated by a "Yes" in the pop-up legend

Absolute Constraints are shown as black polygons while Relative Constraints are various colors of green, yellow, and grey.

Zoom in to a specific location to see the Constraint layers. The information will automatically appear as you zoom in closer.

Use the left and right arrows in the pop-up legend to view information from different layers. The count (X of Y) at the top of the legend tells you how many layers are available at your selected location.

Opportunity Category (Parcel Ownership) Layer

Controlling the Source (CtS) Web Map - Instructions

Similar to the Constraints layer, the Opportunity Category (Parcel Ownership) layer is set to turn on only when the map is zoomed in to a scale of 1:5,000 or closer. Manually zoom in and pan using the mouse (and +/- buttons) or use the address/place search bar at the top to enter a specific address to search for.

Clicking on a point will reveal a pop-up legend that shows the parcel ownership information for the associated parcel. The Opportunity Category (Parcel Ownership) will be shown.

Clicking on a point on the map reveals the parcel ownership information for the associated parcel.

The Opportunity Category (Parcel Ownership) layer demonstrates a potential scenario where the map user may want to turn off other layers and only view the Opportunity Category (Parcel Ownership) layer as a standalone layer.

To do this, go to the Layer List and turn off any undesired layers.
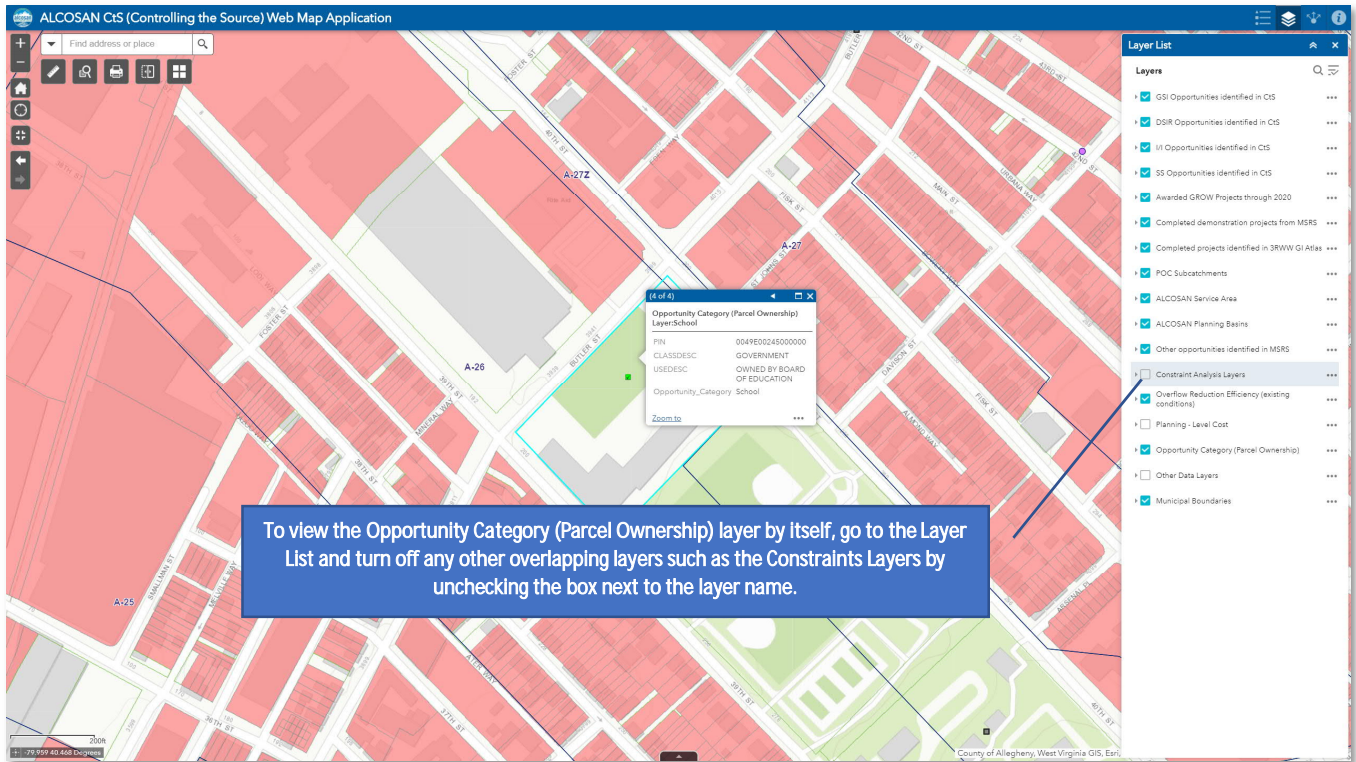
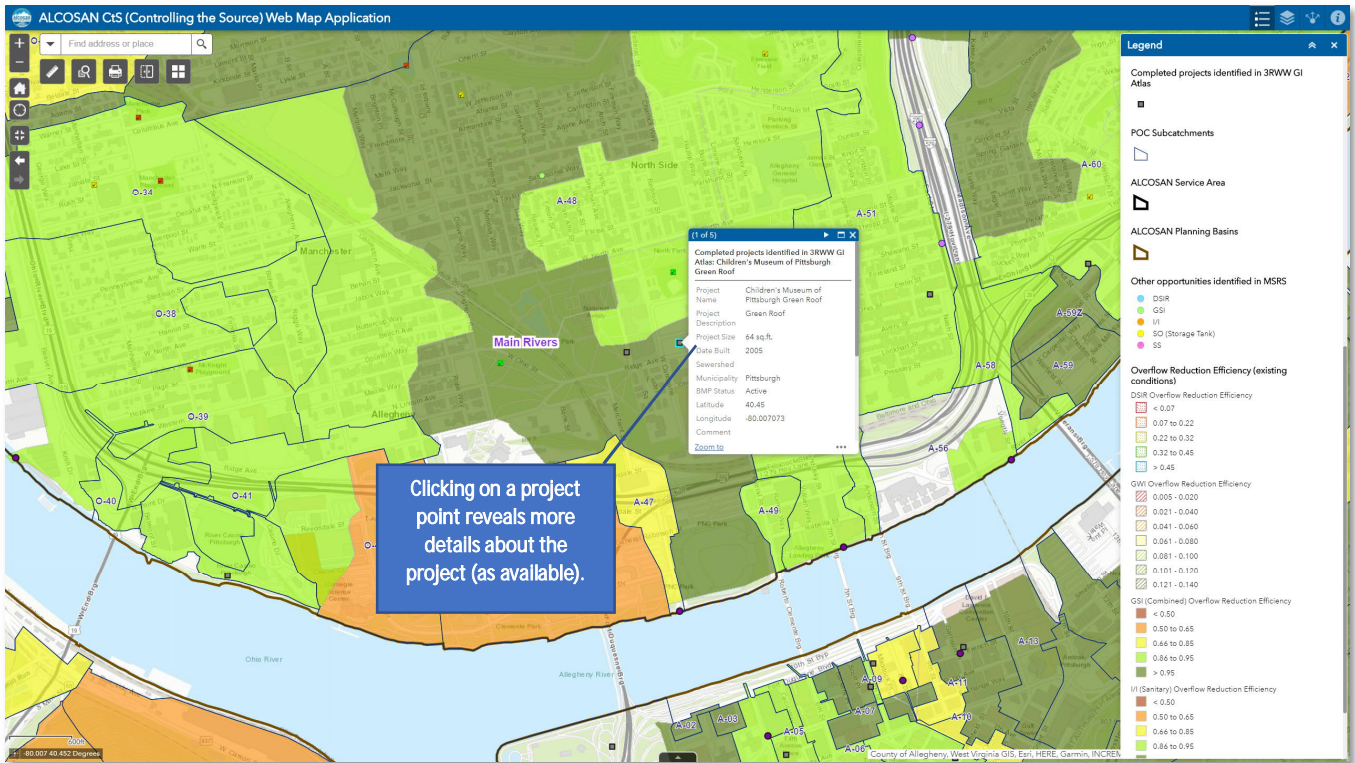## Existing and Previously Identified Source Control Projects

Controlling the Source (CtS) Web Map - Instructions

The project point layers are set to turn on only when the map is zoomed in to a scale of approximately 1:100,000 or closer. Manually zoom in and pan using the mouse (and +/- buttons) or use the address/place search bar at the top to enter a specific address to search for.

The Legend shows the different symbols and sources of project information included on the CtS Web Map. Clicking on a specific project point will reveal a pop-up legend that displays more details about the projects (as available).

Clicking on a project point reveals more details about the project (as available).

Opportunities Identified in CtS

Controlling the Source (CtS) Web Map - Instructions

The various Opportunities identified in CtS layers are set to turn on only when the map is zoomed in to a scale of approximately 1:170,000 or closer. Manually zoom in and pan using the mouse (and +/- buttons) or use the address/place search bar at the top to enter a specific address to search for.

The GSI Opportunities identified in CtS layer includes the nearly 200 potential GSI projects identified using the CtS approach.

Clicking on a specific project point will reveal a pop-up legend that displays more details (as available). The Technical Ranking (High, Medium, Low) is displayed.

Many of the potential GSI projects have accompanying photos and a concept plan attached – if available, this will be listed in the "Attachments" section of the pop-up legend. Click on the attachment name (JPG or PDF) to be able to view site photos and concept plans in a separate browser window.

The DSIR Opportunities identified in CtS, I/I Opportunities identified in CtS, and SS Opportunities identified in CtS show the other potential project types identified using the CtS approach.
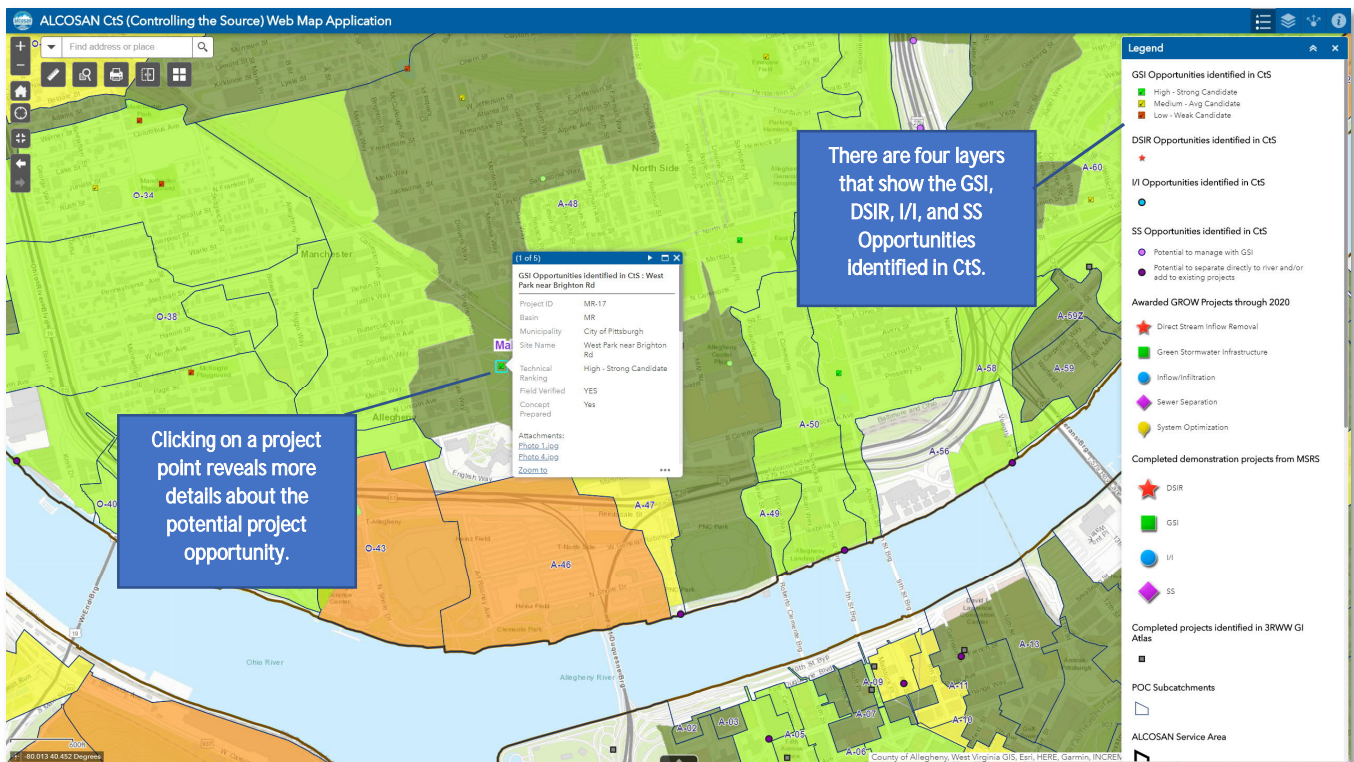
Planning Level Capital Cost per Acre – For GSI Projects

Controlling the Source (CtS) Web Map - Instructions

The Planning Level Capital Cost Per Acre - For GSI Projects layer can be accessed by going to the "Layer List" and checking the Planning Level Cost group layer to turn it on. It is visible at the same scale as the Relative Constraints Layer (1:5,000). Once the layer is turned on, clicking on an area will display the pop-up legend.

Click on a point on the map to see the pop-up legend that displays the associated Planning Level Capital Cost Per Acre (for potential GSI projects) for that area, which includes the adjustment for the site-specific relative constraints.

Clicking on an area displays the Planning Level Capital Cost per Acre (only applicable to GSI Projects).

In the Layer List view, check the box next to the Planning Level Cost layer to turn on the layer.