



# MDOT MTA BUS STOP PROJECT TRACKER USER GUIDE

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## Overview

The purpose of the Bus Stop Project Tracker is to create a logical, organized structure for storing, accessing, and editing project status data related to MDOT MTA's core bus stop infrastructure. Two tools were determined to meet the needs of MDOT MTA staff: an Editor Application and a Viewer Application. Both applications are built using ESRI's Arc Geographic Information Software (ArcGIS). The tools reference (but do not directly edit) point locations and attribute data from Trapeze's Bus Stop Manager. Both applications are web-based and edit/reference a feature service hosted on ArcGIS Online (AGOL). The data organized in the Editor Application allows project managers from various departments to manage the status of bus stop projects in a unified database (ArcGIS point feature class and related tables) so all data is accounted for and discrepancies between versions of project status trackers are avoided. The Viewer Application allows the project managers – as well as other MDOT MTA staff---to view, analyze, and download project status data. This will reduce burden on all parties in fulfilling individual data requests.

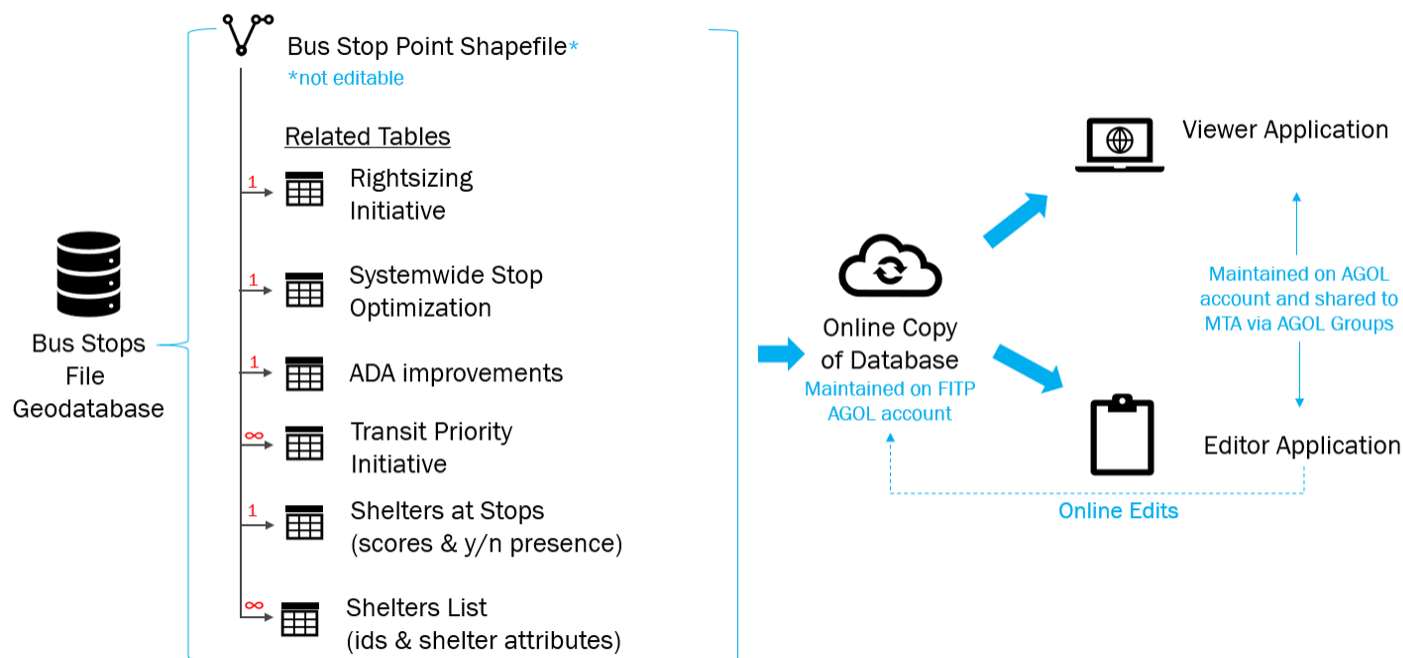
## Data

The following project tables are included in the Bus Stop Project Tracker:

- The **Bus Stop Manager** point feature class, which is not editable. This file includes general information on bus stops, including location coordinates, streets, active status, sign information, and boarding/alighting information. All the other tables are related to this layer by Stop ID. This data reflects what exists in Trapeze's Bus Stop Manager.
- The **Rightsizing Initiative** table is related one-to-one to the Bus Stop Manager feature class and tracks the rightsizing status for the system's stops.
- The **Systemwide Stop Optimization** table is related one-to-one to the Bus Stop Manager feature class and tracks the ongoing stop optimization effort.
- The **ADA Improvements** table is related one-to-one to the Bus Stop Manager feature class and tracks which stops have ADA ramps and the level of upgrade and typical detail required for improvements.
- The **Transit Priority Initiative** table is related one-to-many to the Bus Stop Manager feature class and tracks which stops are involved with transit priority initiatives (TPIs). As one stop may be involved with multiple TPIs, this is a one-to-many relationship.
- The **Stop-Level Shelters** table is related to the Bus Stop Manager feature class and designates which stops have shelters, the number of stops at each shelter, and other factors contributing to shelter status.
- The **Shelters** table lists all the shelters in the system; this table has a one-to-many relationship to the Bus Stop Manager feature class, as some stops have more than one shelter.

The data is maintained by a Foursquare ITP ArcGIS Online account. The editor application allows users to make edits to the online version of the data, and view that data in the viewer. Figure 1 shows the database schema diagram.

Figure 1: Database Schema



## Access

To access the applications, all users will need an ArcGIS Online account, and all data is shared via an ArcGIS Online Group that users must be added as members of. Users without ArcGIS Online accounts may use the Foursquare ITP viewer account (**Username: [viewer\\_fitp](#) | Password: [4\\$quareITP](#)**) but will not be able to edit any data. As the applications are accessed in a web browser, there are no specialized software requirements.

The applications can be accessed using the following URLs:

[Bus Stop Project Editor](#)

[Bus Stop Project Viewer](#)

## Editor Application

### Purpose

Use this application to view and edit bus stop data related to Rightsizing, Stop Optimization, Shelters, ADA Improvements, and TPI. Data can be downloaded using the Viewer application.

### How to Use

Data in the Bus Stop Manager layer is **not editable**. All other data is editable. The editor is set up to track which user last edited a record and when they made that edit. In the top right corner of the map panel, there are options to search on the map, return to the default map extent, view the map legend, and toggle layers. A URL library, including links to the Viewer application and a form to submit comments related to issues or requests, can be found at the top right corner of the application (☰)

In order to edit a table, use the following steps:

1. **Select or type in a Stop ID in the stop filter.** This will filter the attribute table displayed on the left side. It will also pan and zoom the map to the selected stop, and filter the surveys on the right. In order to clear the filter, either delete the stop ID or choose "None" from the top of the filter list.
2. **Navigate through the attributes using the left and right arrows** to find the table of interest and view existing attributes.
3. **Navigate to the survey of interest** on the right side of the window using the arrows.

Figure 2: Editing Steps 1-3

**MTA Bus Stop Project Editor**  
Select a stop, view related projects, and update data.

Use this dashboard to keep track of Rightsizing, Stop Optimization, Shelter, ADA Improvement, and TPI projects associated with each bus stop in the MTA system. Filter by Stop ID to review each stop in the detail tabs below.

**View existing attributes below:**

1 of 4089

Stop ID	1
Stop Name	CYLBURN AVE & GREENSPRING AVE fs wb
Status	Active
Routes Served	31,91,94
On Street	CYLBURN AVE
Cross Street	GREENSPRING AVE
Cross Street Relation	NS
Lane Type	Parking Lane
Sign Present with Routes	Yes
Bus Stop Sign Location	Front of Stop
Sign in Pedestrian Path	No
Sign Condition	Functional
Sign Damage Type	
Sign Mount	Sign Post
Sign Mount Correct	No
Shared Sign	No
Shared Sign Type	
Sign Post Condition	Functional
Sign Visibility Obstruction	No
Non MTA Services	No

Last update: a minute ago

Bus Stop Manager

**3,893** Bus Stops

**367** Existing Shelters

**4,089** Stops to be Rightsized

**1** Stops to be TPI

**1** Select a Stop ID: None

**Edit the data below:**

Use the arrows at the bottom of the pane to navigate to the correct survey. Delete pre-populated values in the survey to see all available options. Only editable fields are included in the survey.  
**You must submit a survey to save your changes.**

1 of 4089

**Stop ID**  
123 1

**Stop Type**  
☐ In-Lane  
☒ Pull-Out

**Rightsizing Status**  
[Dropdown]

**Rightsizing Priority Rank**  
[Dropdown]

**Transit Priority Initiative**  
[Dropdown]

Last update: a minute ago

Rightsizing Initiative

4. **Use the survey to make desired changes.** Delete values already filled in to access all options in the dropdown menus. Once the changes have been made, click submit to save the changes.

**Figure 3: Editing Step 4**

Select a Stop ID: 10

Edit the data below:

Use the arrows at the bottom of the pane to navigate to the correct survey. Delete pre-populated values in the survey to see all available options. Only editable fields are included in the survey.  
**You must submit a survey to save your changes.**

Residential Parking Permit (RPP) Area

☐ Yes

☒ No

Feasibility

Feasibility Notes

Submit

5. **Refresh the stop ID filter** in Step 1 by re-selecting the Stop ID to view changes.

## Viewer Application

### Purpose

Use this application to view, analyze, and download bus stop data related to Rightsizing, Stop Optimization, Shelters, ADA Improvements, and TPI.

### How to Use

There are three areas of interest in the viewer: the map navigation tools on the far left, the stacked panel apps on the far right, and the attribute table on the bottom center of the map. Users should navigate to specific locations on the map using the map navigation tools, choose data to view in the panels, and open attribute tables to view data.

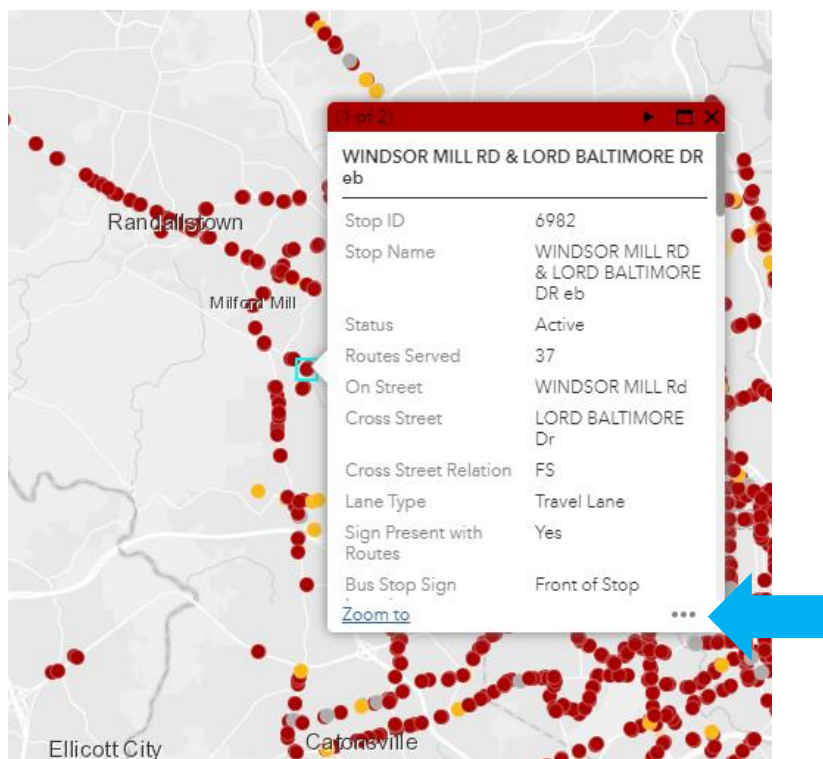
#### Map Navigation

On the far-left side of the application, the map navigation tools can be used to zoom in (+) and out (-) from the current extent, return to the default map extent (🏠), or a previous map extent (↶), find the user's location within the map (📍), or set the application to full-screen (⛶). Users can also search for a Stop ID or address in the search bar.

#### Pop-Up Boxes

Clicking on any feature in the map will open a pop-up box, which details the feature's attributes from the Bus Stop Manager layer. Scrolling to the bottom of the pop-up box, there is a list of related tables that users can click to view the stop's records. From the pop-up box menu (☰) on the bottom right, users can view that feature in its attribute table. Clicking elsewhere on the map will close an open pop-up box.

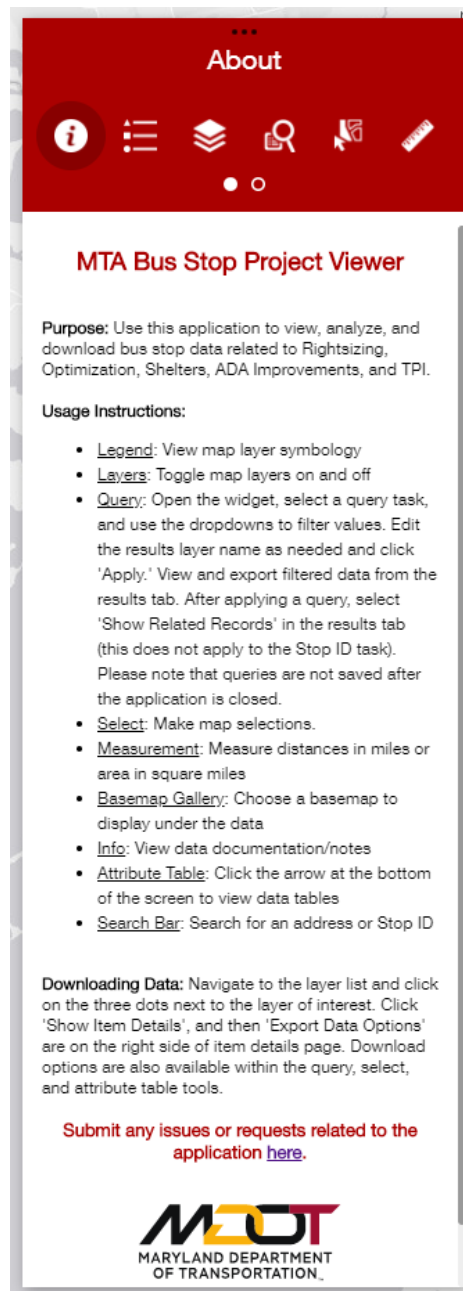
Figure 4: Pop-Up Boxes



## About

The About panel is the default panel upon opening the viewer. There are brief usage instructions for key tools and data download instructions. This panel also contains a link to submit any issues or requests related to the application.

Figure 5: About Panel



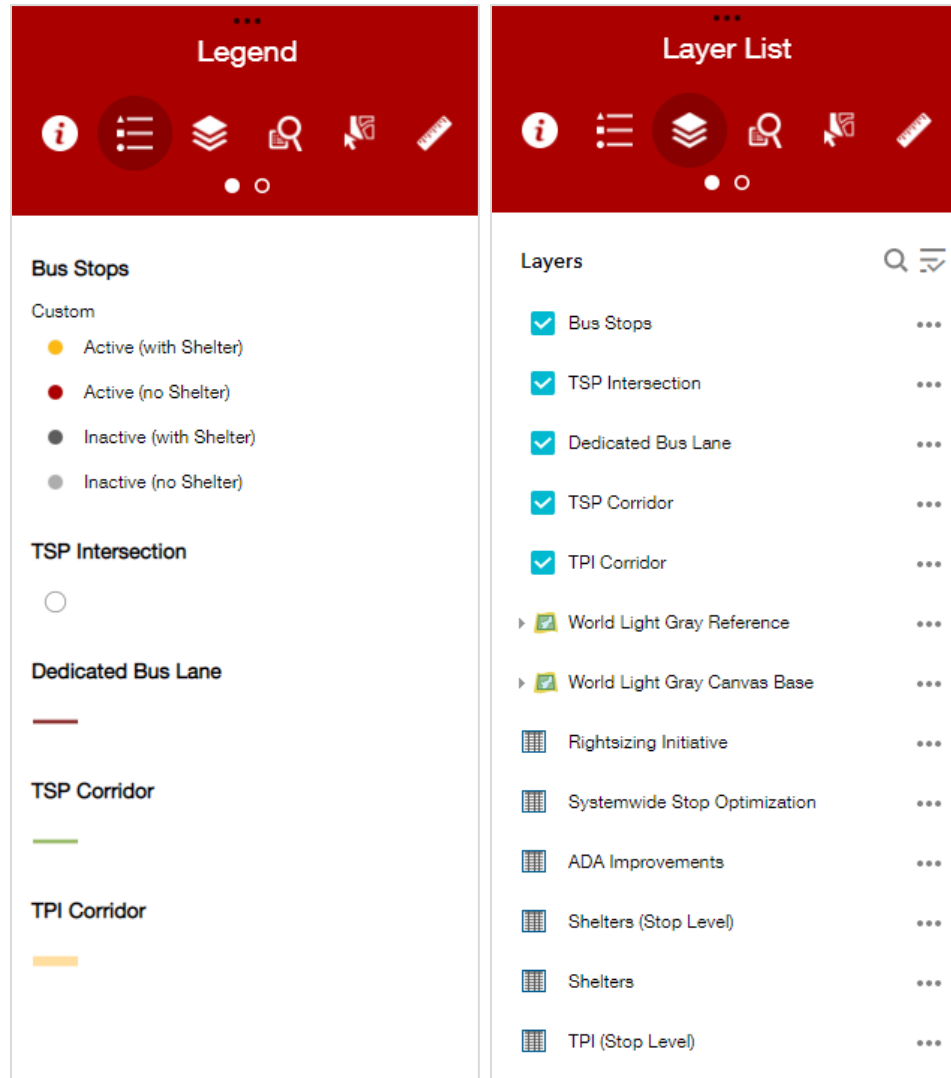


### *Legend and Layers*

Users can view map layer symbology using the legend tool and toggle map layers on and off using the layers panel. Using the options menu for any layer, users can open the attribute table for that layer or zoom to that layer in the map. Users can also download unfiltered datasets, using the instructions outlined in the

**Downloading** Data section of this document.

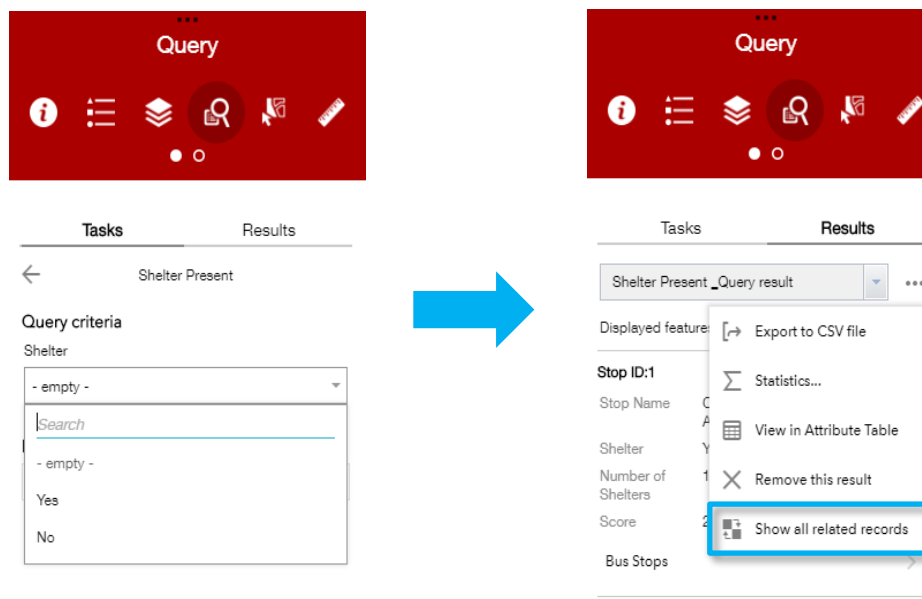
Figure 6: Legend and Layers Panels



## Query

Use the query panel to select tables or layers by specific attributes. First, users choose a pre-defined query of interest from the provided list. Next, users can use the dropdown values to filter the data, name the query results, and then run the query. For example, to run a query on which bus stops have shelters, the user would choose the *Shelter Present* query, where the “Shelter” field equals “Yes” and then click apply. For queries performed on the Bus Stop Manager table, bus stops which meet the query will be automatically highlighted on the map. For queries performed on all other tables, users must “view related records” to highlight the stops on the map. To view related records, navigate to the results tab within the query panel and click on the three dot options menu. See images below.

Figure 7: Query Steps



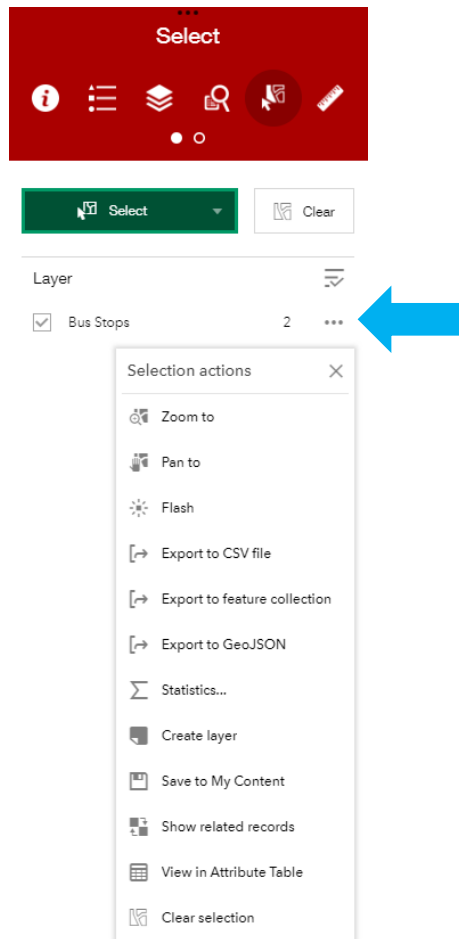
Users can also navigate between active queries using the dropdown menu next to the three dots menu. Additionally, query results are added to the layers panel after they are executed. Queries are not saved between instances of the application; if a user closes the viewer and reopens it, they must re-run their queries. Users can also view their query results in the attribute table or export the results to a CSV file.

Additional documentation on using the Query widget can be found on the bottom half of [this page](#).

### Select

Users can select stops from the map either by point or by rectangle in the select panel. Choose between the point or rectangle selection type by clicking the dropdown arrow in the green select button (below). Once stops have been selected, they will be highlighted in blue on the map and users have a variety of options from the three-dots menu, as seen below, including viewing in the attribute table, viewing related records, or exporting the selected features.

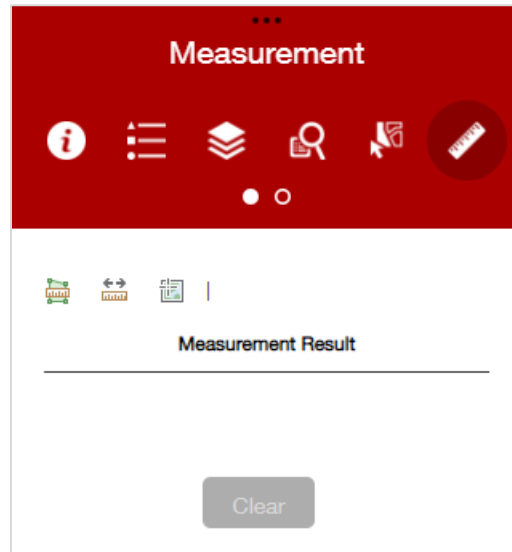
Figure 8: Select Menu



### Measurement

Users can measure area, distance, or location on the map using the measurement panel. The tool also allows the option to toggle between units of measurement.

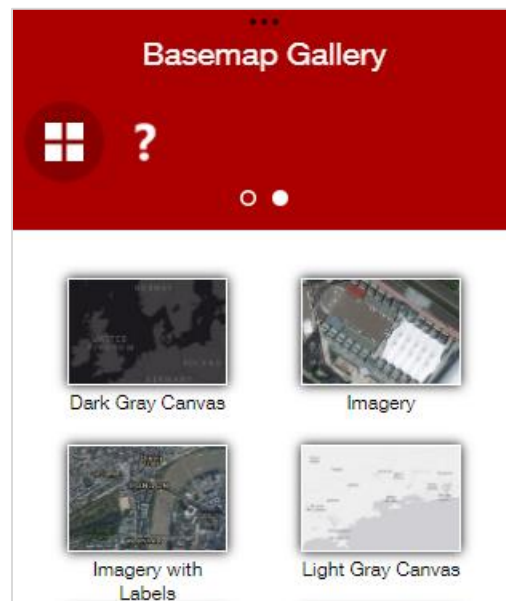
Figure 9: Measurement Panel



### Basemap Gallery

Users can choose which basemap to display under the data in the Basemap Gallery panel.

Figure 10: Basemap Panel



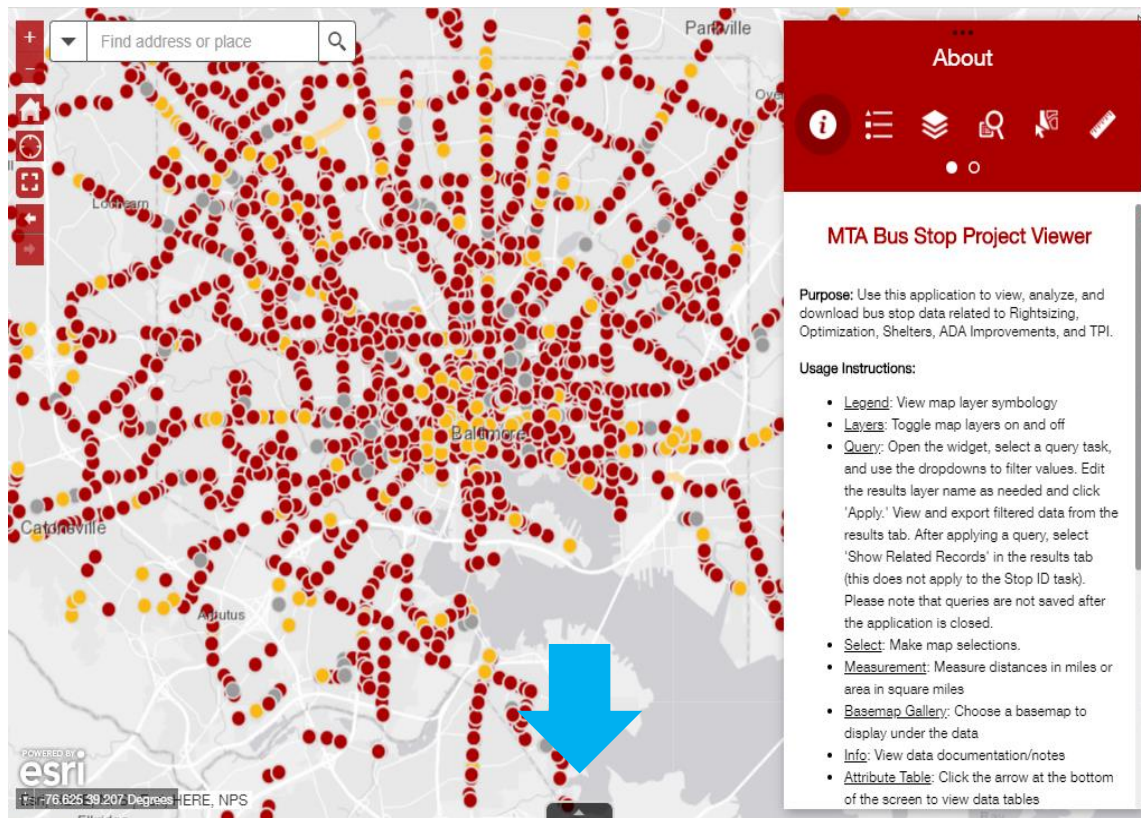
### Info

The info panel describes the data in additional detail for users who may not be familiar with it, including ADA level of upgrade definitions and shelter scoring definitions and criteria.

### Attribute Table

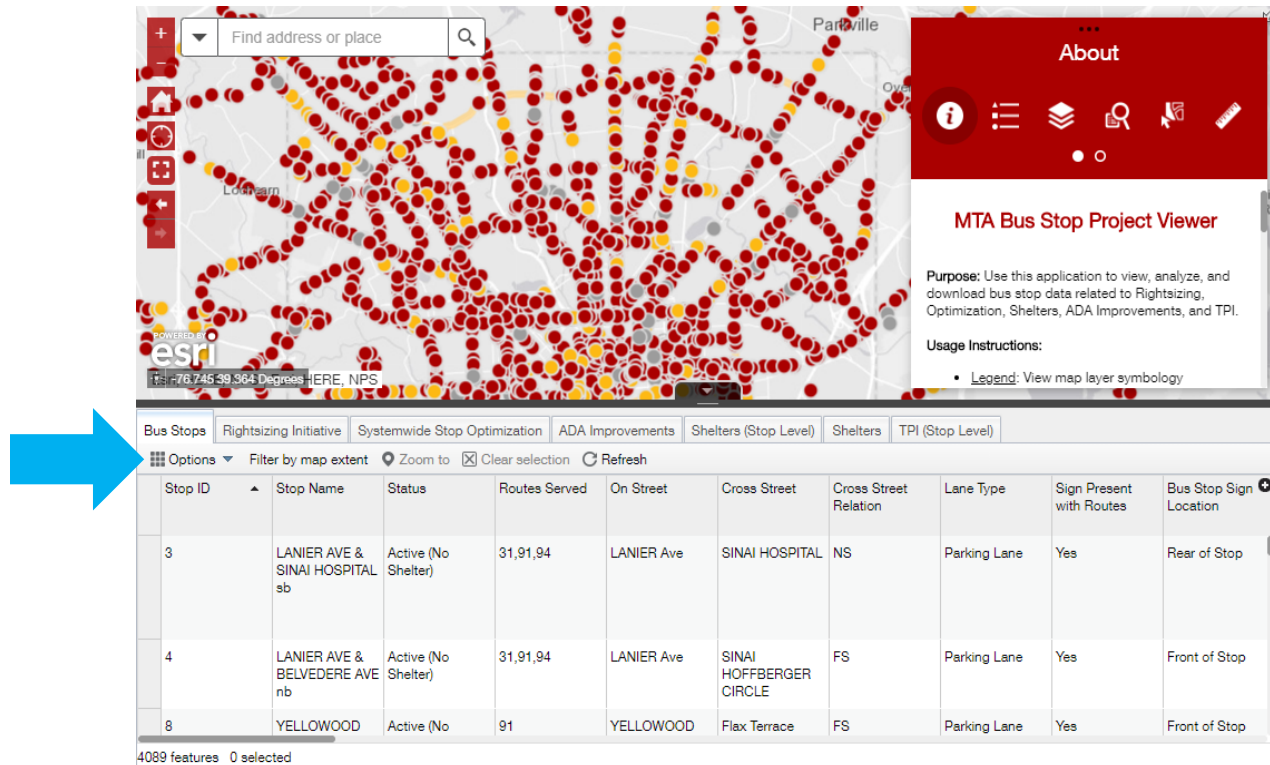
To open an attribute table, click on the arrow at the bottom center of the map. See Figure 11 as an example.

Figure 11: How to Open the Attribute Table



The attribute tables will open, and users can navigate to the dataset of interest. Using the Options menu (Figure 12), users can select records, view related records, zoom to records, and filter by the current map extent or by attributes.

Figure 12: Attribute Table Options

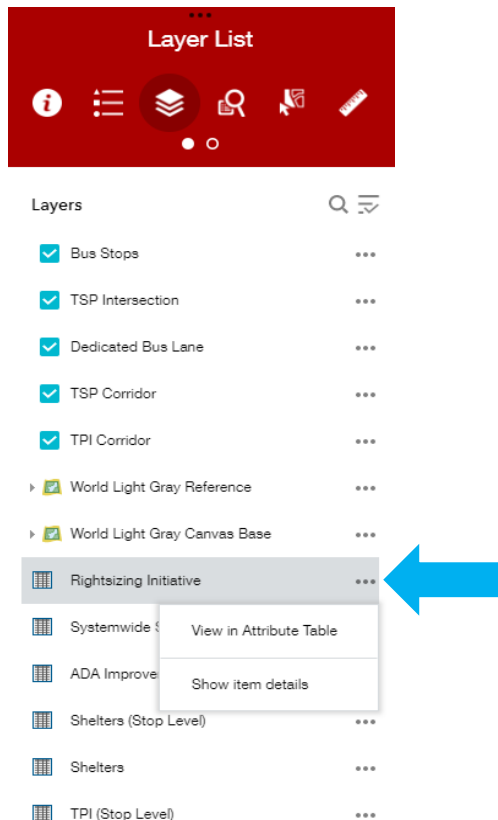


## Downloading Data

Data can be downloaded using the Viewer Application, directly from the following: layers, query, select, and attribute tables. Data download instructions for each are described in the previous section. However, to download a complete, unfiltered dataset of all project tables, use the following steps:

1. Navigate to the layer list and click on the three dots next to the layer of interest. Click 'Show Item Details'.

Figure 13: Layer Options



2. 'Export Data Options' are on the right side of item details page. Users can choose the download option that best fits their needs.

**Note:** exporting data from this page will output the files to your AGOL content page. Navigate to your content to download the file(s) to your local computer. See Figure 14.

**Note:** exporting data from this page will output ALL bus stop layers (Bus Stop Manager, Rightsizing, Optimization, ADA, Shelters, TPI) not just the layer that was selected in the layer list.



Figure 14: Data Export Options

The screenshot displays the 'BusStopTracker\_ProjectLayers' interface. The top navigation bar includes 'Overview', 'Data', and 'Visualization'. The main content area shows a map thumbnail, a description, and a list of layers. A red arrow points to the 'Export Data' dropdown menu, which is open, revealing options: 'Export to Shapefile', 'Export to CSV file', 'Export to KML', 'Export to Excel', 'Export to FGDB', 'Export to GeoJSON', and 'Export to Feature Collection'. Below the map, the 'Description' section states 'An in-depth description of the item is not available.' The 'Layers' section lists 'Bus Stops Point Layer'. The 'Tables' section lists 'Rightsizing Initiative Table'. The right sidebar contains buttons for 'Open in Map Viewer', 'Open in Scene Viewer', 'Open in ArcGIS Desktop', and 'Export Data'. Below these buttons, it shows metadata: 'Data Last Updated: Aug 11, 2020, 1:05:25 PM', 'Size: 10 MB', a five-star rating, and social media icons for Facebook, Twitter, and LinkedIn.

## Technical Support

For data requests, such as batch updates, or to report an issue, submit a comment using [this form](#). The form allows for files to be attached, such as screenshots of an issue or files related to a batch update request. A URL to the form is included in the Viewer's about panel, and in the Editor's URL library at the top right corner of the application.

For additional or urgent requests, email Sandy Brennan ([sbrennan@foursquareitp.com](mailto:sbrennan@foursquareitp.com)) or Jennifer Hopkins ([jhopkins@foursquareitp.com](mailto:jhopkins@foursquareitp.com)).