



MEMORANDUM

TO: Transportation Planning Board Technical Committee
FROM: Charlene Howard, TPB Transportation Engineer
SUBJECT: Regional Transportation Data Clearinghouse
DATE: April 26, 2019

National Capital Region Transportation Planning Board (TPB) staff collects transportation data from various sources, primarily member jurisdictions, state agencies, and transit authorities. These data are packaged into a web-based application, called the Regional Transportation Data Clearinghouse (RTDC). The RTDC was developed to improve access and data sharing between TPB members, jurisdictional partners, as well as other interested parties.

Datasets in the RTDC represent various transportation modes (highway, transit, bicycle, aviation). TPB staff have continued to refine and improve the RTDC data offerings as well as the tools designed to introduce users to the data. Current 'core' RTDC datasets such as traffic and transit counts are routinely updated as new data become available. Maintaining these various datasets provides TPB staff with the capability to perform analyses of various data to inform TPB's travel monitoring and travel trends analysis programs. However, this configuration also provides agency member staffs and other interested parties with the ability to access the data in this comprehensive clearinghouse to support their own analyses. Additionally, new content is added periodically, based on data availability, user requests and/or other means of discovery.

While most of the data offered through the RTDC comes from TPB, the application is capable of hosting and referencing other datasets available elsewhere. For example, the Capital Bikeshare data in the RTDC is maintained and hosted by the District Department of Transportation (DDOT). TPB staff have added a content item in the RTDC that references the bikeshare stations so they are also discoverable through the RTDC in addition to the District's own open data page.

The RTDC has been available as a web-based application since 2014; however, several technological enhancements have been made since then. The current RTDC platform consists of two web-based applications: the RTDC itself and the RTDC Data Viewer. Each component is described in further detail below. This memo is not intended to serve as a comprehensive user's guide to the RTDC, but rather as an introduction to the capabilities of the RTDC. Users are encouraged to explore both the data and the viewer as a way to become more familiar with TPB's available data.

THE RTDC: TPB'S ONLINE DATA WAREHOUSE

At its core, the RTDC is an online data warehouse. To facilitate data discovery and sharing, TPB utilizes Esri's ArcGIS Online Open Data framework. This framework enables a simple way to share of TPB resources while also allows us to share and/or host content of our regional partners.

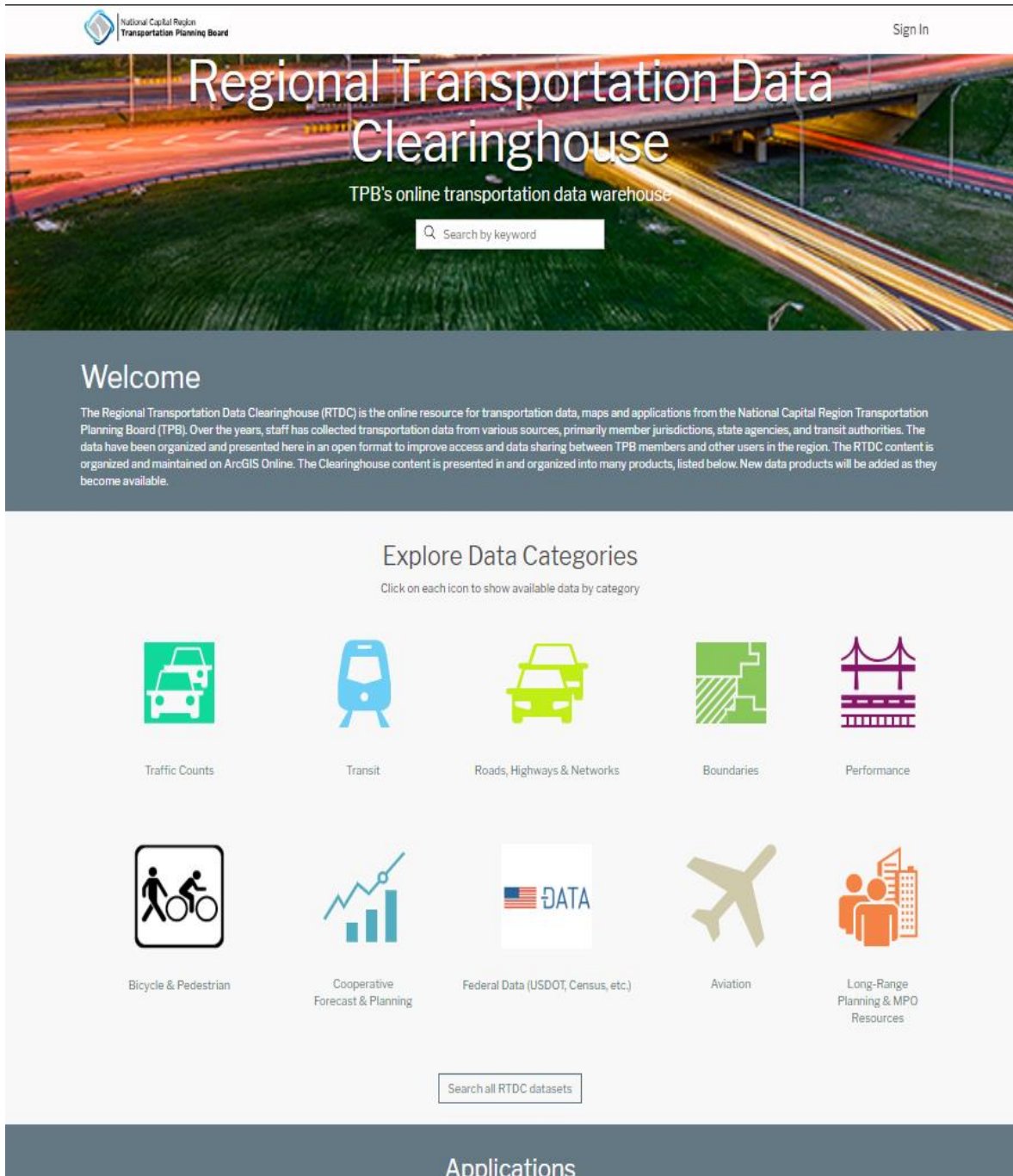


Figure 1

The home page for the RTDC can be accessed at <https://gis.mwcog.org/rtdc> (Figure 1). Once here, users can browse data by category or view a list of all datasets currently in the RTDC.

However, the power of the RTDC is in the ability to explore and download data. Each dataset has its own content page (Figure 2). The data itself is previewed on the map view at the top of the page. Here, users can click on features to view some basic information via a popup window. The main content page for each dataset provides an overview of each dataset. Users can view metadata (circled in green) and view the attribute fields of the datasets (circled in blue). The download button (circled in red) reveals the available option for each dataset. Most of the data in the RTDC are available to download as shapefile. Tabular data will be available as a spreadsheet.

Ridership Data for FY 2018

Custom License 4/1/2019 Spatial Dataset 1,901 Rows

The **Average Weekday Transit Ridership** layers show transit routes in the TPB/MWCOG modeled region. This layer provides average weekday ridership data for each month from July to June in the reported Fiscal Year (FY), as reported to TPB/MWCOG by transit operators. Route features extracted from the TPB travel demand model network and joined with ridership data. Ridership data received from TPR Regional Public Transportation Subcommittee.

Attributes

April 2018 Number	August 2017 Number	December 2017 Number	Destination Text	Destination Node Number	February 2018 Number	Headway Number	
January 2018 Number	July 2017 Number	June 2018 Number	March 2018 Number	May 2018 Number	Mode Text	November 2017 Number	
October 2017 Number	One-way Number	Operator Text	Operator Route Name(s) Text	Origin Text	Origin node Number	Peak/Off Peak Text	
Route Notes Text	Runtime Number	September 2017 Number	Transit Route ID Text	Transit Route Number Number	SHOW MORE 2 Attributes		

Download

- Full Dataset
- Spreadsheet
- KML
- Shapefile
- Filtered Dataset
- Spreadsheet
- KML
- Shapefile

Figure 2

The majority of RTDC content is GIS-based—meaning, spatial and tabular datasets. It is important to underscore, however, that although the content is “GIS-based,” the tabular data can be downloaded and used in non-GIS programs. Other items, such as documentation and external applications, also exist. Some TPB reports, such as the 2016 National Capital Freight Plan (<http://rtdc-mwcog.opendata.arcgis.com/datasets/national-capital-region-freight-plan-2016-document>) can be discovered in and downloaded from the RTDC. Staff intends to add more of TPB’s non-spatial resources to the RTDC as an additional way to promote our products.

THE RTDC DATA VIEWER

Several of the datasets of the RTDC have been assembled into a stand-alone application called the RTDC Data Viewer, utilizing Esri’s Web AppBuilder application. The data viewer provides a way to explore several of the available datasets in the RTDC. The application can be accessed from the main RTDC page or directly at <https://gis.mwcog.org/rtdc/map/>. Figure 3 shows the view of the application upon loading. Once the ‘OK’ is clicked on the splash screen, the application is ready to be used.

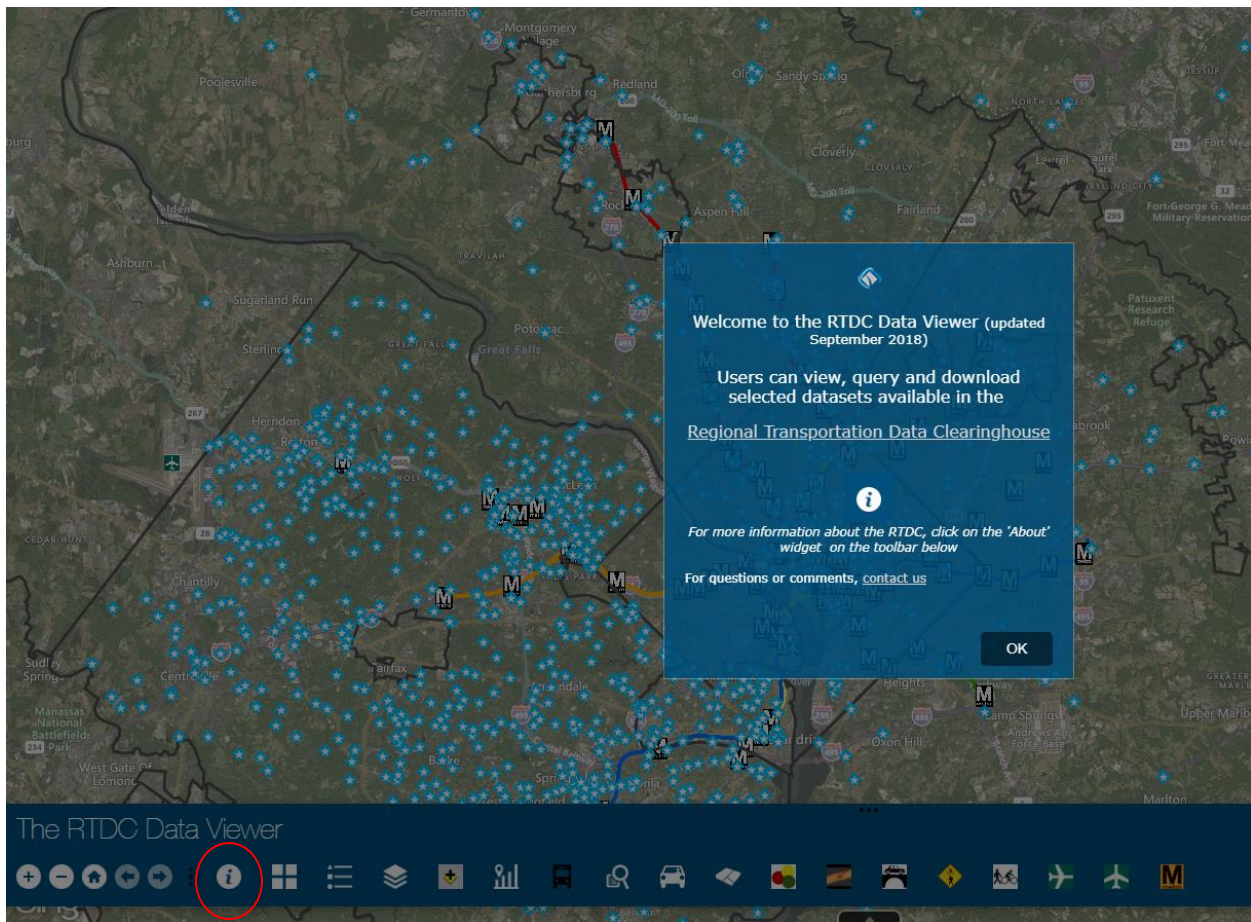


Figure 3

The RTDC Data Viewer loads with some data layers already visible. The ribbon of widgets at the bottom of the page allow users to navigate the map and interact with the data layers. The 'About' widget (circled in red) provides a brief overview of the available application widgets. The About widget is shown in Figure 4.

The widgets of the RTDC Data Viewer can be divided into two main types- navigation and analysis. The navigation widgets provide basic map operations such as zoom in/out, home extent, and the ability to turn layers on/off. The analysis widgets largely consist of pre-defined queries and selections of data that highlight some of the core datasets available in the RTDC. Users are encouraged to browse data by turning on/off layers and clicking on features to open the pop-up menus displaying attribute data.

The RTDC Data Viewer utilizes both spatial and tabular data to deliver the results generated by each widget and as a result, the type of data informs how it is consumed and applied in each widget. More specifically, spatial and tabular data queries offer different results. Queries based on spatial datasets will produce a visual rendition of the data, and tabular queries will produce a list of results. These results can be saved and downloaded by use in one's own software, GIS or otherwise.

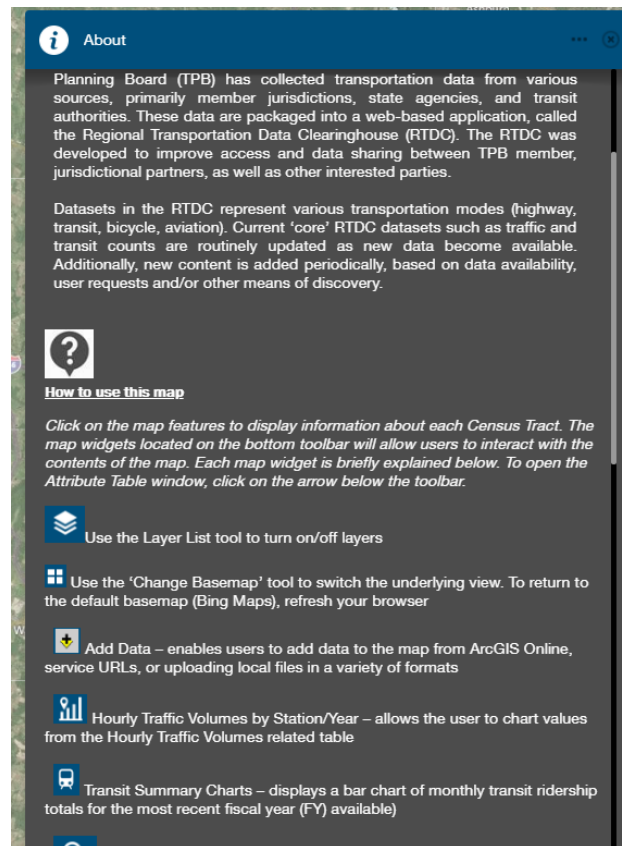


Figure 4

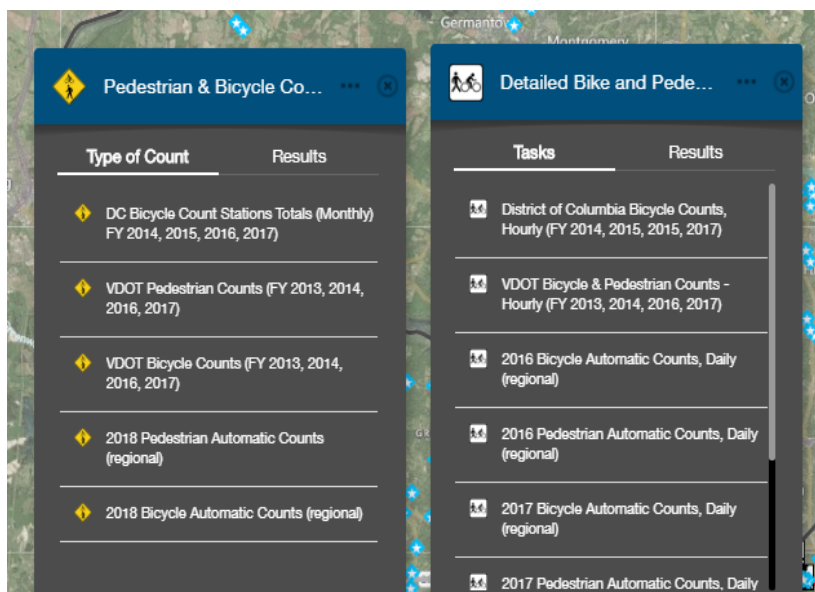


Figure 5

These differences in data types and results can be illustrated by examining the available automated bicycle and pedestrian counter dataset. Both the 'Pedestrian and Bicycle Counts' and 'Detailed Bike and Pedestrian' shown in Figure 5 are query widgets. However, the 'Pedestrian and Bicycle Counts' widget queries the spatial features and the 'Bicycle and Pedestrian - Detailed' queries the tabular data related to the spatial features. Figure 6 shows the result of a query on the spatial features. Note the application zooms to the counter location and highlights the

location. The resulting layer is also available on the map and shown in the Layer List widget (circled in red).

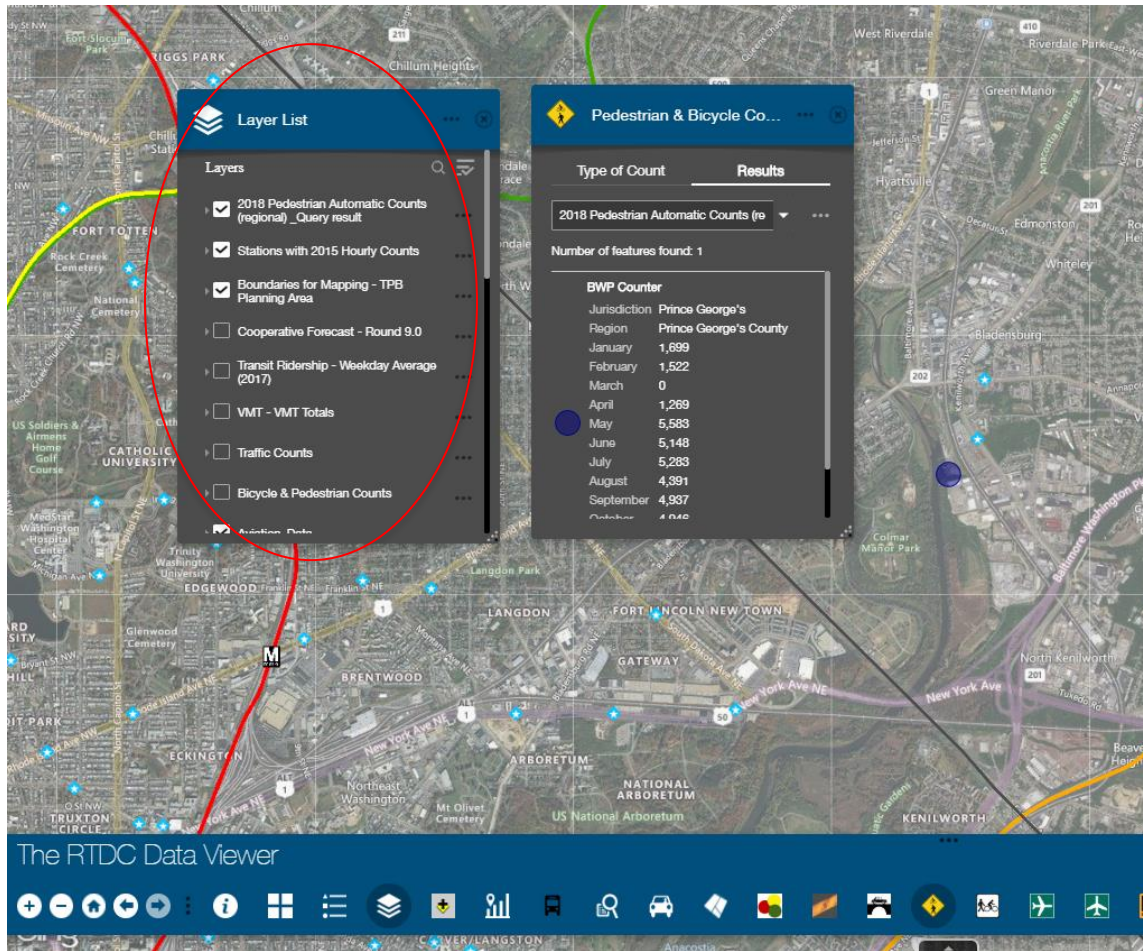


Figure 6

Figure 7 shows data for the same automated counter location but queries the detailed (tabular) data. Therefore, the map does not zoom to the location of the counter. A list of records is available in the Results. Both types of data—spatial and tabular—can be exported straight from the widget. The 'Export to CSV file' (circled in red) option is available for both spatial and tabular and allows both types of data to be consumed in other software. If the download data is a spatial dataset, coordinate (XY) fields will exist. Overall the query widgets in the RTDC offer a flexible way to download specific data by geographic location, feature or a specific time period.

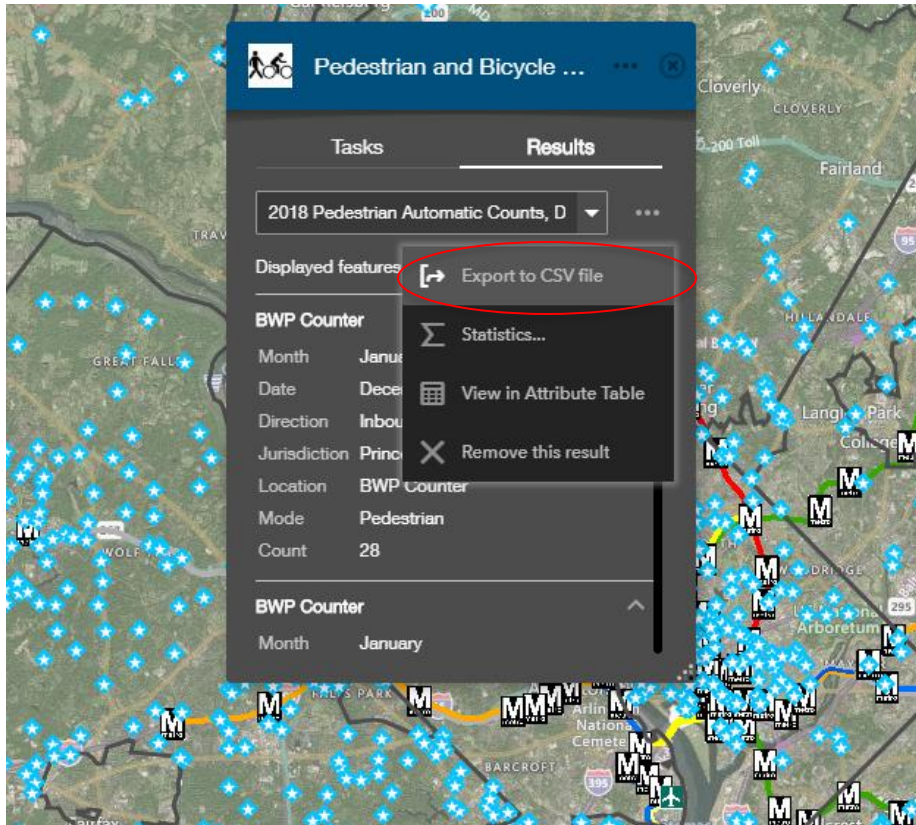


Figure 7

Overall, the RTDC Data Viewer is not intended to provide a comprehensive collection of everything available in the RTDC. Instead, it was designed to offer suggestions and opportunities for viewing data in a way intuitive for transportation professionals and general public users alike. Basic users can look at the content TPB staff has prepared, while users with more focused interests or needs can perform custom queries pertinent to their work.

In addition to the primary purpose of the RTDC Data Viewer—to showcase TPB’s collection of data—the application can also be used to view content from additional sources. The ‘Add Data’ widget enables this capability by allowing users to add external content, with from the RTDC itself, other ArcGIS web services via URL, or via upload of an external data file. Figure 8 shows these available options for

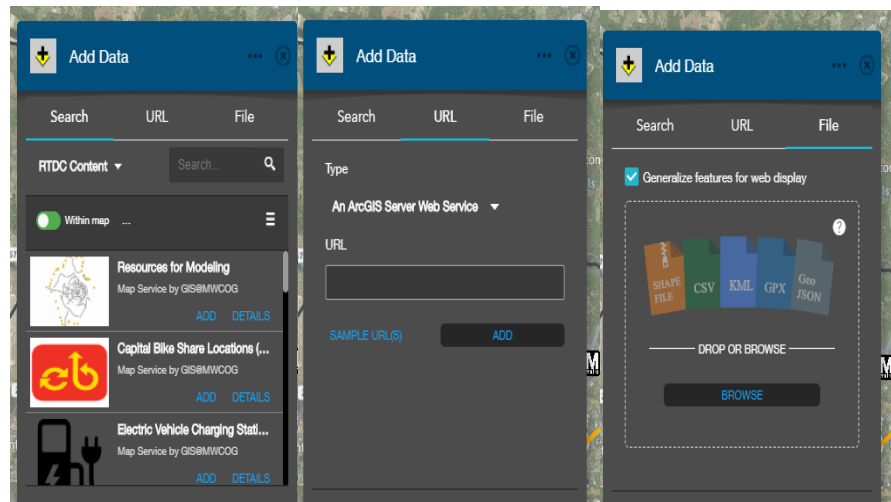


Figure 8

adding data. Users are highly encouraged to use our viewer with their own additional datasets to provide a quick ‘mashup’ map of data that may (or may not) be related.

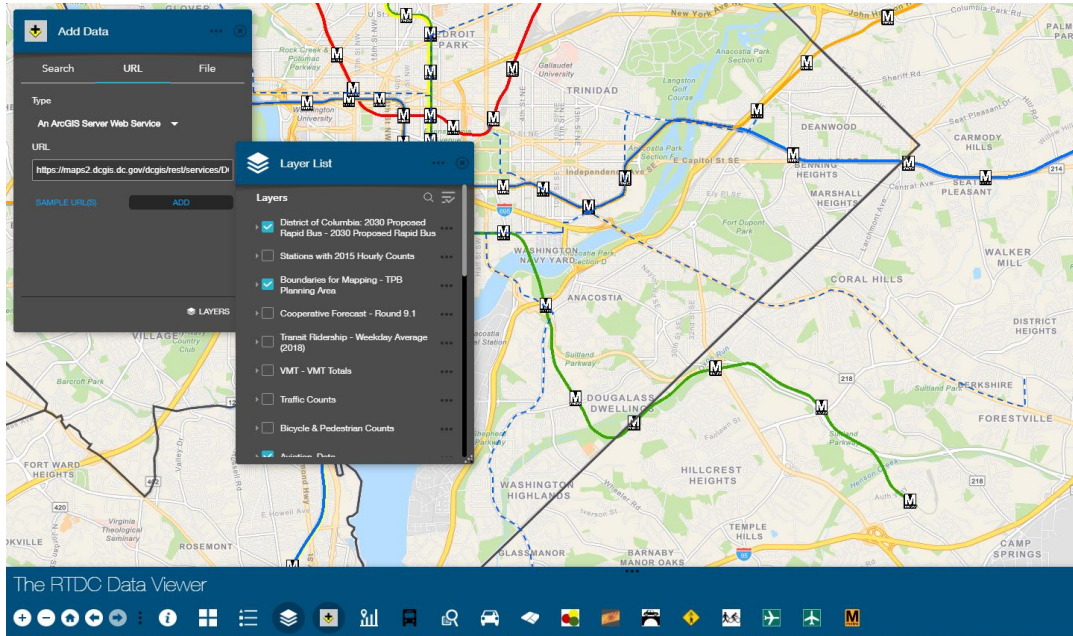


Figure 9

When used together, RTDC data, the RTDC Data Viewer, and user-supplied external data can be used to view the spatial relationship between features and even be used to create new custom datasets. In this example, the Cooperative Forecast data available in the RTDC will be used to inform potential future ridership for proposed rapid bus service.

First, the Add Data widget is used to add the ‘2030 Proposed Rapid Bus’ dataset from the District of Columbia’s GIS catalog using the URL option on the widget. The Layer list is opened to turn on the newly added layer (shown in blue dashed lines) and zoom to its visibility (Figure 9).

Next, the ‘TAZ Summary tool’ is used to generate a buffer around the proposed new transit service in Prince George’s County along Pennsylvania Avenue. Figure 10 shows the result of the ¼ mile buffer around the potential route. The tool provides a count of the number of transportation analysis zones (TAZ) within the buffer and then a summary of 2015 and 2045 data for households, population, and employment from the Round 9.1 Cooperative Forecast. Planners can use these data as a starting point for additional analysis for future transit planning.

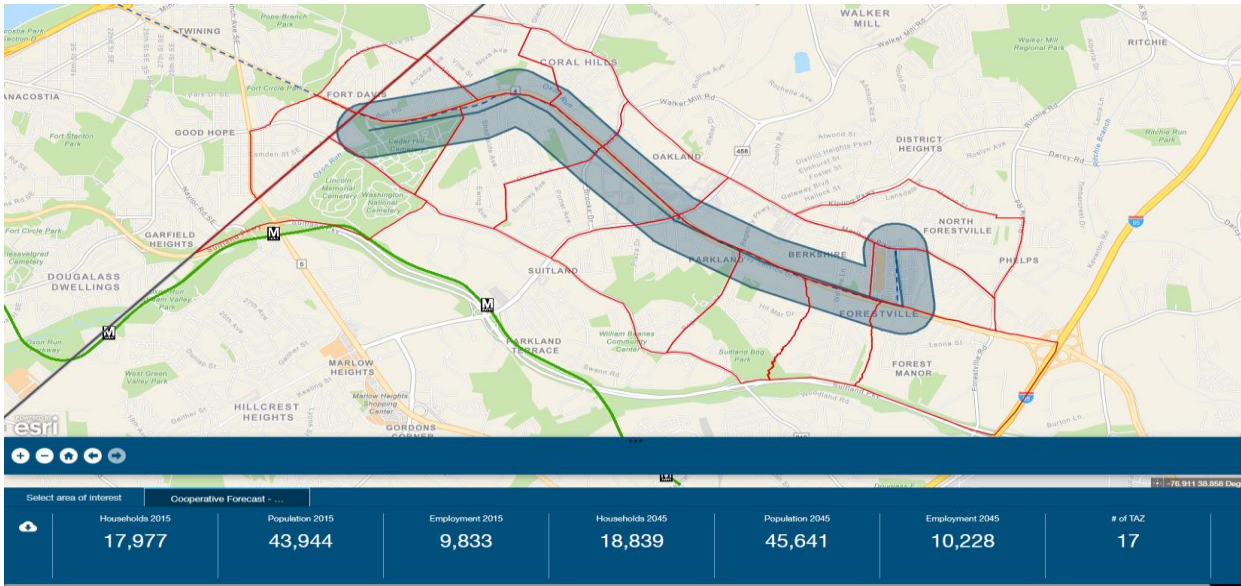


Figure 10

Additionally, the TAZ Summary tool allows these results to be downloaded as a stand-alone dataset and/or a summary report. Figure 11 shows the download icon (circled in red) and the report icon (circled in green). Two CSV files are created for download—one of the Cooperative Forecast selected TAZ and one that provides the summary information shown in Figure 10.

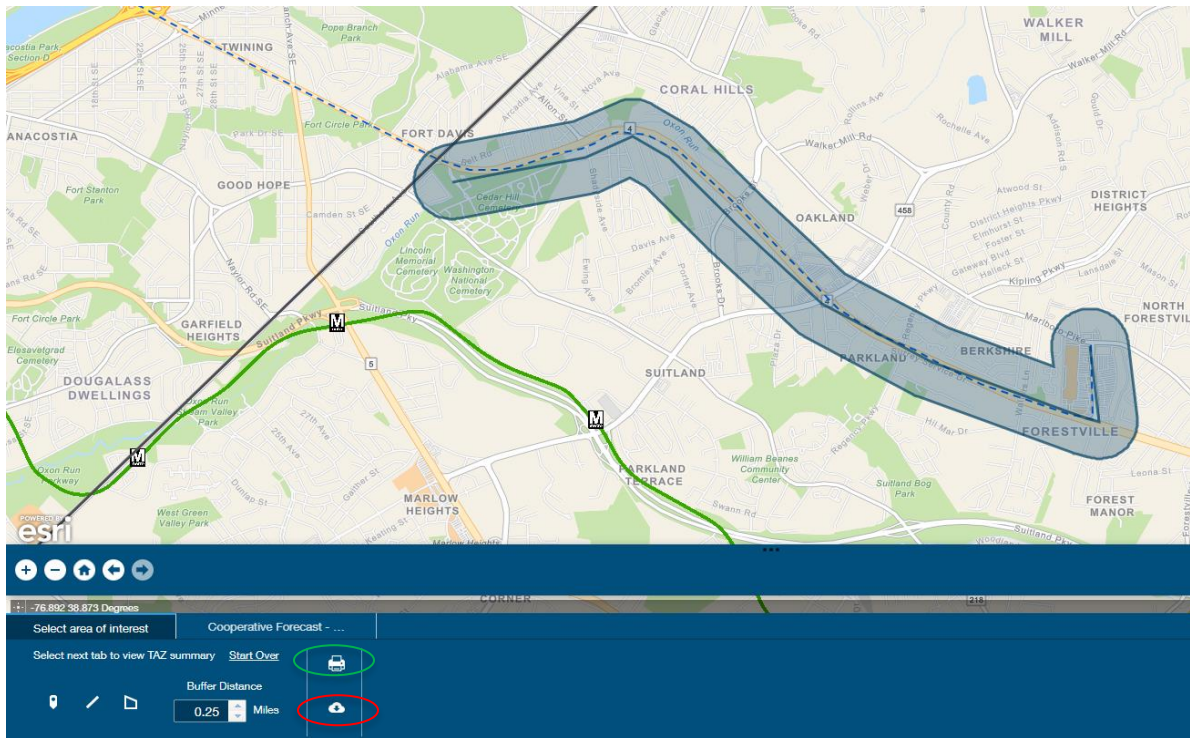


Figure 11

Selecting the report option creates a custom report based on the results of the TAZ Summary tool. The report can be printed or saved as a PDF file.

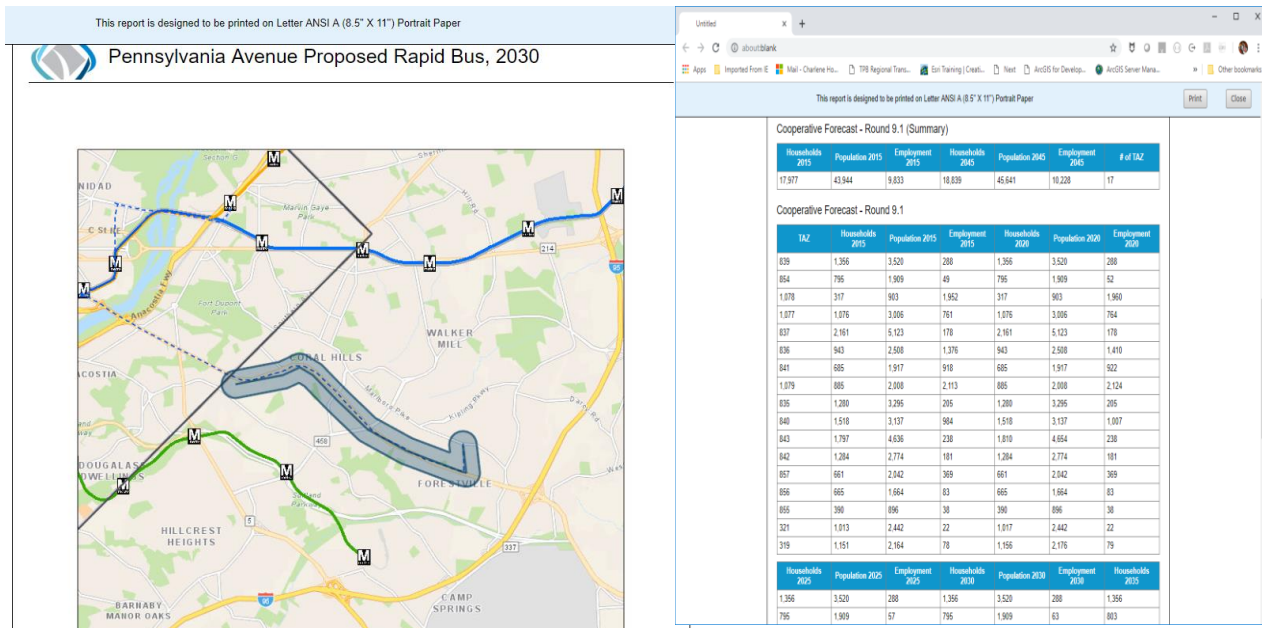


Figure 12

SUMMARY

The Regional Transportation Data Clearinghouse (RTDC) is the online resource for transportation data, maps and applications from the National Capital Region Transportation Planning Board (TPB). The data have been organized and presented in an open format to improve access and data sharing between TPB members and other users in the region. The RTDC data catalog provides a central location at which to find TPB's shared data. The RTDC Data Viewer provides an interactive way to explore our data.

The best way to experience the RTDC is to simply use it. Search for data by category or key word on the main RTDC webpage. View metadata, filter by attribute field, and download datasets of interest. Launch the RTDC Data Viewer to view several layers of RTDC data at once. Click on features to learn their attribute information. Launch any of the available widgets to view pre-defined charts or use the query widgets to filter data for a customized feature selection. Download your results for use elsewhere. Use the 'Add Data' widget to bring your own content into the RTDC Data Viewer to view with our content.

TPB staff welcome any questions or comments about the RTDC. We are also actively accepting suggestions for additional content. We would like the RTDC to be your regional resource for transportation-related data and resources. For more information on the RTDC, please contact Charlene Howard at Charlene@mwcog.org.