



Kent County is the example jurisdiction throughout this document. Please substitute your current jurisdiction as applicable.

This *FINDER Quantum QGIS Custom Project File Guide* is designed to provide a general overview of Planning's QGIS custom project file. More detailed instructions and descriptions of the QGIS software capabilities are included in *QGIS-2.14-UserGuide-en.pdf* and *QGIS-2.14-QGIS Training Manual-en.pdf* located in the *Quantum\Datadocs\Qgis* folder in the product download.

The map and data layers included in each *FINDER Quantum* product download are described in the *MdProperty View/FINDER Quantum/FINDER Online User's Guide (MdpUsr15.pdf)*, downloadable from Planning's Open Data GIS Downloads website:

<http://planning.maryland.gov/Pages/OurProducts/DownloadFiles.aspx>

You can find the zip file under this area of the website:

Current User's Guide for *MdProperty View, FINDER Quantum, CAMA, and Sales*



About Maryland's Open Data Initiative

FINDER Quantum is now in its twelfth year with the release of the latest Edition by the Maryland Department of Planning. Some of the map and data layers included in the *FINDER Quantum* product download have been updated as described in the *MdProperty View/FINDER Quantum/FINDER Online User's Guide (MdpUsr15.pdf)*.

In August of 2014, for the first time since offering digital maps depicting property maps and parcel data nineteen years ago, the Maryland Department of Planning launched the distribution of *free* digital map and data layers for Maryland's 23 counties and Baltimore City under the State's Open Data Initiative. People interested in probing the wealth of Planning's parcel geographic information systems (GIS) data can now download the files at no cost. In addition to increasing user access, this initiative allows organizations to have access to consistent and uniform parcel based data.

To make data sought after by local governments, planners, developers, real estate professionals, academicians and others more readily available, Planning released its core property data products, *MdProperty View, FINDER Quantum* and *FINDER Online*, as free products. In addition to making the data accessible from Planning's Open Data GIS Downloads website:

<http://planning.maryland.gov/Pages/OurProducts/DownloadFiles.aspx>

Much of this information is now hosted on the State's MD iMap mapping and GIS data portal.

<http://imap.maryland.gov/Pages/default.aspx>



What's included in the *FINDER* Quantum product download?

Map and Data Layers:

The *FINDER* Quantum product download includes the State's computerized property (tax) maps; the x,y linkages (point or polygon) to the Parcel, Computer Assisted Mass Appraisal (CAMA) and Sale datasets; Parcel, CAMA and Sale data, including monthly Sale data from the Maryland State Department of Assessments and Taxation via download from Planning's Open Data GIS Downloads website; reference grids including a grid for the property (tax) maps, an ADC map book grid, a grid for the Maryland State Highway Administration (SHA) road, stream and feature maps and a grid for USGS 7.5' Topographical quad maps; and additional SHA files including a digital centerline roads file, data derived from SHA digital grid maps, an SHA major roads file and a county boundary file.

Other map layers included are land use/land cover data; congressional and legislative district boundary files; census data; ZIP code boundary files; Priority Funding Area (PFA) designations; floodplain boundaries; protected lands boundaries; watershed data; generalized zoning designations; sewer service area boundaries; large-scale, high-resolution color digital-ortho imagery; public water service area boundaries for selected jurisdictions; National and State Historic Inventory data; and residential Sales x,y point and summary files derived from Assessments Parcel and Sale data; and a *FINDER* Quantum QGIS custom project file (.qgs).

Free! QGIS Software:

Planning's *FINDER* Quantum product uses QGIS software. QGIS is a *free* user friendly Open Source Geographic Information System and is licensed under the GNU General Public License. QGIS is an official project of the Open Source Geospatial Foundation (OSGeo).

Planning's QGIS Custom Project File (.qgs):

Planning's custom project file is a viewer developed to facilitate interactive search and display of Parcel, Sale and Computer Assisted Mass Appraisal (CAMA) databases that are spatially referenced to tax (property) maps.

Planning's QGIS custom project file gives you the ability to perform advanced searches using your own user-defined criteria, export the results to a shapefile and add your new map layer to the *FINDER* Quantum map view area. Users can add additional map and data layers – either those included in the *FINDER* Quantum product download or external layers.

The *FINDER* Quantum tools located at the top of the map view area allow you to display, hide and manipulate map layers and data, and most tools can also be accessed as menu items via the *FINDER* Quantum pull-down menus. You can also display current information about a selected parcel by connecting to the State Department of Assessments and Taxation Real Property Search website via the Internet.

What Can You Do with Planning's QGIS Custom Project File?

- Search for a parcel by parcel account number, street address, owner name or map and parcel number or perform an advanced search for parcels in a given area or throughout a county or Baltimore City using your user-defined criteria – for example, all agricultural properties between 5 and 10 acres with a total value under \$250,000;

- Interact completely with property (tax) maps using the Pan, Zoom In and Zoom Out functions, locate a parcel on a tax map and add additional map layers included in your county or Baltimore City *FINDER* Quantum product download or add external layers supplied by you;
- View and print current parcel information via the Internet using a smart link to the State Department of Assessments and Taxation Real Property search website, view and print current parcel information for adjoining properties via the website and print a report showing the detailed Computer Assisted Mass Appraisal (CAMA) characteristics of dwelling units for residential parcels in your jurisdiction of interest;
- Print the map view area as displayed on-screen and access two or more tax maps seamlessly at the edges and view and print individual county tax maps in their entirety;
- View the Sale Database in the map view area;
- Export one, some or all Parcel or Sale Database records to a shapefile and immediately load and use the exported records as a map layer in *FINDER* Quantum or export parcels to an ASCII text file, database or Microsoft Excel spreadsheet for use in other software applications; and
- Set the *FINDER* Quantum default working folder to your current jurisdiction and save your work so that you can open a future session with the map layers and the map view area just as you left them in your previous *FINDER* Quantum session.

FINDER Quantum uses a hierarchical folder structure that follows logical file naming conventions. The folder structure includes a root folder at the top that further divides or branches into various subfolders, and may also contain files. Each subfolder may also contain files and/or further divide or branch into additional subfolders.

The folder structure is the same for all counties in Maryland with some slight variations. You may substitute the county of your choice in the following discussion, bearing in mind that there are subtle differences, as noted below, for some counties and more pronounced differences for Baltimore City because detailed street maps rather than tax maps are displayed for Baltimore City.

IMPORTANT: In order to speed display performance, you may want to turn off (uncheck) un-needed map and/or data layers. Turning off the aerial imagery in particular will improve performance.



How to Use this Custom Project File Guide

This *FINDER* Quantum QGIS Custom Project File Guide provides a general overview of Planning's QGIS custom project file, an overview of selected standard QGIS tools and functions and other more generally related information. Planning has flagged each section of the Custom Project File Guide with the *FINDER* Quantum logo where information is Planning-specific in order to make it easier for you to distinguish which information applies specifically to Planning's *FINDER* Quantum product and which information is more generally related to the QGIS software and/or other related topics or links.

The QGIS software that you need to install in order to run *FINDER* Quantum is bundled right in your *FINDER* Quantum product download that contains the map and data layers:

- In the Quantum folder:

This folder contains the QGIS software installation file and [Installing the QGIS Software 2.14.10 and Getting Started with *FINDER* Quantum \(Install.pdf\)](#). If you want to install the *FINDER* Quantum map and data layers to a local or network hard drive, see [Read1st.pdf](#) in the [Kent2015 folder](#) included in your *FINDER* Quantum product download for additional information that will help you best load and access the product map and data layers.

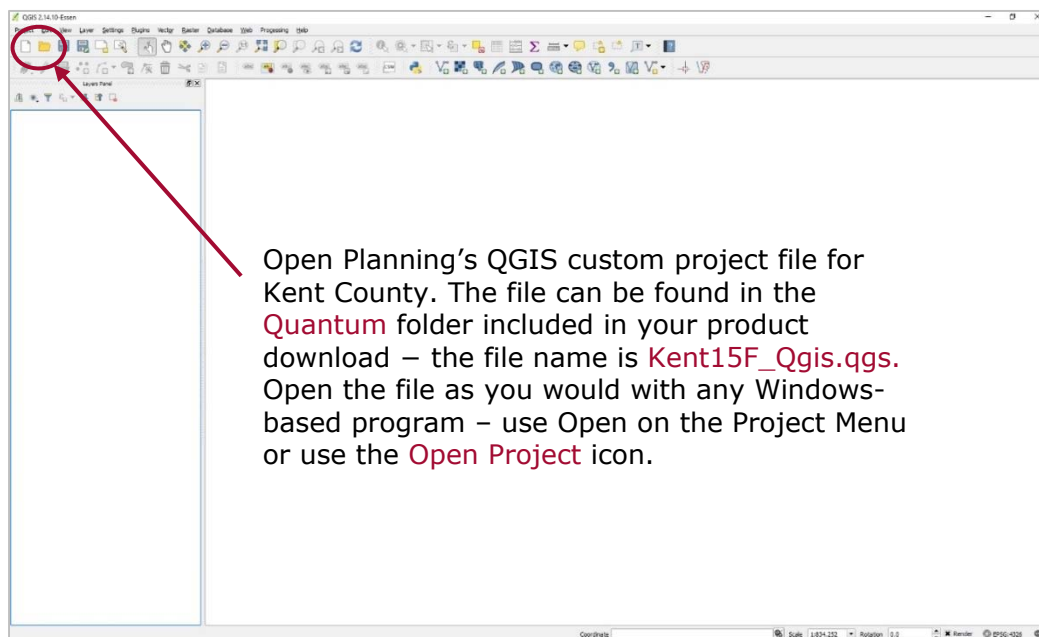
- In the Quantum\Datadocs folder:

This folder contains [Planning's *FINDER* Quantum QGIS Custom Project File Guide \(FndUsr15.pdf\)](#) which contains detailed instructions on working with Planning's QGIS custom project file (qgs), included in your product download.

USER TIP: Do not move any folders or subfolders out from under the root folder. Planning's QGIS custom project file reads relative paths in order to quickly and successfully access the data and map layers included in your product download – for this reason, folders and subfolders should not and cannot be separated to different physical locations when you copy them to a local or network hard drive.

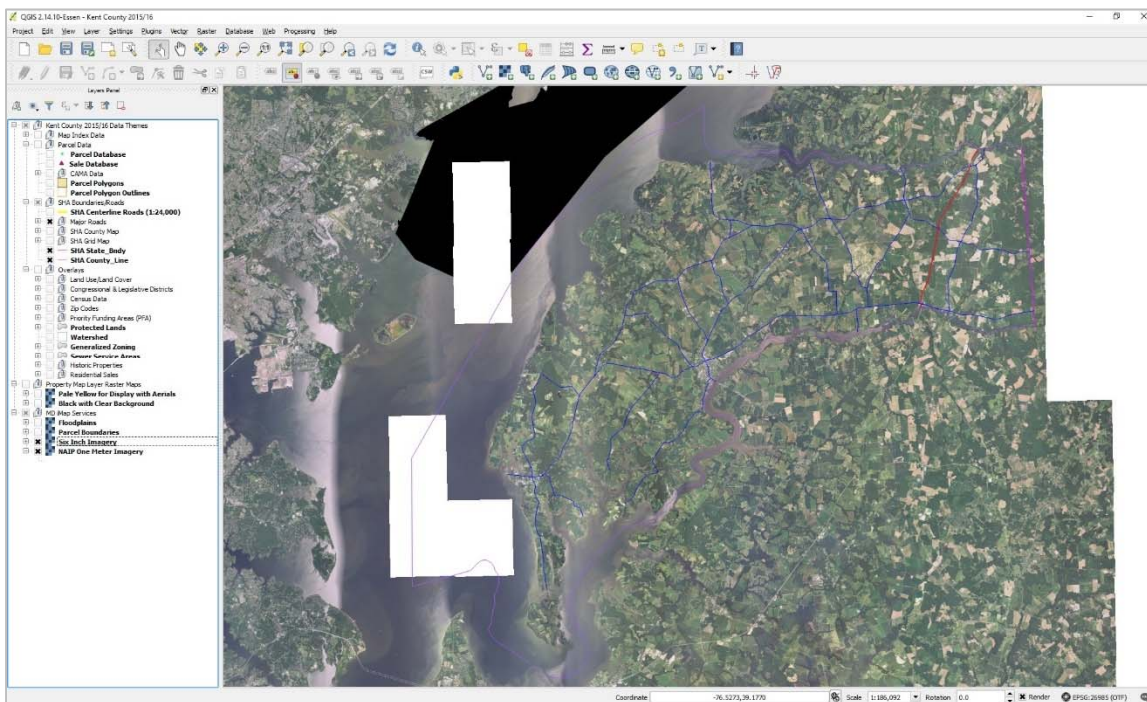
To open the QGIS software, navigate to the QGIS 2.14 folder (located on desktop if default installation followed and no user-defined location) and double-click on this icon:

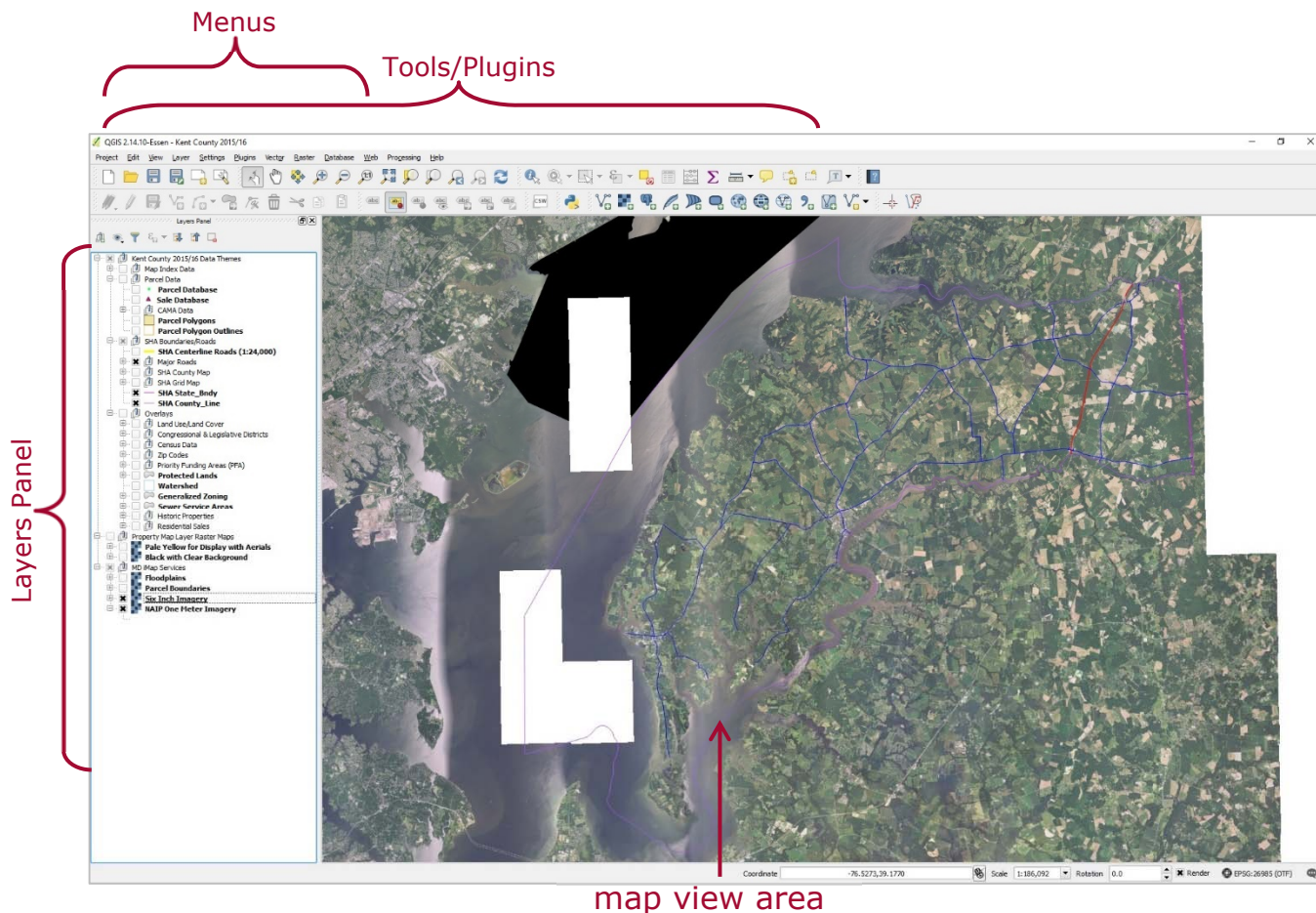
QGIS Desktop 2.14.10  and this window appears:



Projects can also be loaded directly by double-clicking the project file within Windows Explorer, versus pre-loading the QGIS software.

Once you open Planning's QGIS custom project file, you will see the initial *FINDER* Quantum map view area, described on the next page:



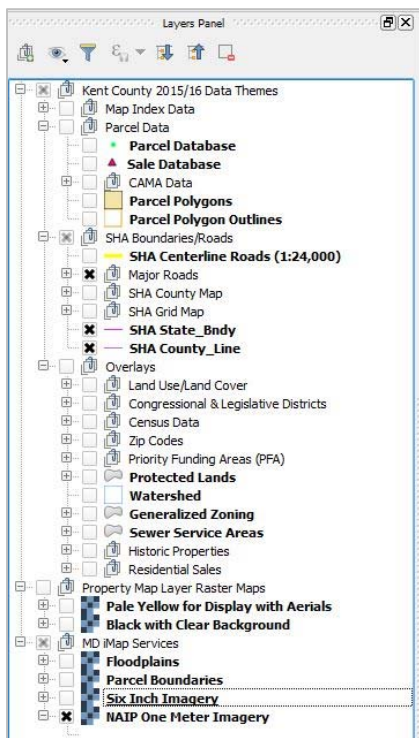


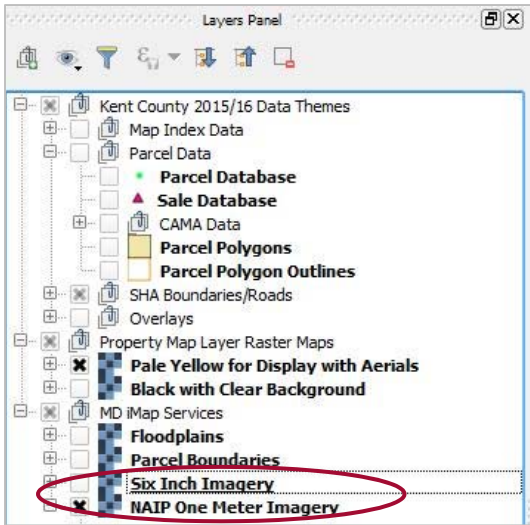
The menus, tools, and map view area in *FINDER* Quantum are similar to previous versions of *FINDER* and similar to most Microsoft Windows applications. The menus provide access to most of the same functions as the tools, plus additional tools for interacting with the map. Hover the mouse over each tool and a short description of the tool's purpose will be displayed.

The **Layers panel** on the left of the map view area displays what map and data layers are available and visible. To make a layer visible, simply check the box to the left of the layer.

All of the layers included in your product come pre-loaded in *FINDER* Quantum – for example, 2013 Zip Codes are pre-loaded under the **Overlays** folder, in addition to 2015 ZIP Codes which are preloaded in the **Zip Codes** folder, as shown to the left.

In the Layers panel, a black indicates that the layer is visible, while a gray is reserved for parent folders in the Layers panel and indicates that some, but not all, of the layers contained within the parent folder are visible.



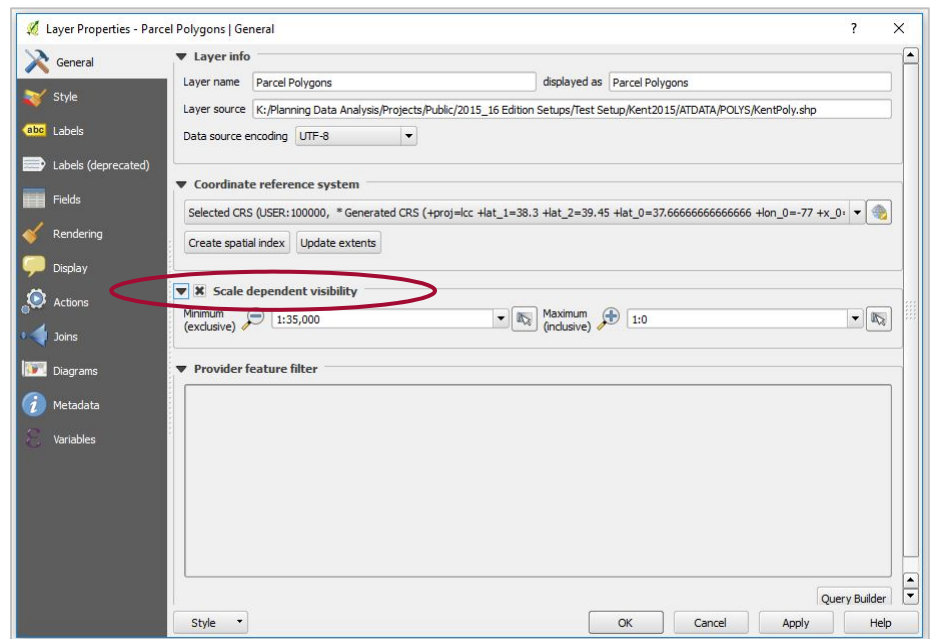


FINDER Quantum is capable of viewing the map and data layers in the map view area in the same fashion as previous versions of the *FINDER* software, as well as aerial imagery loaded from MD iMap web server. The aerial imagery is no longer pre-packaged and added to the map view area by users; instead, it is loaded from MD iMap (internet connection required). The MD iMap imagery is the most recent statewide imagery that has 6" resolution.

Similarly, tax maps are included in the Layers panel as the Local Imagery Group Layer, as shown to the left.

IMPORTANT: Note that the tax maps' visibility is scale-dependent. That is, you must be zoomed in to a certain extent before the tax maps will appear in the map view area. This is also the case with several other default layers.

This can be turned off by unchecking **Scale dependent visibility**, shown to the right, by right-clicking the layer and navigating to its Properties.



In order to view these layers, go to **View -> Zoom to Layer** or use the mouse wheel until you are sufficiently zoomed into the map to view the layer. You can also right-click on the layer in the Layers panel, choose **Properties** and go to the **General** tab.

All of the map and data layers included in *FINDER* Quantum and accessed via the Layers panel are described in detail in **Part I: What's Included in MdProperty View/FINDER Quantum/FINDER Online?** of the *MdProperty View/FINDER Quantum/FINDER Online User's Guide* (MdpUsr15.pdf). For most layers, the description includes a screen shot of the layer to help you learn to recognize the line colors or symbology used to display the layer.

QGIS Tools are located above the map view area:











This set of tools is customizable. If you want to change the menu of tools available to you, right-click in an open area of the title bar and check off the tools that you want visible; the toolbar show above has already been customized. Because this *FINDER Quantum QGIS Custom Project File Guide* is tailored to the tools menu included in your product, Planning recommends leaving the default tools menu settings in place. **If a tool appears grayed out in the toolbar it may be inactive and require an action, such as selecting a layer in the layer panel, to become active.** In the chart below, if a tool can also be accessed via a *FINDER Quantum* menu, the menu is listed in red. These tools are also organized to serve as a general “table of contents” for the purposes of this guide, as indicated by page numbers where applicable.

USER TIP: For more detailed explanations for some tools from the QGIS perspective see [QGIS-2.14-UserGuide-en.pdf](#) and [QGIS-2.14-QGIS Training Manual-en.pdf](#) found in the *Quantum\Datadocs\Qgis* folder included in your product download.



Map Navigation Tools

	Zoom In: zoom in to view closer (you can also use the mouse wheel).	View Menu
	Zoom Out: zoom out to view a wider area (you can also use the mouse wheel).	View Menu
	Pan Map: move the map around the map view area.	View Menu
	Full Extent (Zoom Full): zoom the map view area to the full statewide view. This is different than in previous Editions of <i>FINDER</i> , where Full Extent would zoom back to the full county or Baltimore City map extent.	View Menu
	Zoom Last/Next: zoom back to the previous extent. This is similar to an undo command when navigating. The neighboring “Zoom Next” serves as the redo option; converse to “Zoom Last”	View Menu
	Create a Bookmark: save the current view displayed in the map view area so you can return to this view at a later time.	Page 11
	Scale: choose from a set of pre-defined map scales or set a custom scale for viewing maps in the map view area by specifying your own user-defined scale setting.	Page 12






Basic Tools and Functions

	<p>Identify Features: click on a feature of an active map layer to open a window and display a window containing a list of the attributes associated with that feature and then display the field name of the selected area on the map.</p>	<p>Page 13 View Menu</p>
<p>Capture Single Attribute Data: capture, copy and paste single attribute data, for example, a given parcel account number.</p>		<p>Page 14 Layer Menu</p>
	<p>Capture x,y Coordinates: capture x,y coordinates in <i>FINDER</i> Quantum's native datum NAD83 meters in the State Plane Coordinate System.</p>	<p>Page 15</p>
	<p>Select: select a feature (a point, polygon or line) by clicking on the feature or select multiple features by dragging a rectangle, polygon, freehand or radius around the features. Hold shift or CTRL key while selecting for individual selection of multiple features.</p>	<p>Page 16 View Menu</p>
	<p>Search/Find/Locate/Query a Record (Open Attribute Table): search any attribute table (for example, the Parcel, Sale or CAMA Database) on any database field (column in the attribute table).</p>	<p>Page 17 No Menu Equivalent</p>
<p>Go to the Real Property Search Website: open the State Department of Assessments and Taxation Real Property Search web page for a given parcel account number.</p>		<p>Page 20</p>
	<p>Measure Line/Area/Angle: measure by line (linear distance), area or angle. QGIS allows measurements in a wide variety of common units (feet, meters, degrees, acres, sq. feet meters or miles, etc.)</p>	<p>Page 22 View Menu</p>
	<p>Add a Feature to a Vector Map: add a new point feature to a vector map point layer or add a new polygon feature to a vector map polygon layer.</p>	<p>Page 22 View Menu</p>
	<p>Add a Shapefile and/or Raster Image to a Map: add external vector shapefile data to the current map view area by clicking on the Add Vector Layer icon (top) or use the Add Raster Layer icon (bottom) to add a geographically referenced digital raster image to the map view area.</p>	<p>Page 24 Layer Menu</p>
<p>Change Transparency: change the transparency of a map layer, particularly aerial imagery, for enhanced map display.</p>		<p>Page 24 Layer Menu</p>
<p>Change the Symbology of a Vector Map Layer: change the symbology associated with vector map layers. The symbology of a map layer includes such things as the size and weight of point, line and polygon outlines as well as the color of map features.</p>		<p>Page 25</p>
<p>Change the Symbology of a Raster Image Map Layer</p>		<p>Page 26</p>
<p>Create Labels: label your map display for map production for any attribute feature in the database, selecting options for label size, font, color, etc.</p>		<p>Page 28 Layer Menu</p>
	<p>Add Text Annotation: add a text label to a map.</p>	<p>Page 29</p>

Advanced Tools and Functions

	<p>Advanced Querying – Filter and Select: search any attribute table (for example, the Parcel, Sale or CAMA Database) using search criteria that are a combination of single or multiple attribute fields and values or expressions.</p>	<p>Page 30 No Menu Equivalent</p>
<p>Notes on Advanced Querying – Filter and Select: additional information you need to perform better database searches.</p>		<p>Page 37</p>
	<p>Spatial Query: select entries within a desired subset of data and/or a selected map location that contain certain features</p>	<p>Page 39 Vector Menu</p>

File Management Tools

	<p>Save Project: save the work that you do in a <i>FINDER</i> Quantum session to your own custom QGIS Project File (qgs).</p>	<p>Page 43 File Menu</p>
	<p>Save Project As: save one of your existing custom project files as a new project file under a different name.</p>	<p>Page 43 File Menu</p>
	<p>Open Project: open one of your existing custom project files after the QGIS software has already been launched.</p>	<p>Page 43 File Menu</p>
	<p>New Project: create a new custom project file after the QGIS software has already been launched.</p>	<p>Page 43 File Menu</p>
<p>Save as Image: save your current screen display as an image file (.bmp, .jpeg, .tif, etc.) for use in documents or presentations such as Microsoft PowerPoint presentations.</p>		<p>Page 43 Project Menu</p>
	<p>Print Composer: prepare your map for print and/or export your map to .pdf or image file format, and organize and save prior Print Compositions.</p>	<p>Page 44 File Menu</p>
<p>Map Layer Export: export a map or data layer to an ESRI shapefile for use in ArcGIS software, to a Keyhole Markup Language (KML) file for use in Google Earth, or export a map or data layer to several other file formats.</p>		<p>Page 49 Layer Menu</p>

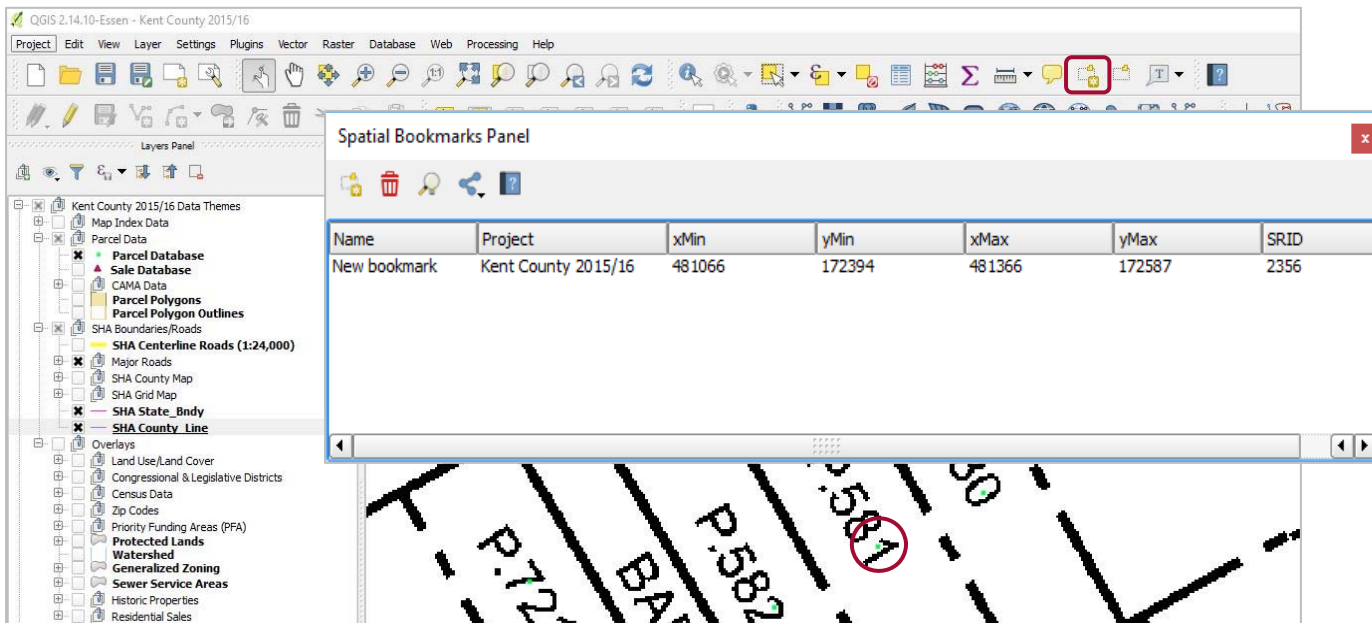
Help and Resources


<p>Additional <i>FINDER</i> Quantum Resources</p>	<p>Page 50</p>
<p>Help with Installing the QGIS Software</p>	<p>Page 50</p>
<p>Planning’s Open Data GIS Downloads Website</p>	<p>Page 51</p>
<p>Help with QGIS from OSGeo</p>	<p>Page 51</p>
<p>Help with QGIS from Private Organizations</p>	<p>Page 51</p>
<p>Maryland Department of Planning Websites</p>	<p>Page 51</p>
<p>Other Useful Websites</p>	<p>Page 52</p>



This function can also be accessed via the View Menu.

You can save the current view displayed in the map view area so you can return to this view later by clicking on the **New Bookmark** icon:

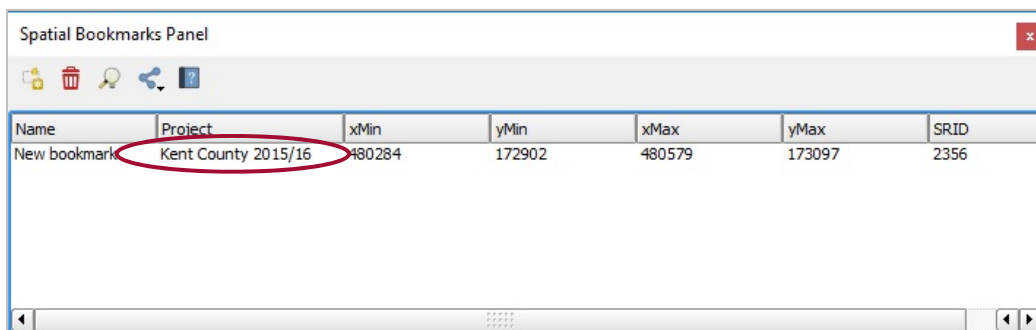



For example, suppose you have a view of a residential sale on PARCEL 12 that you want to be able to easily view again without having to navigate back to it. Once you have the parcel displayed in the map view area at the extent and view that you want to capture, click on the **New Bookmark** icon  in the top toolbar.

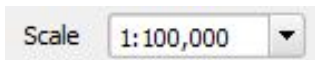
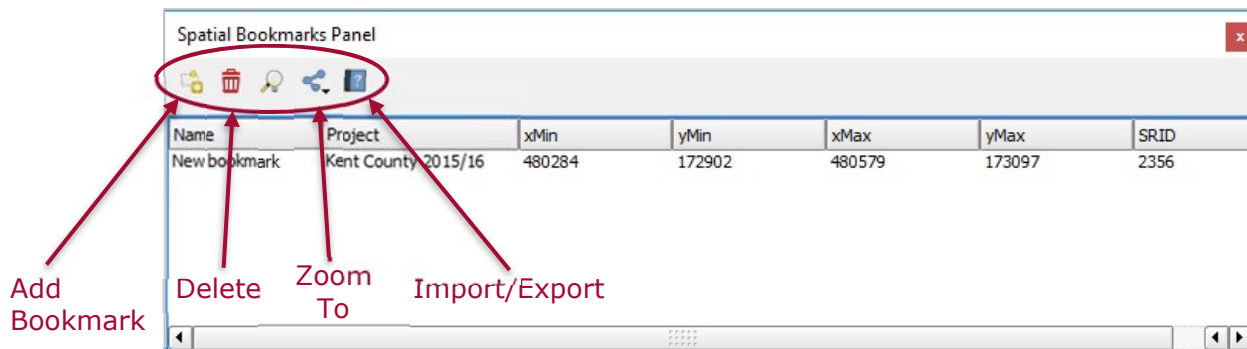
The **Spatial Bookmarks Panel** dialog window opens with a new bookmark for your residential sale view, as shown above.

IMPORTANT: You can change the name of your bookmark from **New bookmark** to something recognizable to you. Planning recommends that you do this so you can differentiate among multiple bookmarks if you plan to create more than one bookmark.

To change the name of your newly-created bookmark, double-click on the New bookmark data value that was just added to the **Name** field for your bookmark and type in a new name, in this example, **Residential Sale p.12** – note that you can also double-click in the empty **Project** field and enter a name for your project, in this case, **Kent County 2015/16**:

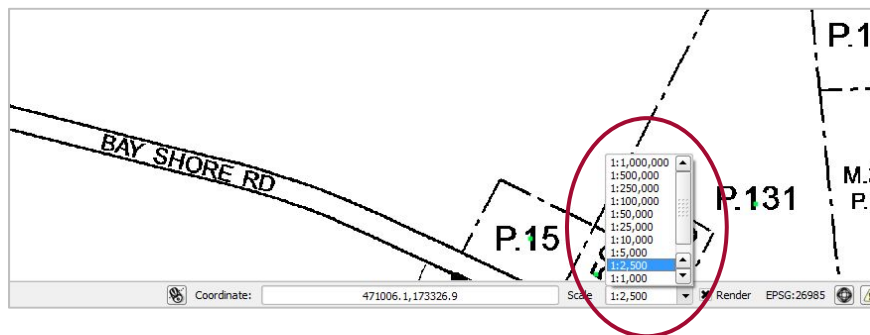


After creating a bookmark or multiple bookmarks, you can edit the names of the bookmarks, delete the bookmarks, etc. You can also return to a previous bookmark easily by clicking on the **Zoom to** button. These tasks are all done within the same Geospatial Bookmarks window. To open this window without creating another new bookmark, click on the **Show Bookmarks** icon  on the top toolbar.

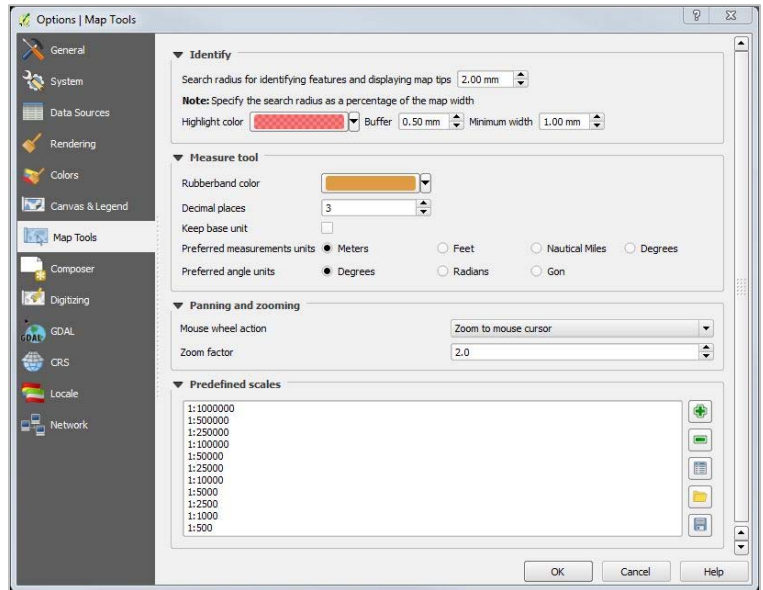


Scale

The scale of the map view area is displayed in the scale box in the bottom right hand corner of the screen, as shown above. As you zoom in and out on a map or resize the map view area window, the scale automatically changes to reflect the current scale of the map. Map view area scale is expressed as a ratio, for example, 1:25,000. The arrow to the right of the scale parameters allows you to select from pre-defined scale settings via a drop down menu, as shown below:



In the past, Planning has shown users how to set a custom scale for viewing maps in the map view area by specifying their own user-defined scale setting using the **Tile Scale** option found on the View Menu under the Panels option. However, Planning no longer recommends this option, because the Tile Scale slider does not seem to yield consistent results from map to map. Instead, Planning recommends that you create your own custom pre-defined scale for viewing your maps by selecting **Map Tools** found on the Options Menu, as shown to the right.

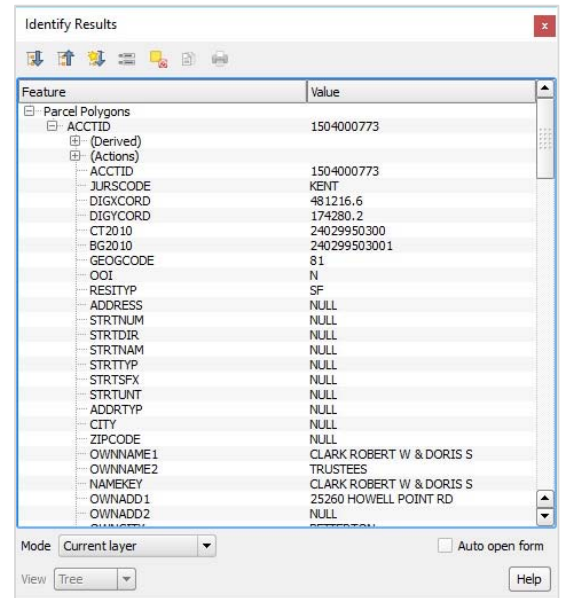


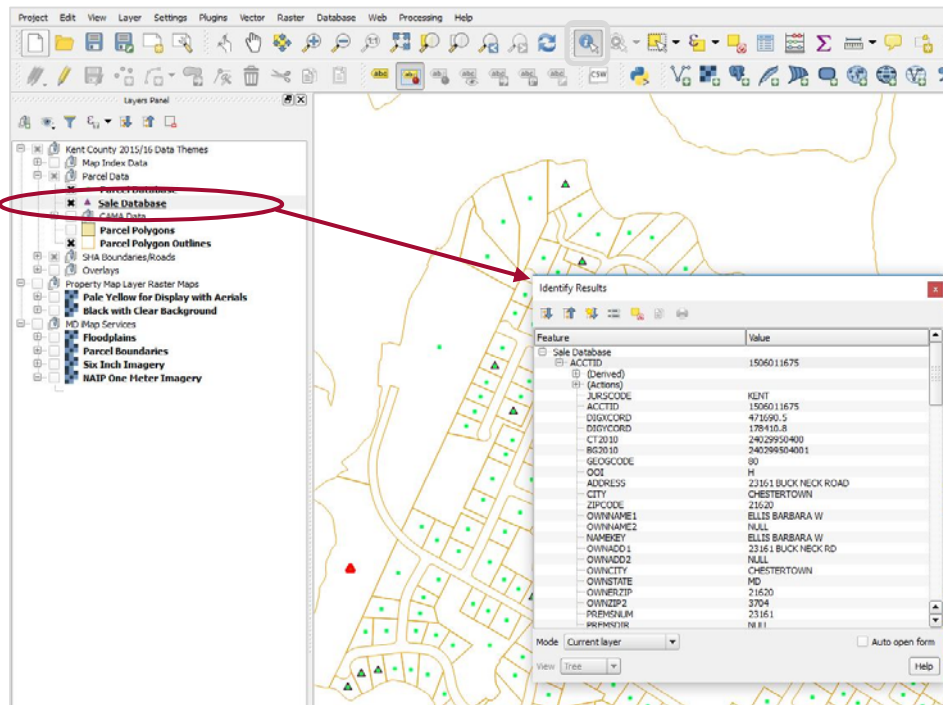
This function can also be accessed via the View Menu.

Use **Identify Features** to open a window that displays the information associated with a single feature (a point, polygon or line) of an active map layer in the map view area. For example, if you click on a single Parcel dataset point in the map view area and then click on Identify Features, you will see the Parcel dataset attributes for that parcel:

Note that to use Identify Features correctly, it is important to have the data layer you are interested in highlighted in the Layers panel, to ensure that Identify Features returns the correct results.

In the example shown on the next page, Identify Features shows the attribute table information associated with the **Sale Database** layer, the map layer highlighted in the Layers panel. If you were actually interested in returning Parcel dataset information, you would have to change the data layer currently highlighted in the Layers panel.

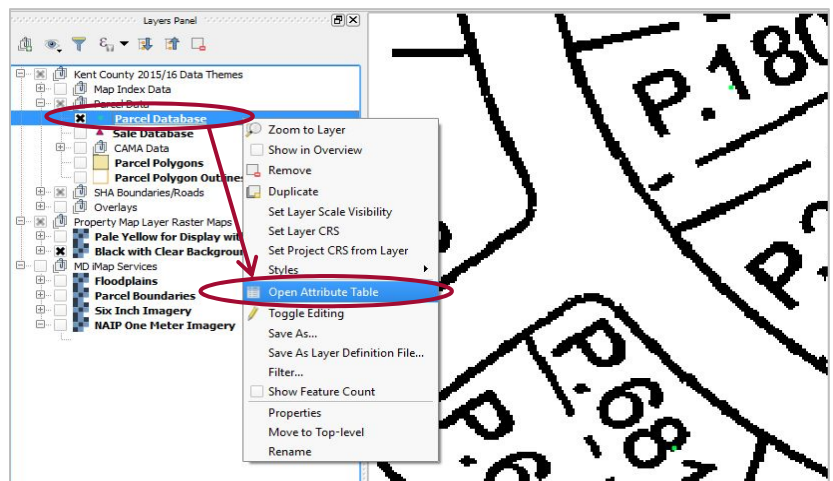




IMPORTANT: In *FINDER Quantum*, if you wish to print the Identify Features window, right-click and select **Copy feature attributes** from the drop-down menu and then paste the information into your document of choice.

This function can be accessed via the Layer Menu.

To capture, copy and paste single attribute data, first right-click on the map layer that contains the data that you want to capture and select the **Open Attribute Table** icon or select the map layer from the **Layer Panel** and access its attribute table via right-clicking the layer and selecting **Open Attribute Table**. In this example, you will capture the parcel account number (ACCTID field) of a parcel contained within the Parcel Database map layer.



With the attribute table open, navigate to the data attribute you wish to copy either manually or through a search. In this example, you will copy parcel account number **1503005887** from the **ACCTID** field.

QGIS Tools: Capture Single Attribute Data (continued)

With the selected data attribute highlighted – attribute table highlighting in QGIS is indicated by a green rectangle around the data, as shown above – press the **Ctrl-C** keys to copy the data attribute. Then open the software program into which you want to paste the attribute data information (for example, Microsoft Word, Microsoft Excel, Windows WordPad, etc.) and then press the **Ctrl-V** keys to paste the attribute data into your desired program.

	JURSCODE	ACCTID	DIGXCORD	DIGYCORD	CT2010	BG2010	GEOGCODE	OOI	RESTYTP
4872	KENT	1503005852	472436.5	178461.6	24029950200	240299502003	81	N	SF
2204	KENT	1503005879	476148.8	183928.0	24029950200	240299502002	81	H	SF
2	KENT	1503005887	480858.8	189458.3	24029950200	240299502002	81	N	SF
35	KENT	1503005941	481531.7	189540.5	24029950200	240299502002	81	N	SF

QGIS Tools: Capture x,y Coordinates

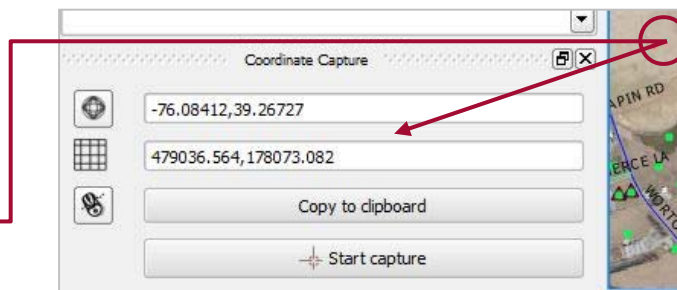
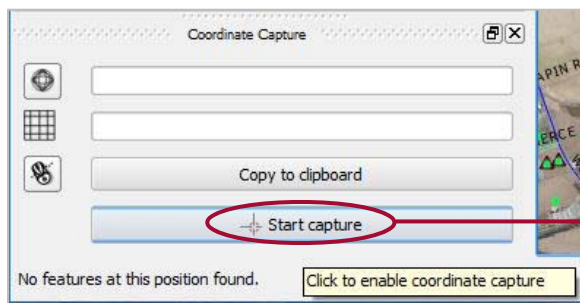


This tool can be accessed via the Coordinate Capture icon on the main toolbar.

Use this QGIS function to capture x,y coordinates in *FINDER* Quantum's native datum, NAD83 meters in the State Plane Coordinate System. You can capture the x,y coordinates from the **Coordinate Capture Tool**. This is useful if you want to link your own database to *FINDER* Quantum geographic coordinates in order to display the database as a map layer in the map view area.

To do this, select the **Coordinate Capture** icon in the main toolbar. Next, click the **Start Capture** icon at the bottom of the tool. Click anywhere in the map screen that you wish to capture x,y values for to see the values populate in the tool. Select **Copy to clipboard** to copy the data, which can now be pasted elsewhere using the **Ctrl + V** keys.

Release the mouse here (see below)



IMPORTANT: After highlighting the x,y coordinates, be sure to release the mouse within the coordinate dialog window. **Do not drag the mouse out of the coordinate dialog window** before releasing the mouse button. If you release the mouse outside of the coordinates dialog window, the coordinates will not remain highlighted and you will not be able to copy them successfully.

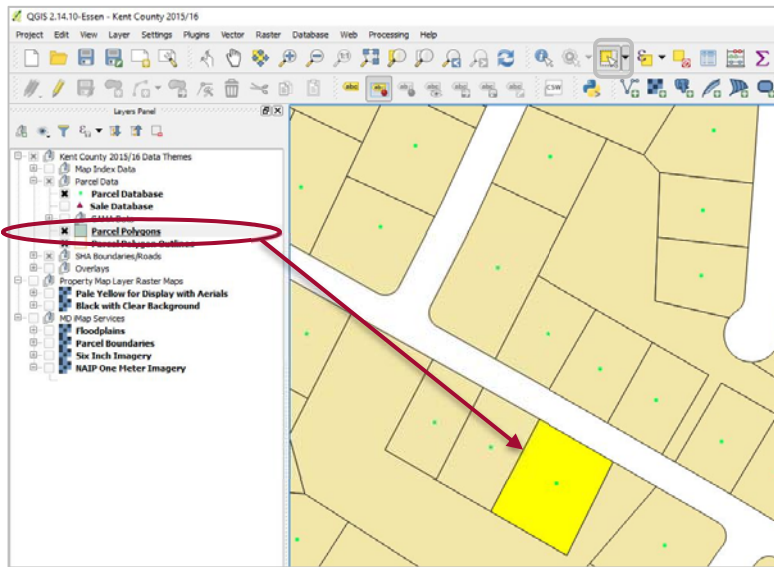
Once your selected coordinates are successfully highlighted, press the **Ctrl-C** keys to copy the coordinates, and then open the software program into which you wish to paste the coordinates (for example, Microsoft Word, Microsoft Excel, Windows WordPad, etc.) and then press **Ctrl-V** keys to paste the selected x,y coordinates into your desired software program.



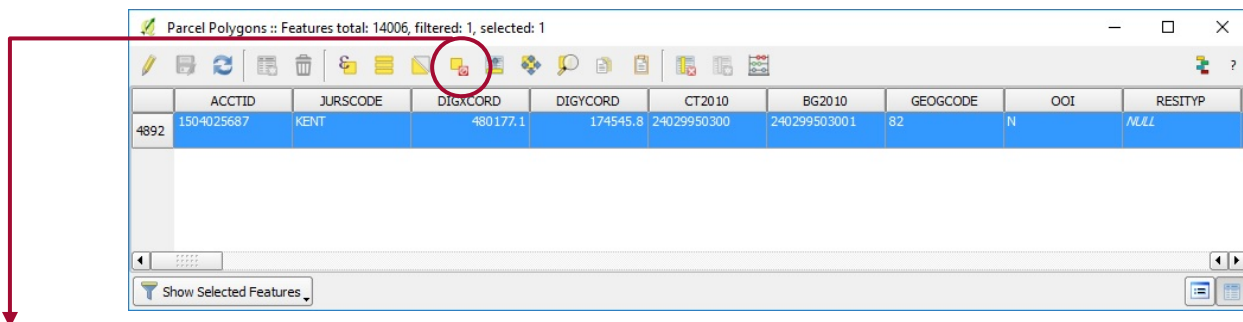
This function can also be accessed via the View Menu.

Use **Select** to select a feature (a point, polygon or line) or multiple features in the map view area. Note that the arrow adjacent to the image in the **Select** icon allows you to select a single feature by clicking on the feature or to select features as a group by dragging a rectangle, polygon or freehand shape or a radius over multiple features.

As with Identify Features, in order for Select to work correctly, your map layer of interest must be highlighted in the **Layers panel**. In the example shown below, Select is used to select a parcel polygon within the Parcel Polygons map layer because that is the map layer highlighted in the Layers panel:



After selecting a feature or multiple features with Select, you can view the contents of your selection by right-clicking on the highlighted layer in the Layers panel and selecting **open attribute table**. Once the attribute table is open, click the box next to **Show selected only** to view the attributes for the feature or features you selected. For example, this is the attribute table associated with the single parcel polygon selected in the example above:



Features can be unselected via the **Deselect** icon in the map screen or the attribute table toolbar.





This function can be accessed via the Layer Menu.

Use **Open Attribute Table** to search, find, locate, or query a particular record. You can also open the attribute table by right-clicking on a layer in the Layers panel and selecting Open Attribute Table. As is the case with Identify Features and Search tools, the layer on which you want to perform the search must be highlighted in the Layers panel. **Note that a new window opens each time an attribute table opens. This can lead to multiple windows of the same table open if each window isn't closed after use.**

With the Parcel Database attribute table open, you can perform a search on any of the fields (columns) in the database. The most popular searches are parcel account number (ACCTID field), street address (ADDRESS field), MAP, PARCEL and owner name 1 (OWNNAME1 field) – but any field in the attribute table can be searched for one or multiple parcels.

To perform a search, use the drop-down menu under **Show All Features** in the bottom left-hand corner of the Parcel Database attribute table to select **Field Filter** and open up another drop-down menu of attribute table fields. Select the attribute table field that you want to search on, in this example the **ZIPCODE** field, and click on ZIPCODE to perform your search.

The screenshot shows the QGIS interface. In the Layers Panel, the 'Parcel Database' layer is selected. The attribute table for 'Parcel Database' is open, showing columns like JURSCODE and ACCTID. A context menu is open over the attribute table, with 'Field Filter' selected. A search window is open at the bottom left of the attribute table window, with 'abc ZIPCODE' in the field name and '21610' in the search text. The search window also has a 'Case sensitive' checkbox and an 'Apply' button.

JURSCODE	ACCTID
0	KENT 1503012735
1	KENT 1503006158
2	KENT 1503005887
	KENT 1503001997

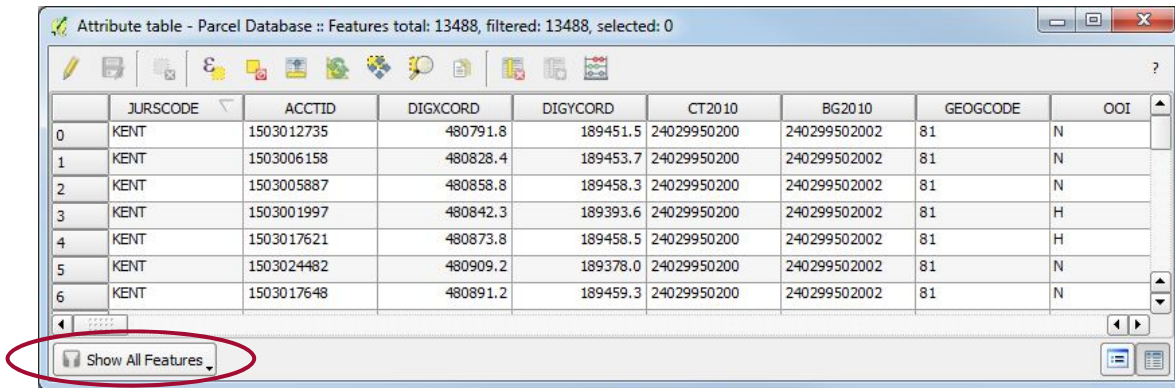
JURSCODE	ACCTID	DIGXCORD	DIGYCORD	CT2010	BG2010	GEOGCODE	OOI
6866	KENT 1501003763	498036.2	188990.6	24029950100	240299501001	82	N
10137	KENT 1501003798	498359.8	177637.7	24029950100	240299501003	82	N
388	KENT 1501003801	496933.9	188236.8	24029950100	240299501001	82	N
10138	KENT 1501003836	496218.2	177851.6	24029950100	240299501003	82	N
9793	KENT 1501003844	497897.8	189018.6	24029950100	240299501001	82	H

Once you select your desired search field, a search window will open at the bottom of the attribute table, as shown on the left.

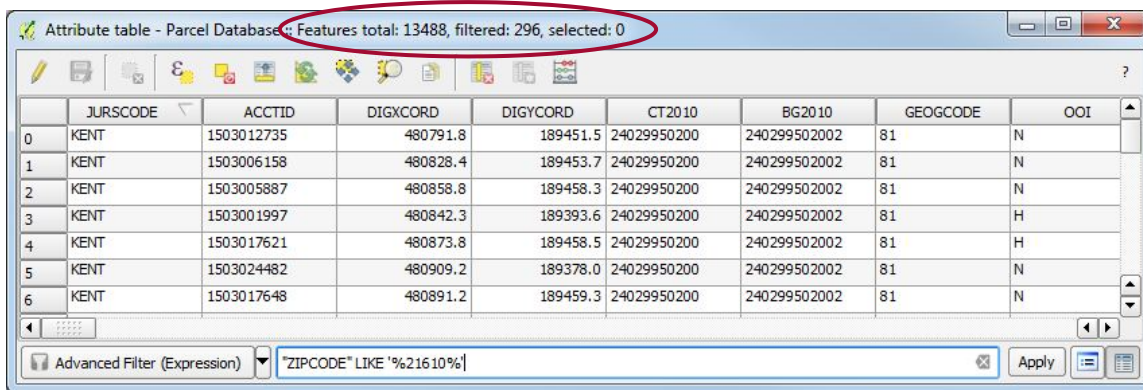
Type the data you are searching for into the data entry box next to your search field in the lower left-hand corner of the attribute table window as shown below, and then hit the Enter key or click on the Apply button to perform your search. In the example shown below, the search being performed is for parcels in ZIP code **21610** and the search field is the ZIPCODE field as selected in the example above:

After your search is complete, you can view the results of your search in the map view area and further refine your search criteria. A brief overview of these tools follows on the next page.

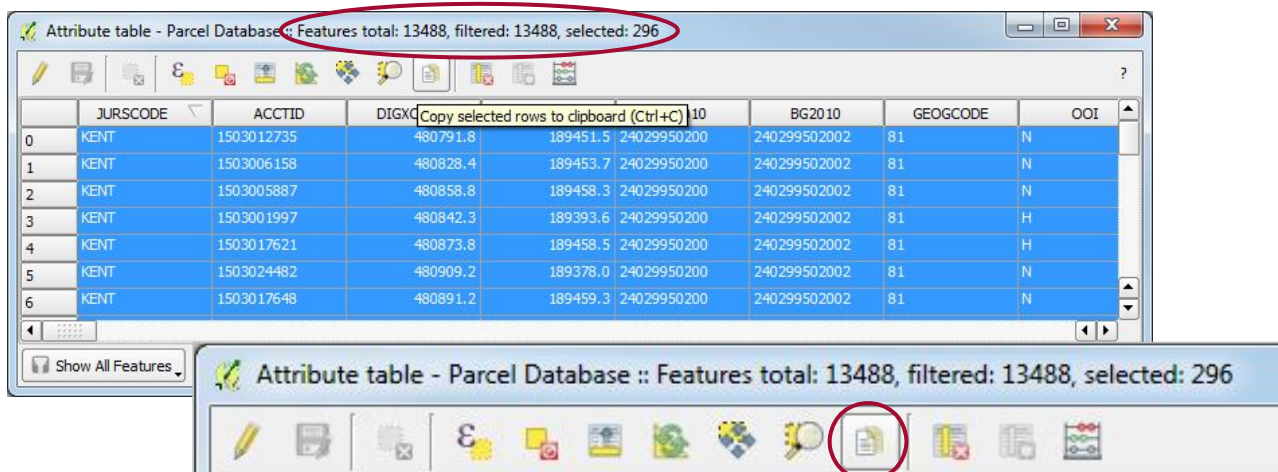
All of the Search Tools described above can be found in the **Show All Features** drop-down menu found in the lower left-hand corner of the Attribute table window:



After performing a search, you can view the results in the filtered attribute table window and select filtered records to perform other functions:



And you can select, copy and paste entire rows of data into a Word document, Excel spreadsheet or other text-based program:

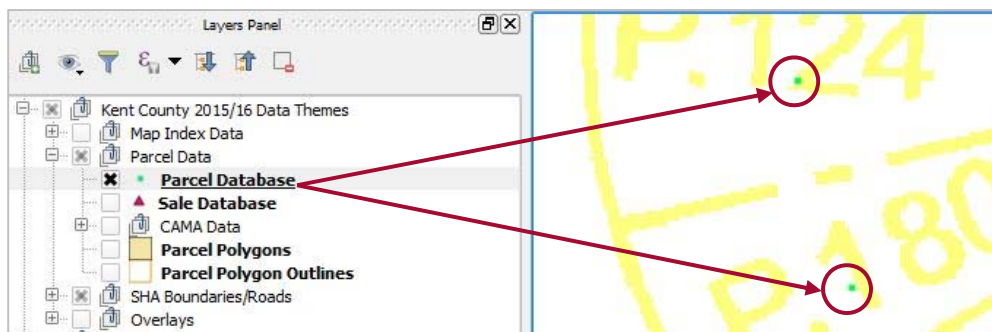


To view your search results within the map view area, first click on the **Zoom Map to Selected Rows** icon or you can click on the **Pan Map to Selected Rows** icon, as shown below:

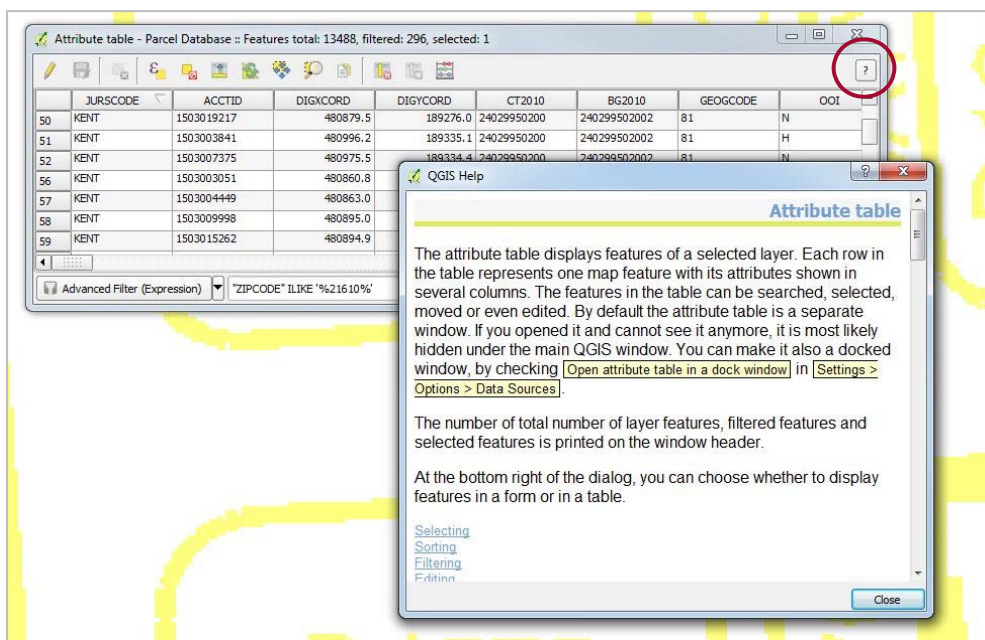


Note that an initial single click on the **Zoom Map to Selected Rows** icon will zoom to the selected records, but it may not zoom in on the map view area closely enough for you to see the result. You may still have to use the Zoom tools to navigate closer, as the QGIS software does not seem to scale in a logical progression.

Once you are sufficiently zoomed in on your selected row (or rows), the point(s) displayed in the map view area for that parcel will turn green, as shown below for two rows selected in the Parcel Database:



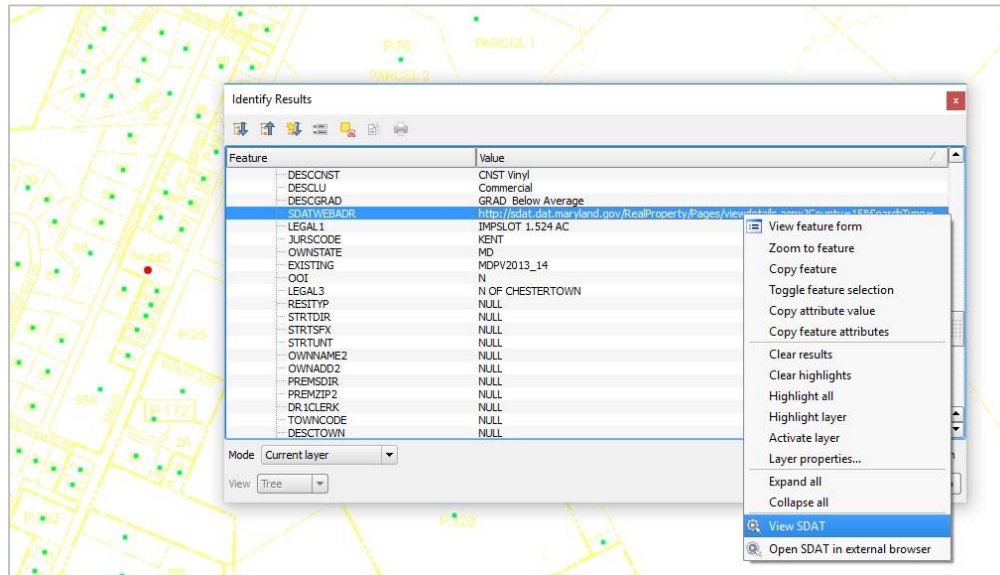
For a helpful summary of the various QGIS search methods and data manipulation tools available, click on the Help button found in the upper right-hand corner of the attribute table window:



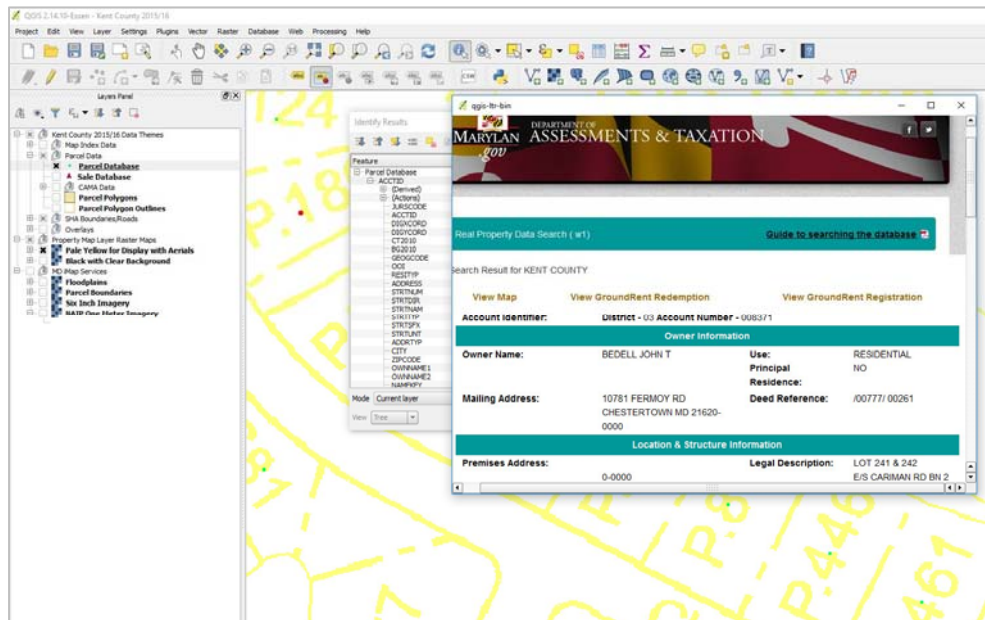
There is no tool icon for this function and it cannot be accessed via a menu.

To open the State Department of Assessments and Taxation Real Property Search web page for a given parcel account number, right click on the URL address for your parcel of interest in the SDATWEBADR field and then select one of the two options shown.

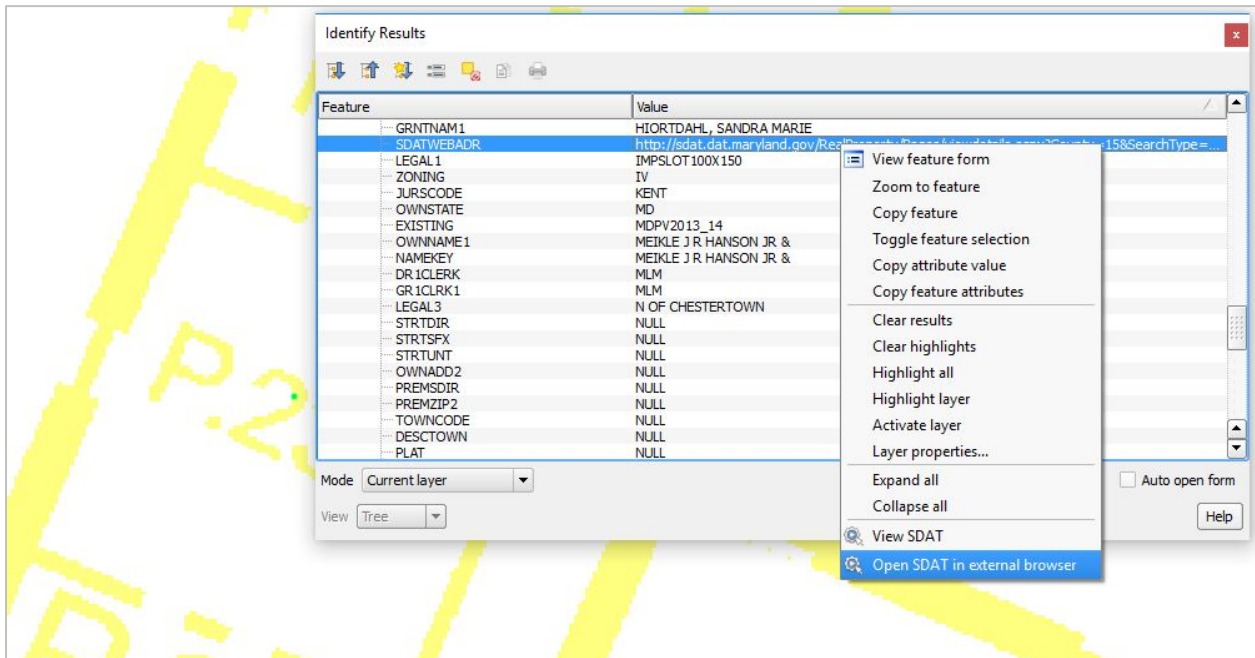
View SDAT opens the web page faster, but does not allow printing. **Open SDAT in external browser** is slower to open, but allows you to save and print the web page. You can perform either of these two functions while viewing the entire attribute table or while viewing a single point after using Identify Features. If you select View SDAT:



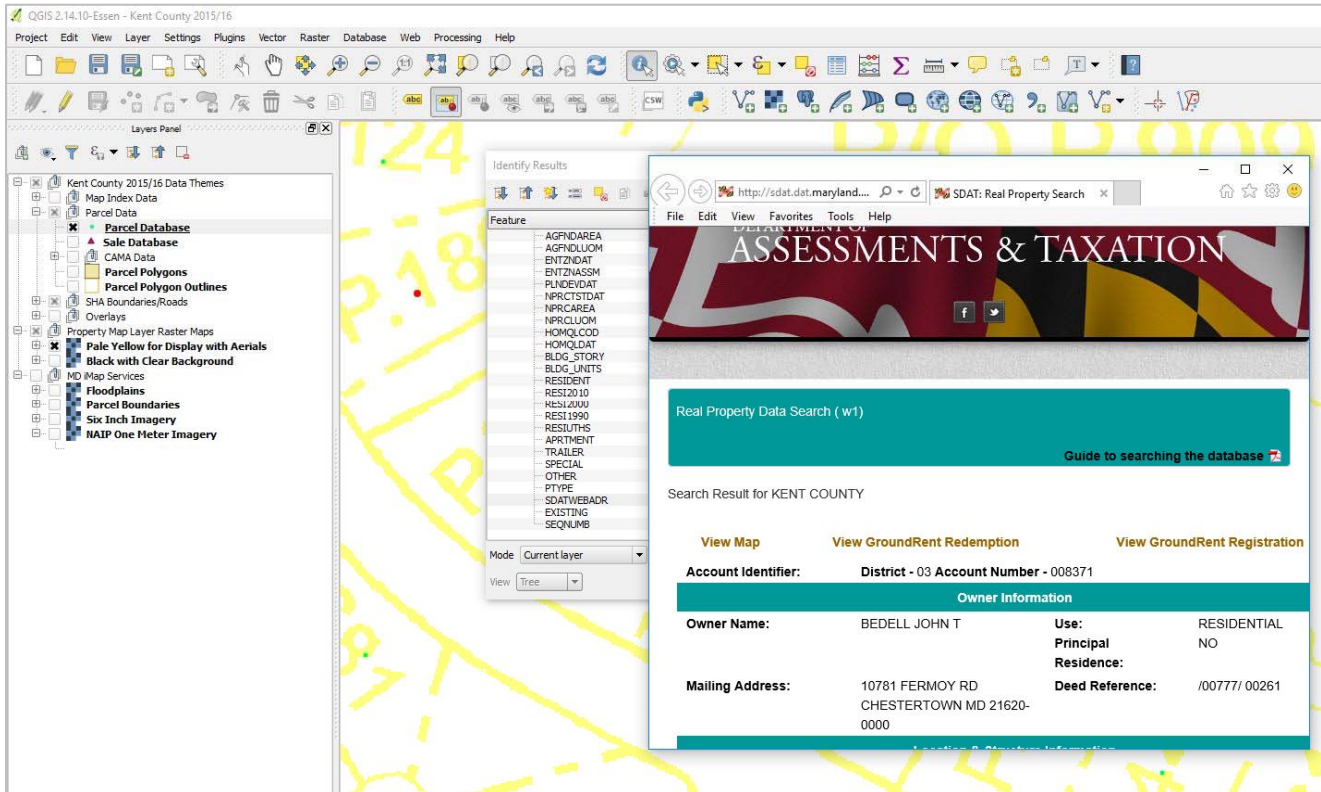
The QGIS web viewer opens the web page associated with your selected parcel.



If you select Open SDAT in External browser:



Your Internet browser, in this case, Internet Explorer, opens the web page associated with your selected parcel.





This function can also be accessed via the View Menu.

Use the Measure Tool to measure determined distances. The arrow adjacent to the image in the **Measure** icon allows you to select whether to measure by line (linear distance), area or angle. When you use any of the three measuring modes, you begin measuring with a single left-click of the mouse in the map view area and then you drag and click to continue your measurement of an area, distance or angle. A single right-click of the mouse stops the measuring process in all three measuring modes.

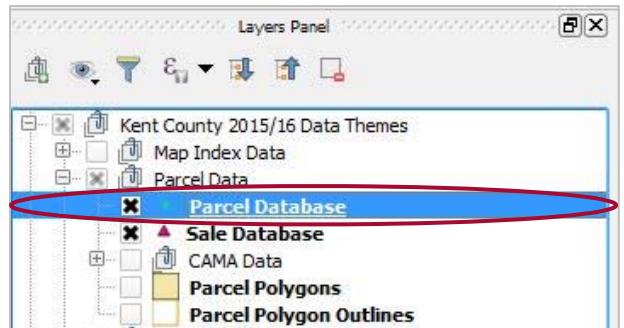
IMPORTANT: Measurement units can be changed from meters to feet, degrees, kilometers, etc. by navigating to the **Settings** menu, selecting **Options, Map Tools** and adjusting **Preferred distance units** within the **Measure Tool** section.



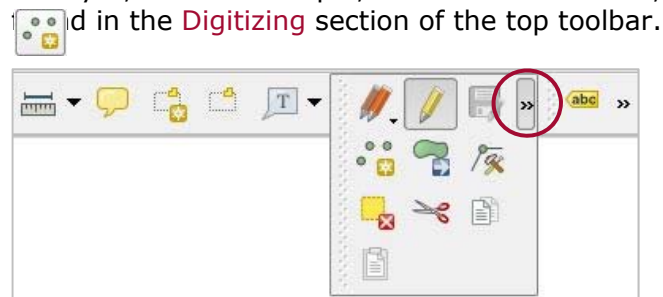
This function can also be accessed via the View Menu.

You can add a new point feature to a vector map point layer as follows:

1. Highlight the map layer that you want to add a feature to in the Layers panel on the left-hand side of the map view area, in this example, the **Parcel Database** map layer:
2. Click on the **Toggle Editing** icon found on the top Toolbar to turn on editing
3. To add a point feature, make sure you have the point layer, in this example, the Parcel Database, selected, and then click on the **Add Feature** icon





To see the **Add Feature** icon, you may have to expand the Digitizing section of the top toolbar:



The cursor will turn into a crosshair, and clicking will create a new point feature.

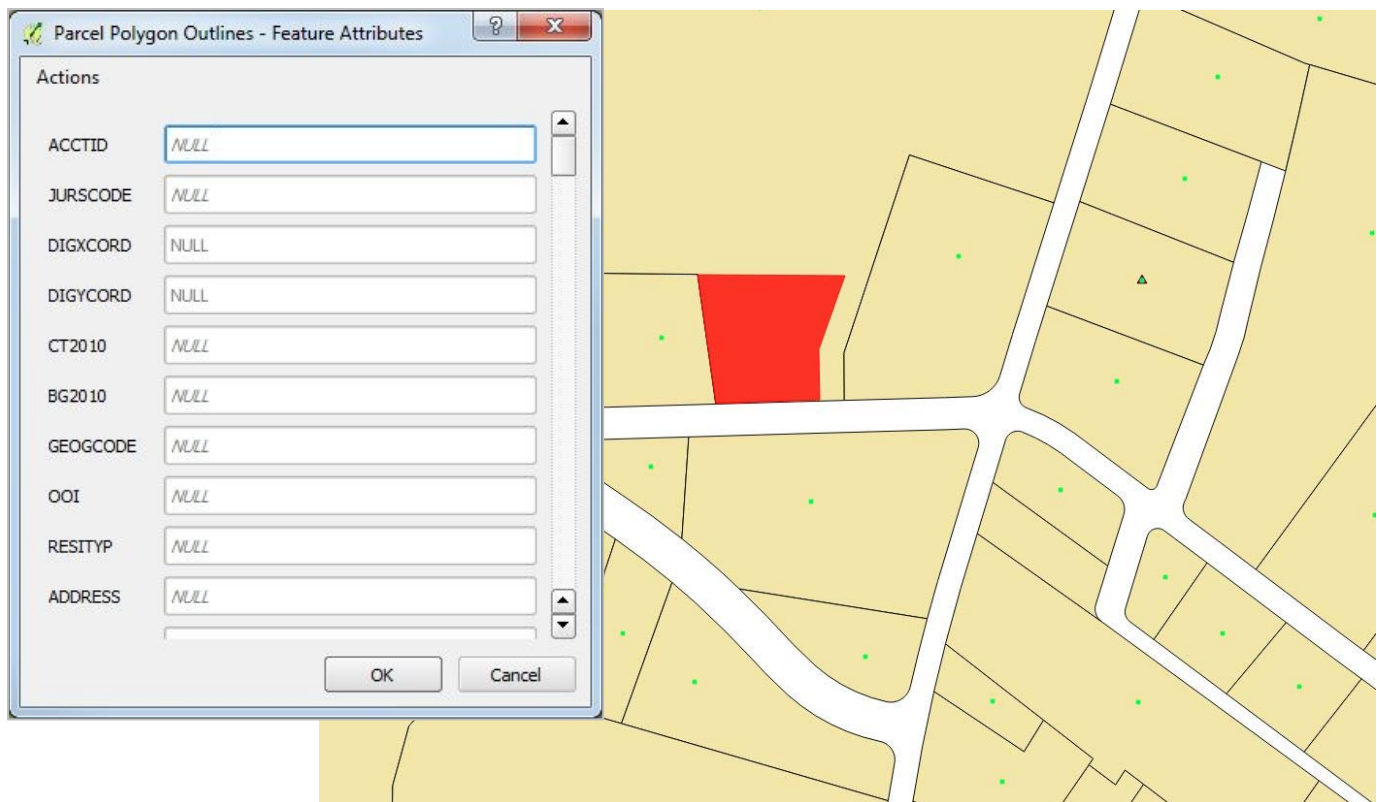
- Click where you would like to add the feature in the map view area and a **Feature Attributes** dialog window appears for the Parcel Database. Here you can enter as much or as little information as you would like about the newly-added feature.

The attributes listed in the Attributes dialog window correspond to the attributes associated with the feature you are adding. **In this example, the feature you are adding is a new database record to be added to the Parcel Database – therefore, the attributes listed are database fields.**

The steps are similar for adding a polygon feature to a vector map layer. As with the previous example, first make sure the polygon layer is selected on the Layers panel to the left of the map view area. Next, click on the **Toggle Editing** icon  and the **Add Feature** icon  in the top toolbar:

The cursor will again turn into a crosshair. But in this case, to draw the polygon, click the mouse at each place where you want to designate a vertex (corner) of your new polygon – then, when you have finished designating your vertices and closed the polygon, right-click to complete the new polygon feature.

After you complete your new polygon feature, a **Feature Attributes** dialog window appears as in the previous example, **only this time it displays polygon features, and not point features.** As in the previous example, you can enter in as much (or as little) information as you want to identify your new polygon.

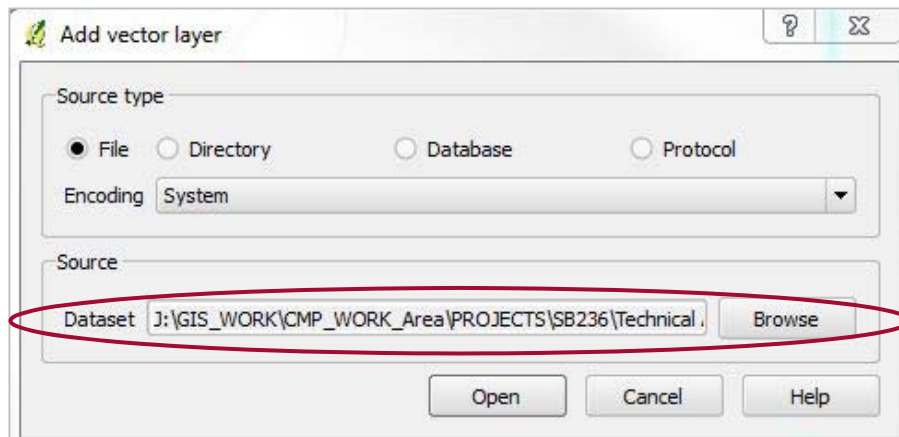




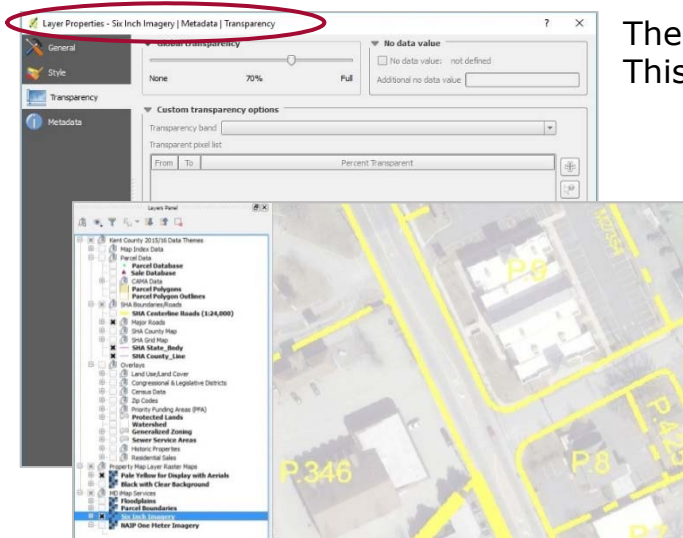
This function can also be accessed via the Layer Menu.

You can add your own external shapefile data to the current map view area by clicking on the **Add Vector Layer** icon shown to the left above. If the map layer you want to add is a geographically referenced digital raster image, click on the **Add Raster Layer** icon shown to the right above to add your image to the map view area.

Once the **Add Vector Layer** icon is open, navigate to the desired shapefile:



Your imported shapefile will automatically be re-projected to the existing coordinate reference system, in *FINDER* Quantum, NAD83 meters. See Page 25 for information about changing the symbology of a vector map layer or Page 26 for information about changing the symbology of a raster image map layer.



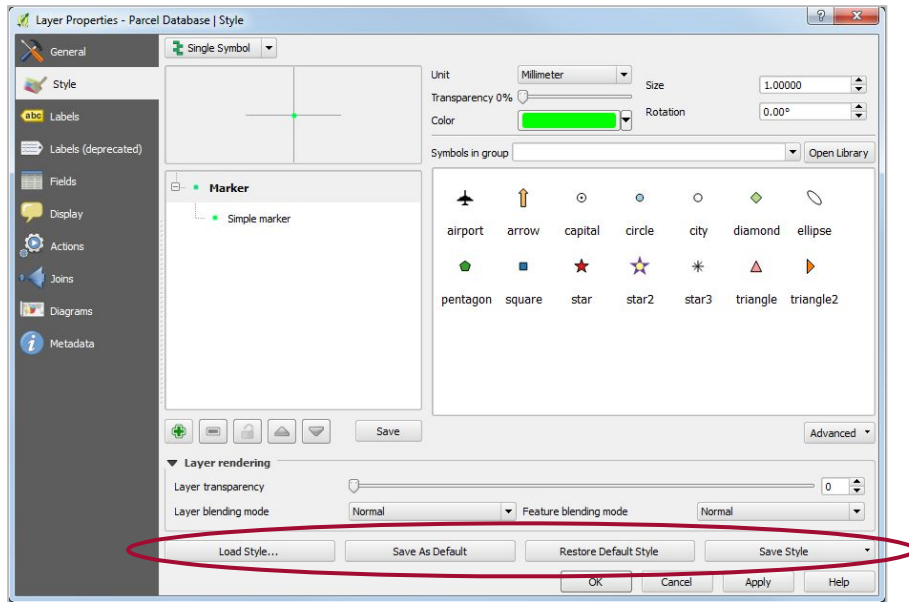
There is no tool icon for this function. This function can be accessed via the Layer Menu.

You may find it beneficial to change the transparency of aerial imagery or other data layers for map display purposes. To do this, right-click on the layer in the **Layers panel** or go to the Layer Menu, choose **Properties** and set your desired transparency level for the selected layer. Transparency can be changed for raster or vector map layers.

For vector files, right-click the layer, select properties, go to the style tab, and adjusting transparency can be found under the Layer Rendering section. **For raster files**, navigate to Transparency, under layer properties, instead of Style.

The map layers included in your *FINDER* Quantum product download have been assigned pre-designed color legends – any export or external file that you add to the map view area will be added with symbology created on the fly by the QGIS software. You can change the symbology associated with vector map layers as described below.

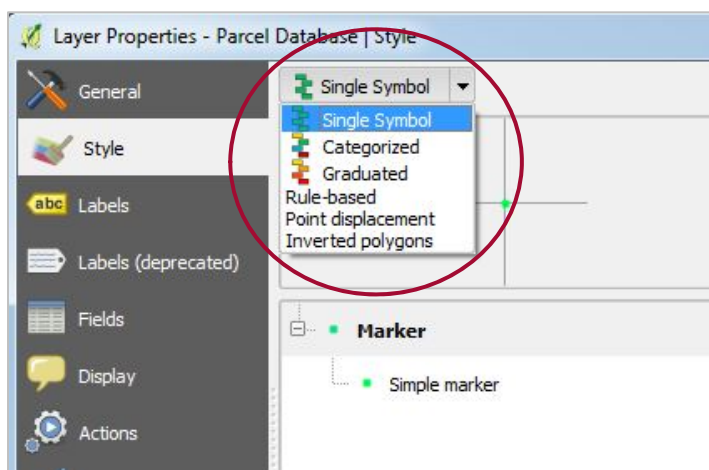
The symbology of a map layer includes such things as the size and weight of point, line and polygon outlines as well as the color of map features. To change the symbology of a vector layer within your map in order to have it appear a different color or colors, use the **Layer Properties** dialog window.



To open the dialog window, right-click on the layer in the Layers panel on the left-hand side of the map view area and select **Properties**.

This will open the **Layer Properties** dialog window shown to the left – from here, you can easily change the color, size, and transparency of a layer symbol.

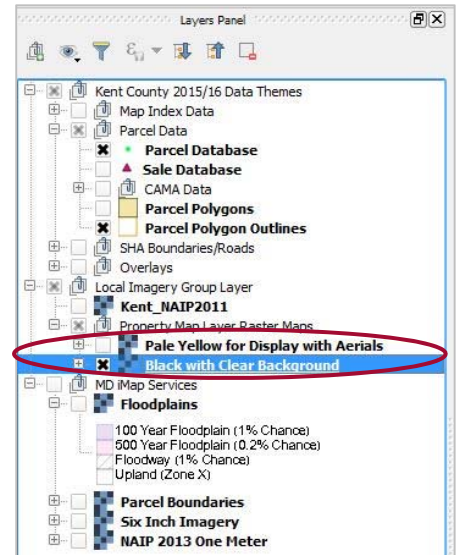
You can also save and load (open) symbology for use at a later time.



Vector map layers can be color-coded according to fields (attributes) in the dataset(s) associated with them in order to display thematic maps by Single Symbol, Unique Values or Class Break. You can color a layer in a pattern representative of an attribute, rule, or category under the **Style** tab of the Layer Properties menu.

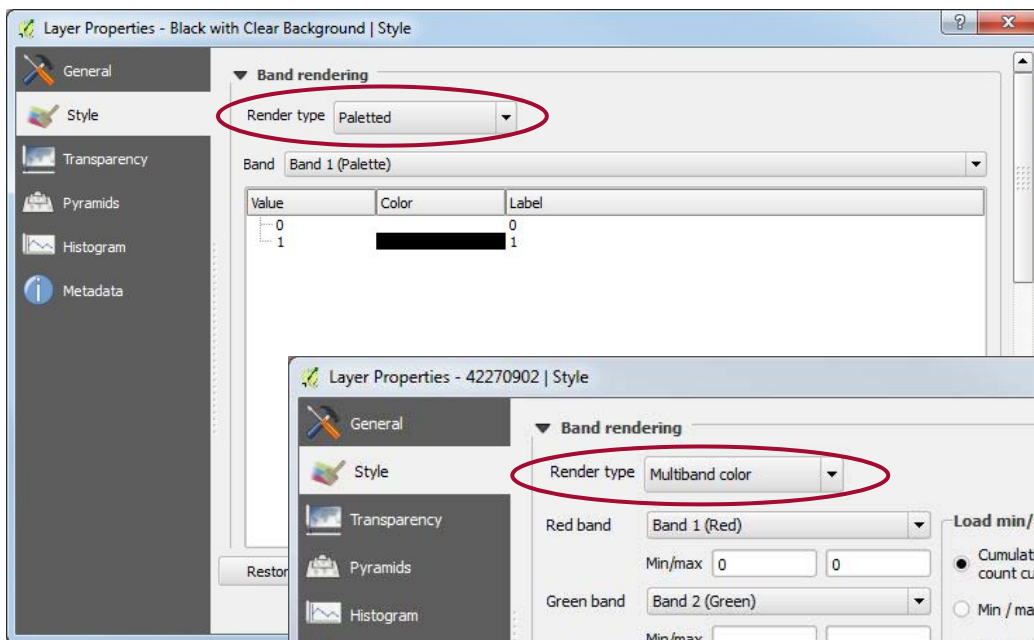
USER TIP: For additional information about changing the appearance of symbology, for example, assigning Class Breaks and Color Ramps, please see [QGIS-2.14-UserGuide-en.pdf](#) found in the `Quantum\Datadocs\Qgis` folder included in your product download.

For raster images, changing the symbology is similar to the method used for changing vector map layers, but not identical. For example, consider the **Property Map Layer Raster Maps** (tax maps) layer found under the Local Imagery Group Layer in the Layers panel on the left side of the map view area, as shown to the right:

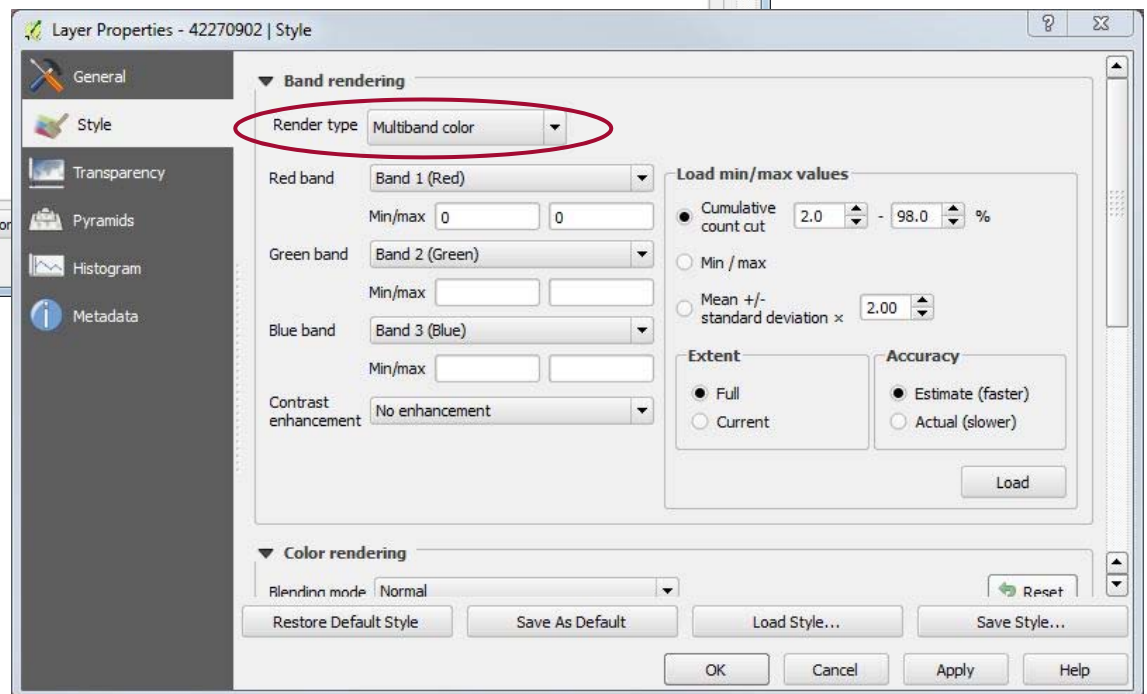


You can change the symbology of this raster layer by first right-clicking on the layer name and selecting **Properties**, as with vector map layers. With a raster layer, however, the symbology is changed in the **Style** tab.

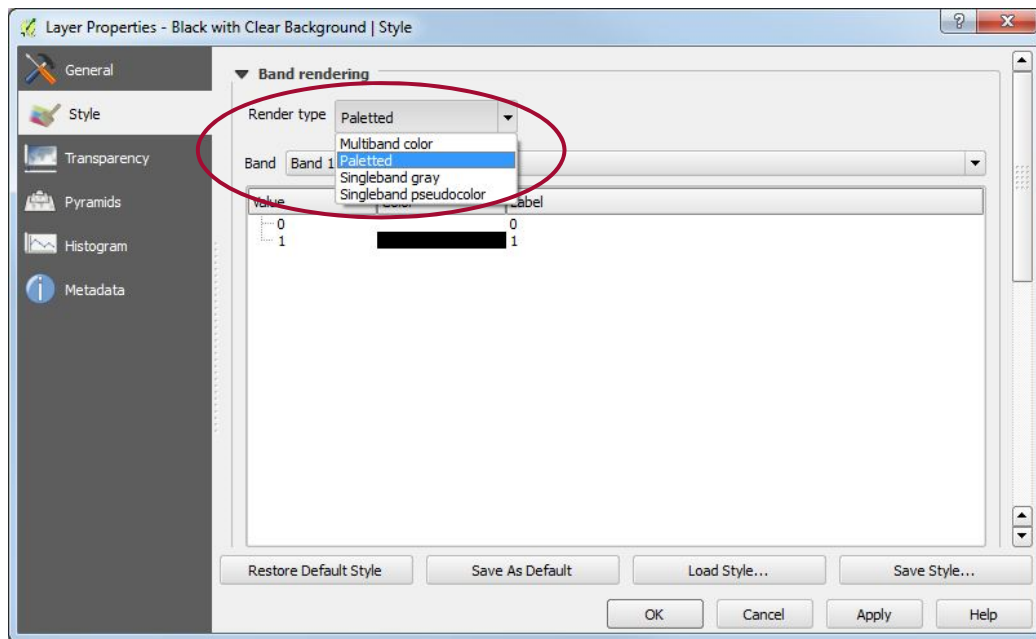
When you go to change the symbology of a raster layer that is included in your *FINDER* Quantum product download, in this example the Property Map Layer Raster Maps (tax maps), the **Render type** is set as **Paletted** for the Property Map Layer Raster Maps (tax maps):



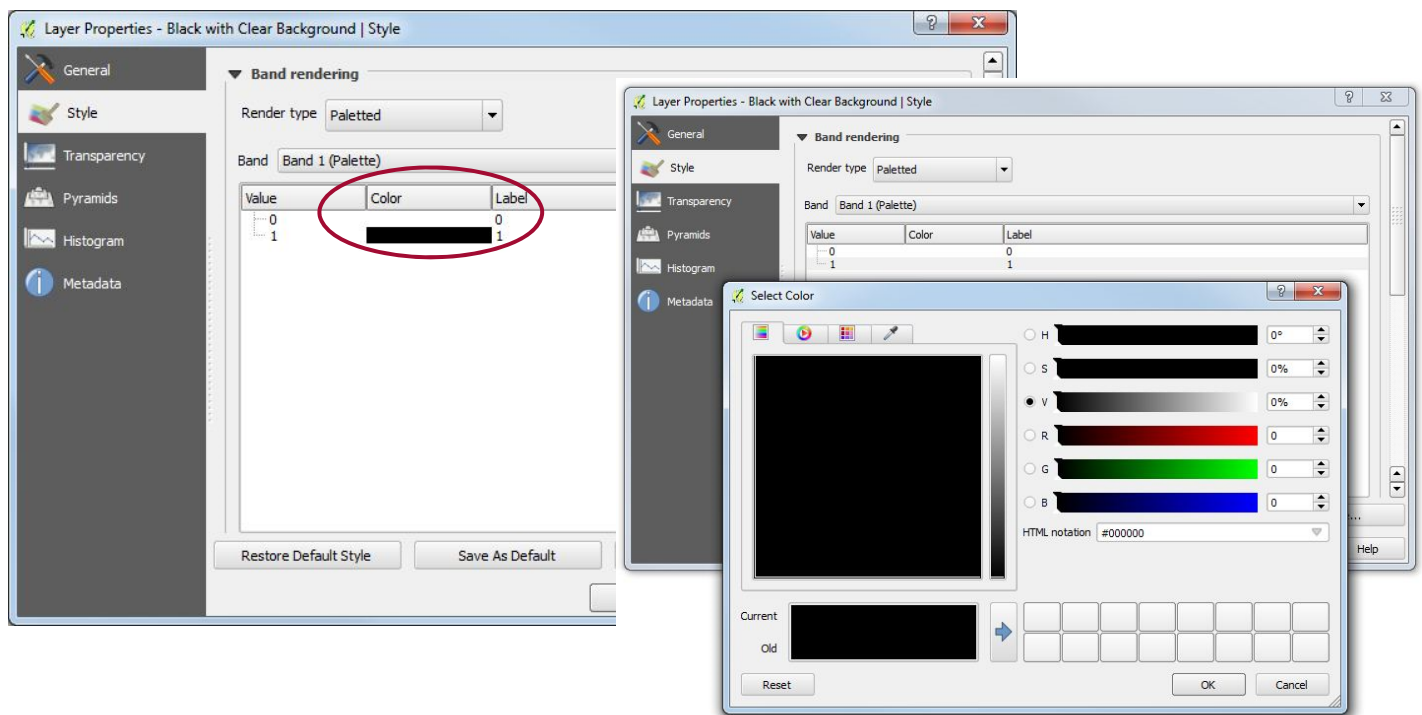
However, if you add your own raster images to the map view area, as shown below, the Render type might be different:



You can change the Render type using the drop-down menu as shown below, but be aware that changing the symbology to a more complex raster image Render type such as Multiband color can lead to unpredictable and/or unwanted results.



You can also adjust the colors and appearance of the Property Map Layer Raster Maps (tax maps) raster layer without changing the Render type by double-clicking in the Color column, as shown below – doing so opens the Select Color dialog box, where you can make additional color adjustments.

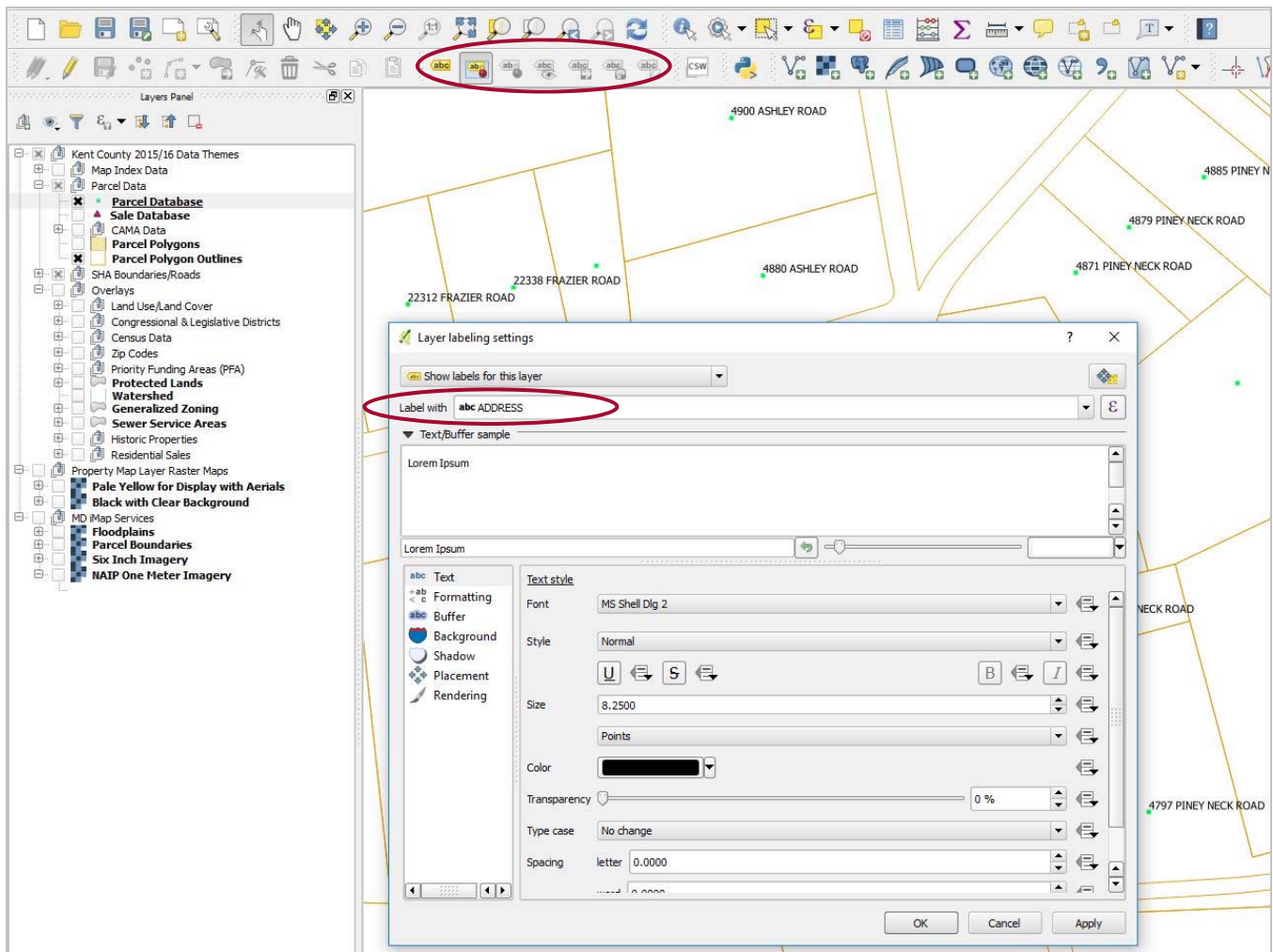




This function can be accessed via the Layer Menu.

Attributes such as Parcel Database records can be labeled for map production for any attribute feature in the database by right-clicking on the layer in the **Layers** panel, utilizing the label toolbar or going to the Layer Menu and selecting **Labeling**. Select the attribute to be labeled and then select options for size, font, color, etc. Label menu can also be accessed via the labeling toolbar or by right-clicking a layer and navigating to the labels section within Properties.

In the example shown below, the Parcel Database **ADDRESS** field was used to label parcels. The ADDRESS field was first selected under **Labels** using the drop-down menu found at the top of the **Layer labeling settings** dialog window, and then the appearance of the labels was modified using the selections found under the **Label settings** tab:



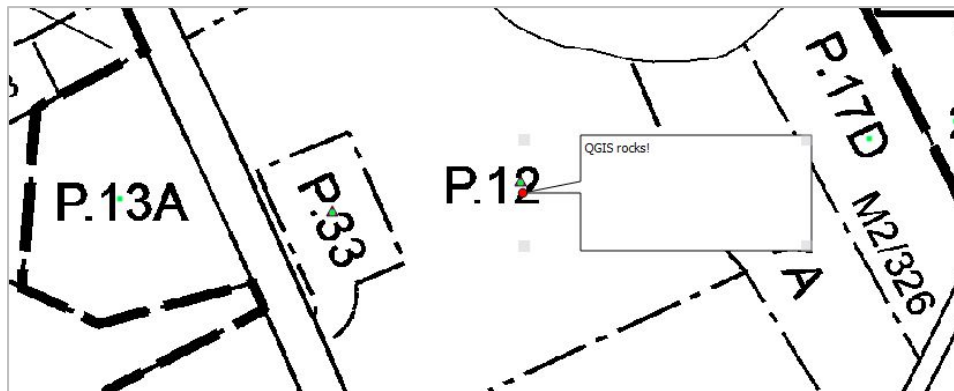
More complex labeling options are also available via the Layer labeling settings dialog window, for example, changing label orientation and multi-feature labeling. Explore the **Advanced** and **Data defined settings** tabs for these additional options.



This function cannot be accessed via a menu.

You can annotate a map with identifying notes by clicking on the **Text Annotation** icon – for example, you may want to add a note to the parcel identified in the example on the previous page, **Residential Sale in Parcel 12** and add the note without adding additional information to the actual bookmark. You can do this with Text Annotation.

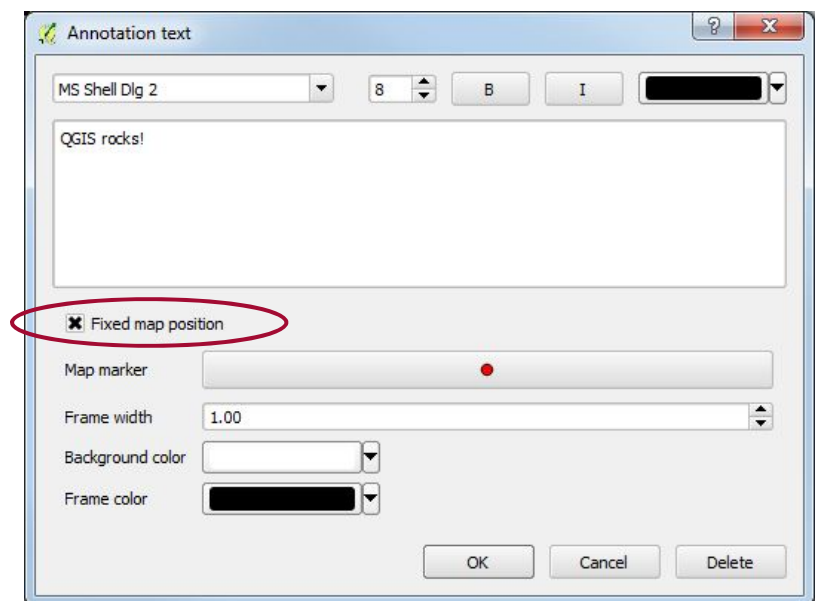
After selecting the Text Annotation tool, click in the map view area where you want to add the annotation. A text bubble will appear next to the parcel that reads **QGIS rocks!** as shown below. Note that this default note is a bit of QGIS software developer humor – not a note created by Planning.



IMPORTANT: Annotation is added as a graphic element only – that graphic element is not embedded in the map layer.

Note that if you uncheck **Fixed map position**, the text annotation box will move when you pan and/or zoom in the map window instead of staying with the labeled portion of the map – for this reason, Planning does not recommend unchecking this box.

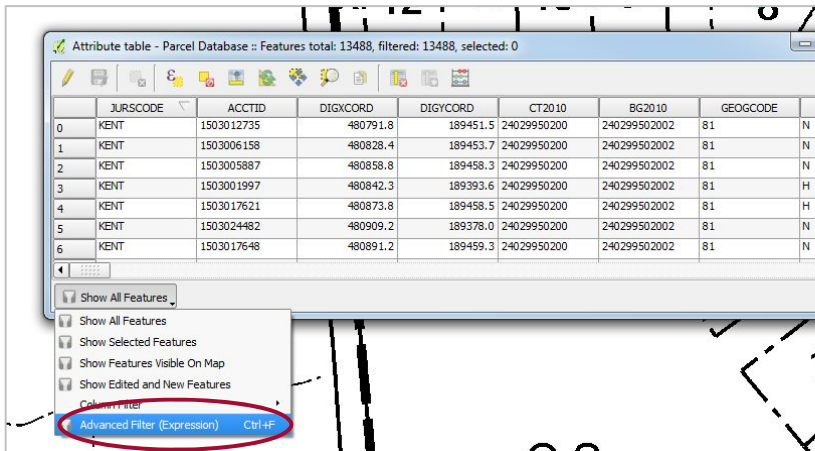
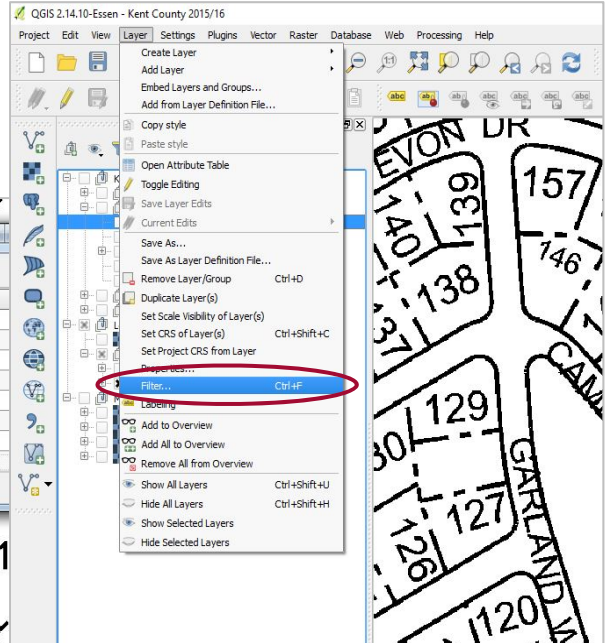
The arrow adjacent to the image in the **Text Annotation** icon allows text to be added as simple text. **Move Annotation** provides a simple way to move the annotation text box – you can also do this by clicking and dragging the annotation box in the map view area.





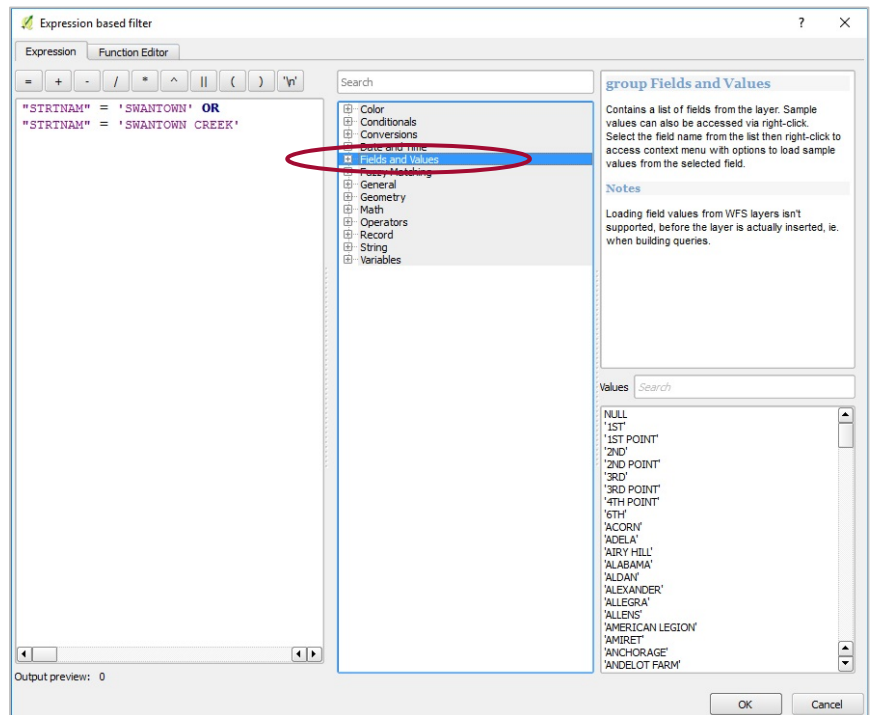
This function can be accessed via the Layer Menu.

You can perform more complex, user-defined searches by selecting **Filter** from the Layer Menu, as shown to the right, or by selecting **Advanced Filter (Expression)** from the Show All Features drop-down menu found in the lower left-hand corner of the attribute table window as shown below:



Advanced Filtering is an easy-to-use, visual method of building query expressions. Query expressions built in the **Expression based filter** window that opens when you select **Advanced Filter (Expression)** are built from a list of possible choices in order to create a precise search. The primary components of filtering are Fields and Values, representing the attribute columns and values from the table, and Operators, SQL query functions.

In the example to the right, an advanced filter has been constructed to search for all parcel features with a street address name – **Fields and Values** **STRTNAM** field) – of **SWANTOWN** or **SWANTOWN CREEK**. Common SQL query *Operators* such as **< less than** or **> greater than** or **= equal to** (used in this example) or **<> not equal to** or **IN** or **LIKE** can be used to build your search criteria.

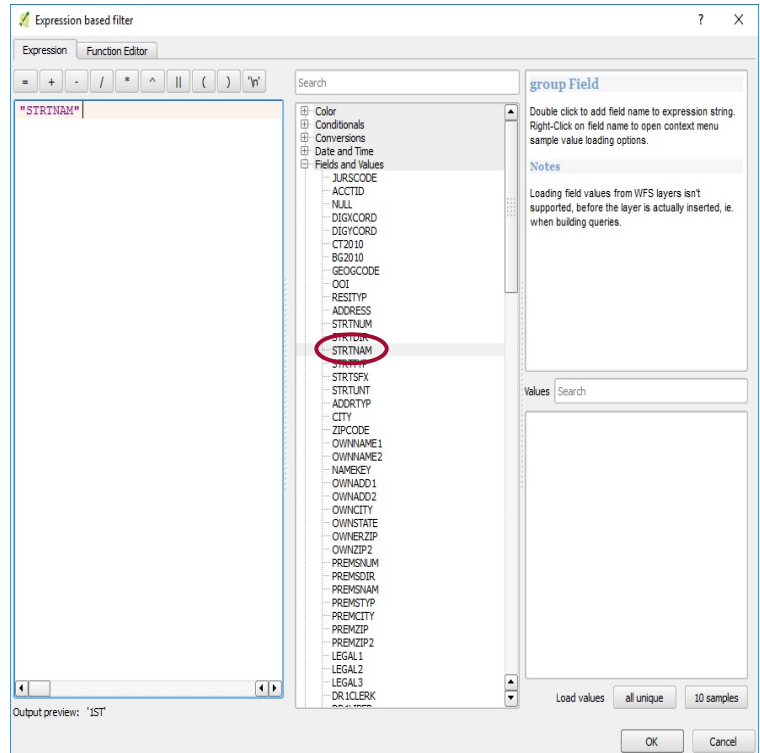


Attribute Querying Example 1: Single-Field Filter and Select

In the following example of a 2-Part Advanced search, you will search for two different street address names in the Parcel Database. First, expand **Fields and Values** in the center section of the **Expression based filter** window as shown below.

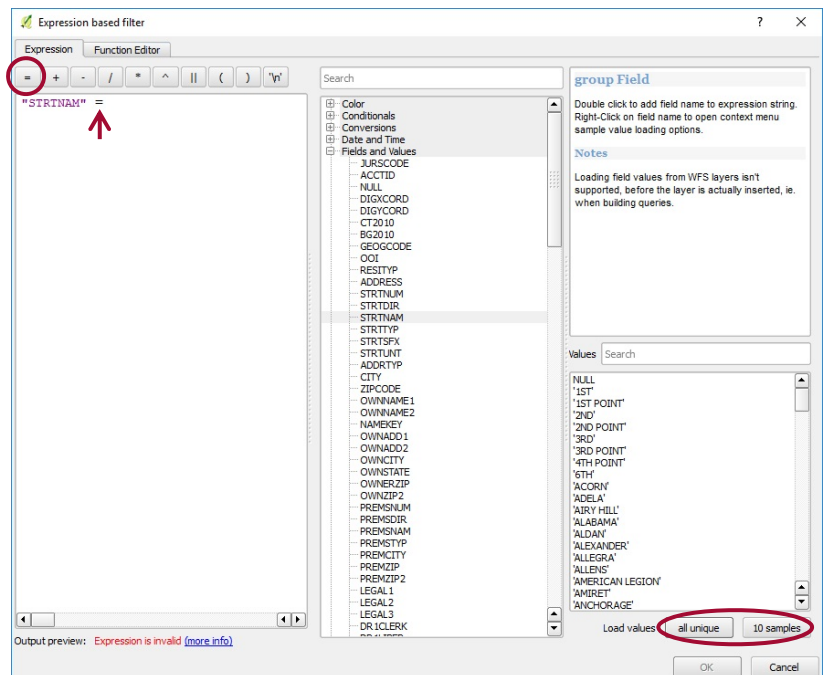
- In this example, you will be searching for **street address name (STRTNAM field) equal to SWANTOWN or street address name equal to SWANTOWN CREEK.**

In the Expression based filter window, double-click the Parcel Database **STRTNAM** field shown under **Fields and Values** and the field name will appear in the **SQL where clause** panel, or if you already know the field name, just type it directly into the SQL where clause panel as shown to the right.



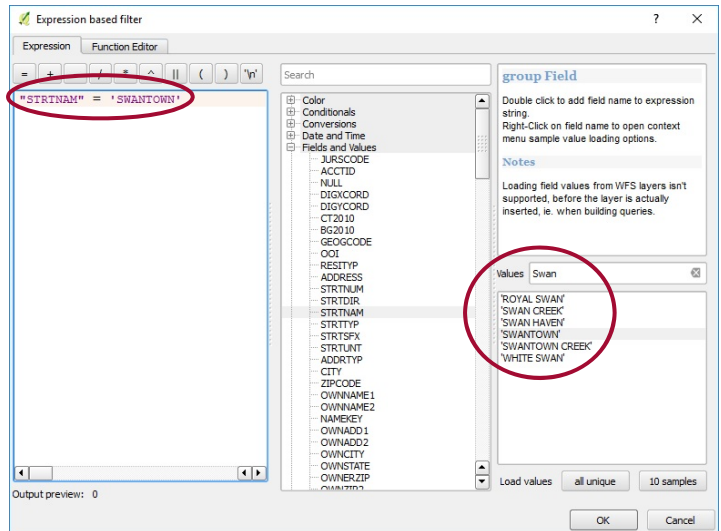
- Next, click on the **= equal to** button and an equal sign will appear in the SQL where clause panel. Then click on the **all unique** button on the right-hand side of the screen under the **Values** panel.

A list of all individual features for the **STRTNAM** field (or if you had selected another field, values for that field) will display in the **Values** panel. Do not click on the **10 samples** button, because that will only produce a sample of the values for the street address name field and not the entire set of values.

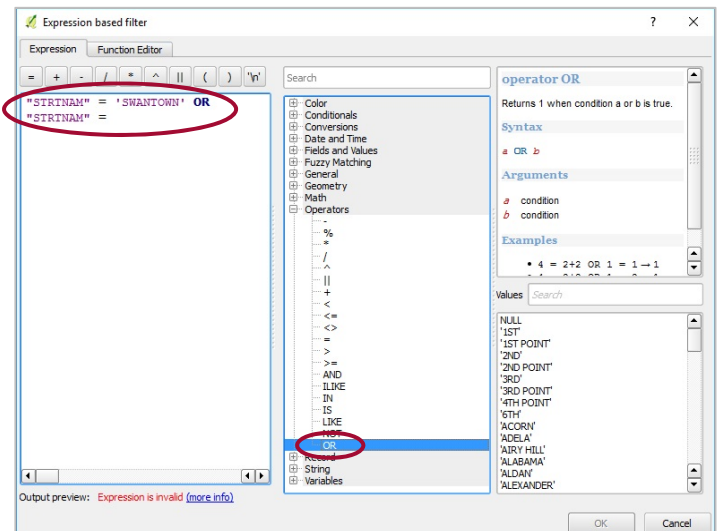


- In the **Values** panel, scroll to the entry for **SWANTOWN** and double-click on it, or type some or all of the name into the Values search.

Note that you must type single quotes around SWANTOWN if you choose to type your search criteria directly into the SQL where clause panel.

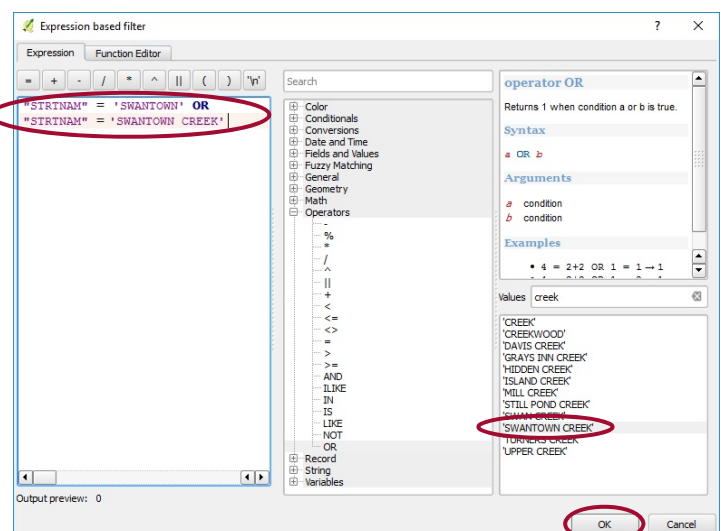


- Next, in the center section of the Expression based filter window, expand **Operators** and select **OR**, then expand **Fields and Values** again to select the **STRTNAM** field and once again click on the **= equal to** button to select that Operator and continue to build your query expression.

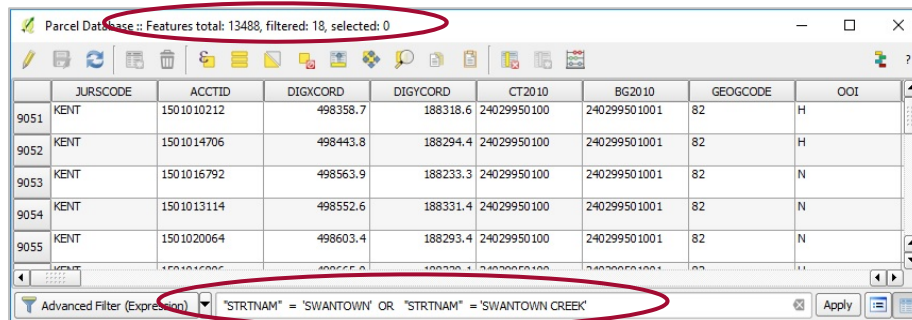


- Finally, repeat Step 3 above, using **SWANTOWN CREEK** as the second street address name in this search.

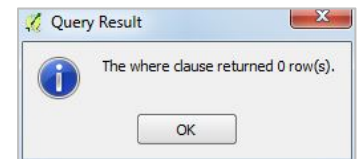
Once your criteria are selected, press the **OK** button to run the query.



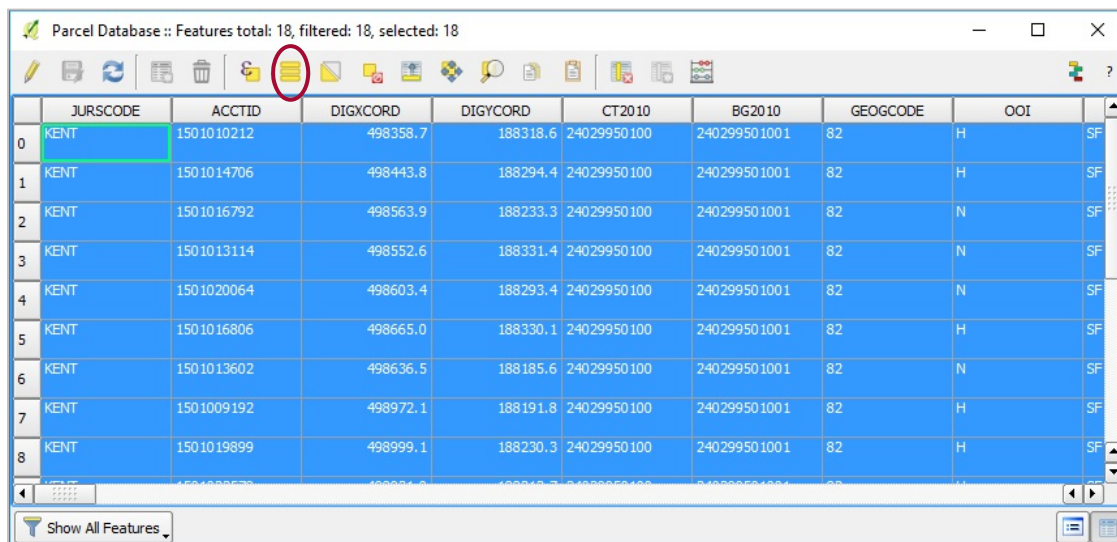
This search returns 18 matching examples of parcels for which the street name is either SWANTOWN or SWANTOWN CREEK, as shown in the dialog window below:



Note that if there were no Parcel Database records that matched your criteria, you would have received a null query dialog box instead of an Attribute table window, as shown to the right:



After the filter is complete, the 18 result parcels are shown in the **Attribute table** window. You can choose to work with your filtered results parcels by selecting the parcels and then working with your selected parcels by using the **Select All** icon in the attribute table toolbar:



IMPORTANT: Be sure to clear your Advanced Search query conditions once you are finished with your query, to ensure that your query conditions don't affect your Attribute Tables and map display as you work on other projects and analyses. Filtering restricts the layer to display and show attributes for **only** those features that meet your filter query criteria. Selection, as opposed to filtering, highlights and identifies features meeting query criteria but without restricting display or attribute tables for the layer.

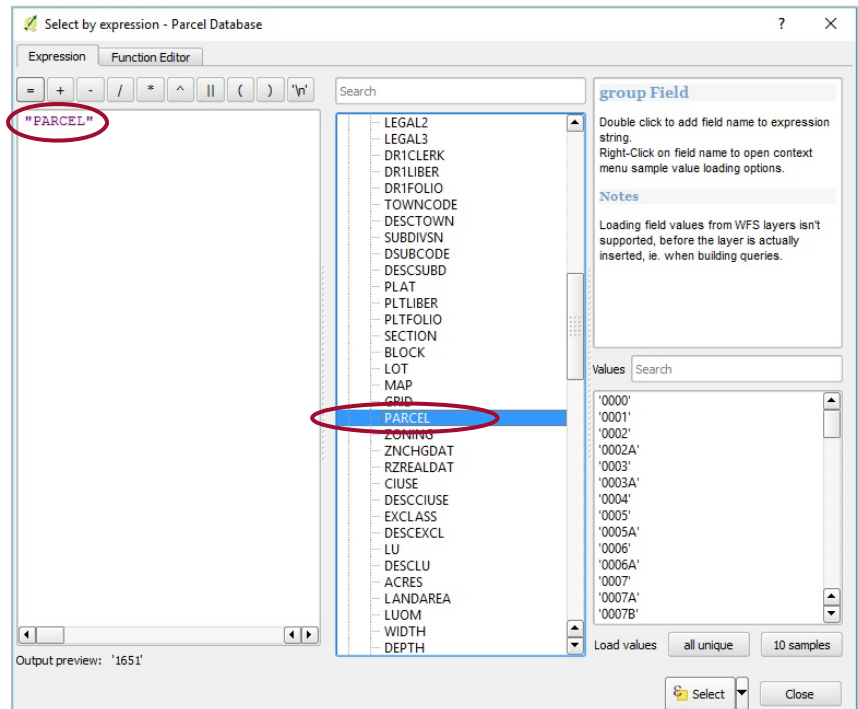
IMPORTANT: This last step allows you to select from your filtered results. To perform a selection from non-filtered results, **Select Features Using an Expression** must be performed from the attribute table of the target layer. Selection allows a user to identify specific features based on a query without restricting the overall layer. Selecting by attributes instead of filtering is discussed next.

Attribute Querying Example 2: Multi-Field Query and Select

In the following example of a 2-Part Advanced query, you will search for, and select, a particular MAP and PARCEL in the Parcel Database. First, open the attribute table for the Parcel Database and choose **Select Features Using an Expression** from the table's toolbar.

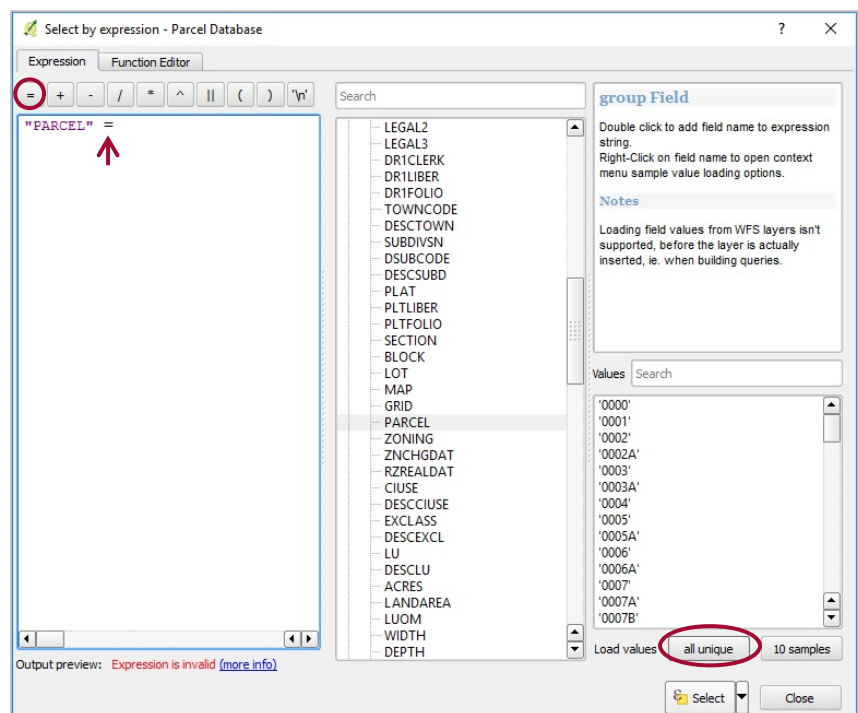
1. In this example, you will be searching for and selecting **PARCEL** equal to 0353 where **MAP** is equal to 0201.

In the **Select by expression** window, double-click the Parcel Database **PARCEL** field under **Fields and Values** and the field name will appear in the **SQL where clause** panel, or if you already know the field name, just type it directly into the SQL where clause panel.

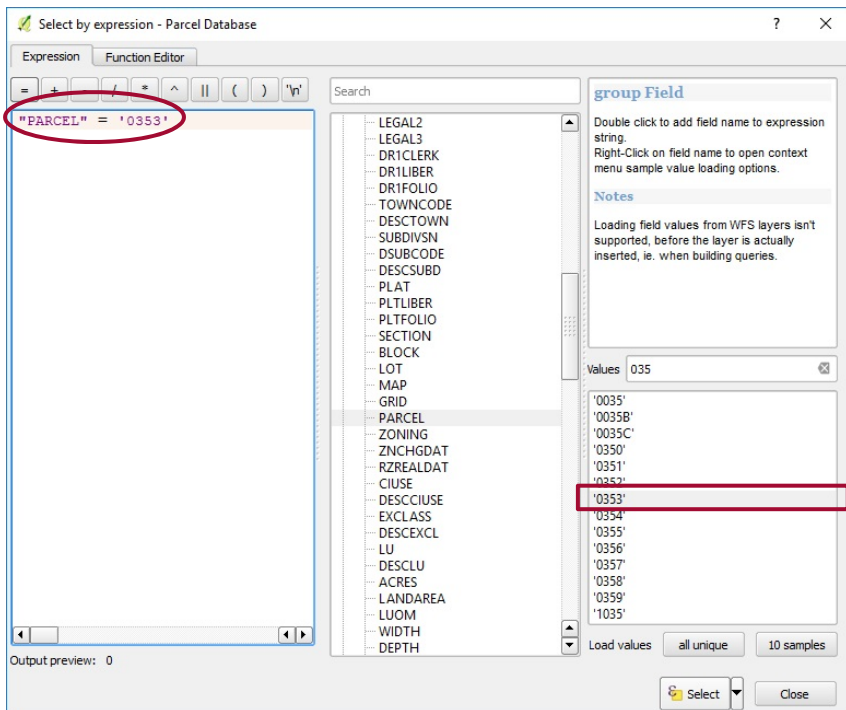


2. Next, in the center section of the Expression based filter window, expand **Operators** and click on the **= equal to** button and an equal sign will appear in the SQL where clause panel. Then click on the **all unique** button on the right side of the screen under the **Values** panel.

A list of data values for the **PARCEL** field (or if you had selected another field, values for that field) will display in the **Values** panel.

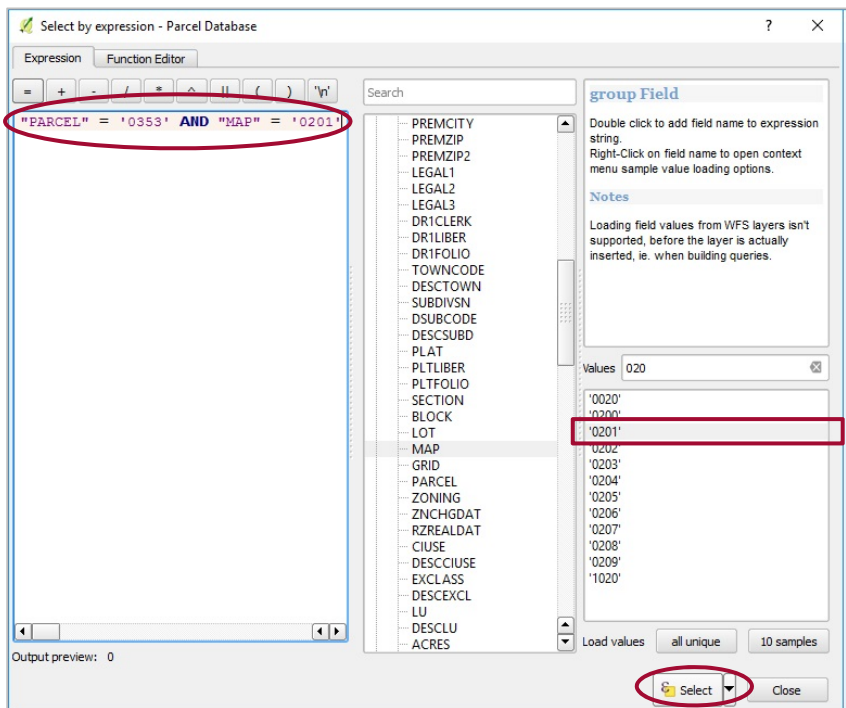


- In the **Values** panel, scroll to the entry for **0353** and double-click on it, or search for the value using part or all of the value.

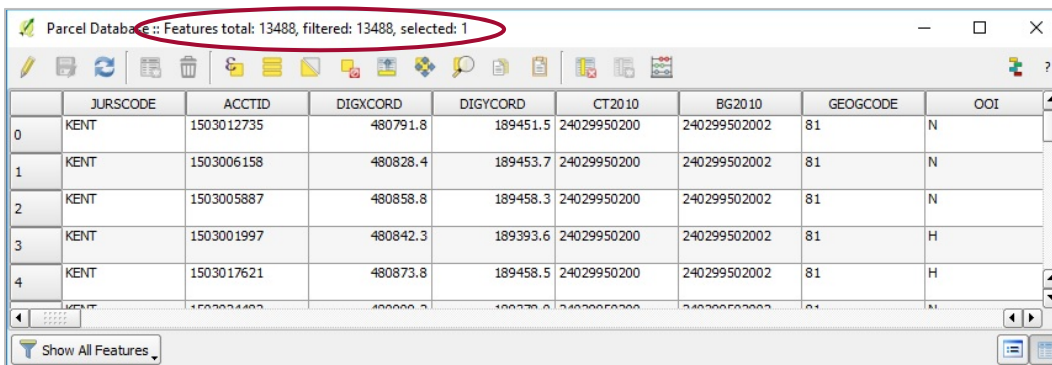


- Next, expand **Operators** in the center section of the Select by expression window and select **AND**, then expand **Fields** and **Values** again to select the **MAP** field and once again click on the **= equal to** button to select that Operator and continue to build your query expression.

Once again click on the **all unique** button on the right side of the screen under the **Values** panel and a list of data values for the **MAP** field will display in the **Values** panel. Scroll to the entry for **0201** and double-click on it, or search for the value using part or all of the value to complete your multi-field query and select. Once you are finished, click the **Select** button to execute your query.

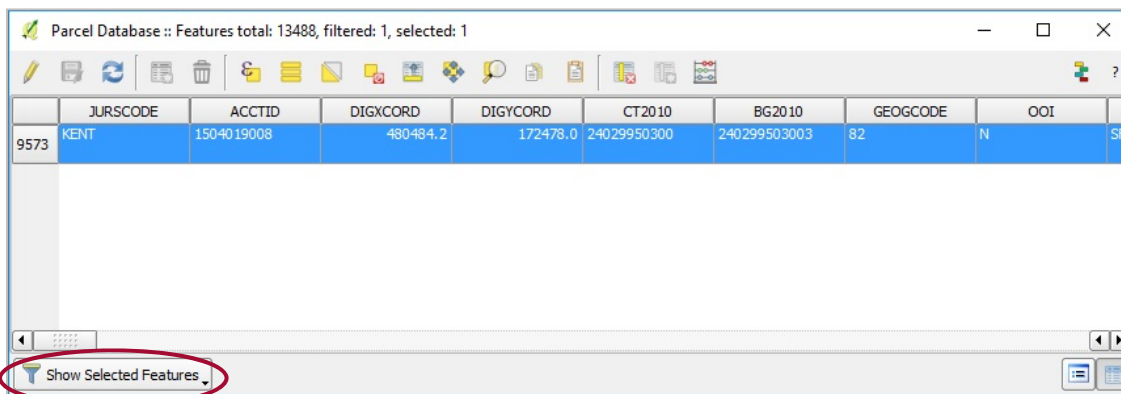


Once you click on the Select button in the Search query builder window, your search is executed. After the search has been completed, close the query window and activate the attribute table, which now displays the result of the selection at the top of the table. In this search, only 1 parcel record matched the search criteria for PARCEL 0353 and MAP 0201. This feature has been selected from the total number of features, as opposed the total features being filtered to only this single feature.



As opposed to filtering, a selection query with no results will simply show a 0 for selected. There is no pop-up window for empty returns.

To view only the selected record choose **Show Selected Features** from the drop-down menu in the lower left-hand corner of the Attribute table window:

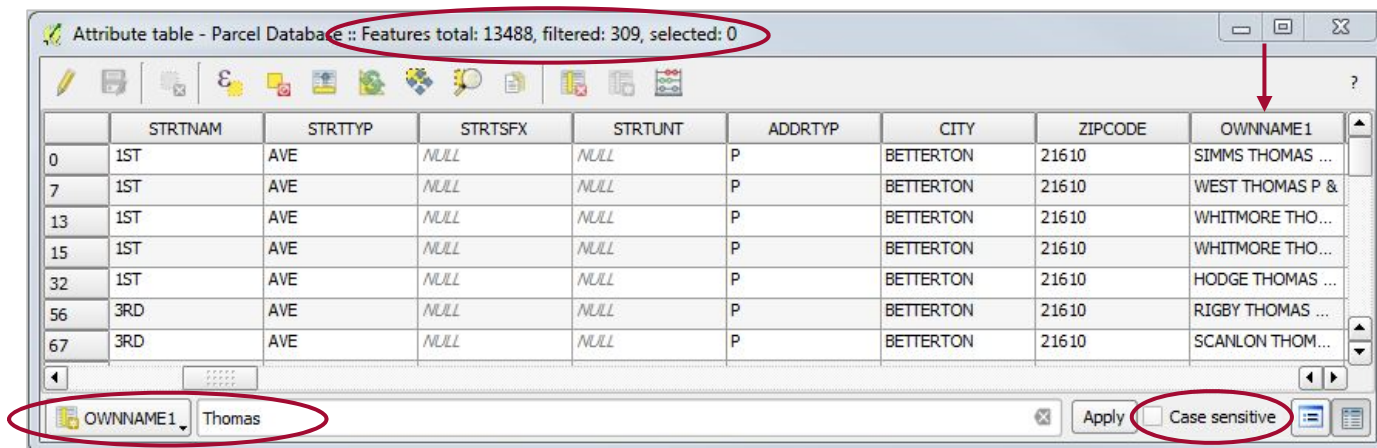


From here, you can further refine your search, select and copy the Parcel Database record that you searched for or zoom in and/or pan to the record as previously described in the **Search/Find/ Locate/Query a Record** tool description beginning on Page 17.

In previous Editions of *FINDER*, users were encouraged to utilize the **percent sign (%)** as a wildcard to aid in searching for approximate character (text) data values. This is no longer necessary for basic searching within *FINDER* Quantum, because the *FINDER* Quantum search engine is less dependent on an exact match.

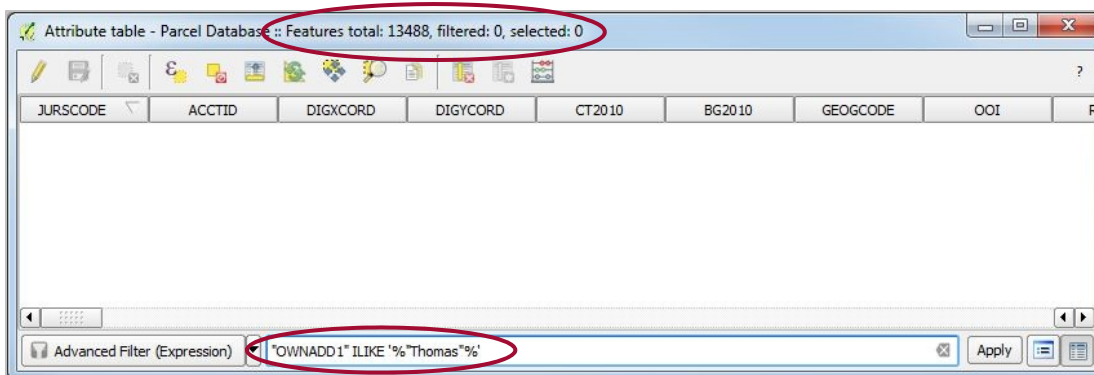
However, an implication of this is that you may need to choose your search criteria more carefully to get the results you want. If your search yields too many results, you might want to try using quotation marks around your search criteria in order to force *FINDER* Quantum to make an exact match.

In the following example, if you search for **Thomas** (without quotation marks) in owner name 1 (OWNNAME1 field), you are returned 459 search results:



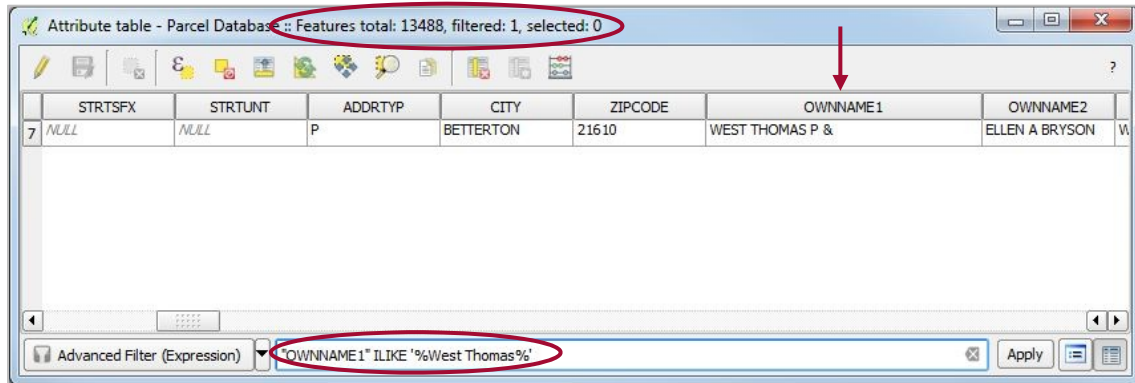
As you can see, the name Thomas is returned if it is found anywhere within the OWNNAME1 field. Also, note that your property owner search results are actually for **THOMAS** – search is not case-sensitive unless you tell it to be by checking the **Case sensitive** checkbox at the bottom of the Attribute table window. In this search, the checkbox was left unchecked.

However, in QGIS, if you use quotation marks and search for **"Thomas"** instead of Thomas, you are not returned any search results, because there are no OWNNAME1 data values that contain just the name Thomas and nothing more:

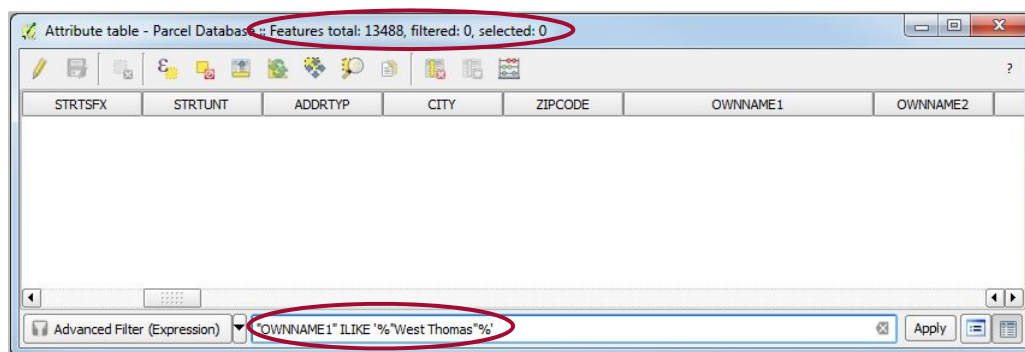


Also, note that whenever you perform a search using quotation marks, the QGIS software automatically inserts the wildcard symbol (%) as shown in the example above.

Therefore, if you are searching for a known property owner, for example, or for any other data value where an exact value is known, Planning recommends that you use exact search criteria; in this case, the entire owner name and/or quotation marks. For example, if you want to search for a property owner named **West Thomas** you can type in the entire name to perform your search and get back fewer and more targeted search results:



However, bear in mind that in this example, the search results returned are actually for a property owner named **West Thomas** – therefore if you had used quotation marks and searched for West Thomas there would have been no search results returned:



Therefore, Planning’s recommendation is that you perform your searches without quotation marks, but that you use search criteria that are as specific as possible. You can always refine your search using quotation marks as needed, after you perform your initial search.

IMPORTANT: If your search is not returning any results, make sure that the **Case Sensitive** button is unchecked in your search. This button is checked by default in *FINDER* Quantum – uncheck this OPTION to more easily search character (text) fields that contain both upper and lower-case data values. Finally, note that clicking on a field header in the Attribute table window sorts all parcel records in the table on that field in ascending order, and clicking on the field header again toggles the sort between descending and ascending sort order:

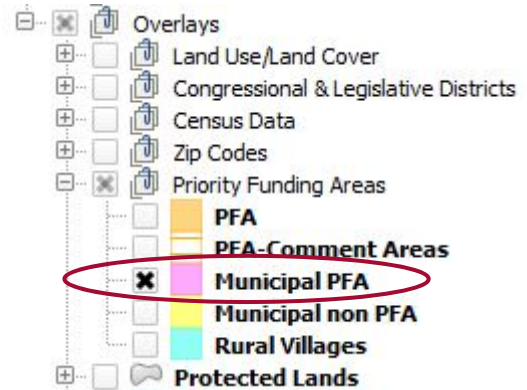
21117 feature(s) selected				
	OWNSTATE	OWNERZIP	OWNZIP2	PREN
R	NULL	NULL	NULL	6405
FE	NULL	10011	2264	108
	AE	09464	9998	6447
	AE	09624	NULL	21765
	AE	09839	4900	200
	AE	09464	0045	7918
	AL	35243	2022	305
	AL	36420	1228	8579



This function can also be accessed via the Vector Menu.

To select entries within a desired subset of data and/or a selected map location that contain certain features, use the Spatial Query tool. In the following example, you will select all parcels from the Parcel Database that are in Kent County Municipal Priority Funding Areas and that have a corresponding Sale record in the Sale Database.

1. To begin, first make sure that the **Municipal PFA** map layer is turned on in the **Layers panel** on the left-hand side of the map view area, as shown to the right.
2. Click on the Spatial Query Tool shown above and the **Spatial Query (parameters)** dialog window opens. From here, you can perform a wide variety of spatial queries. For now, you are going to select source features (database records) from the Parcel Database map layer where the source features intersect with the Municipal PFA map layer.



3. First, choose the **Parcel Database** under the **Select source feature from** section of the Spatial Query (parameters) dialog window.

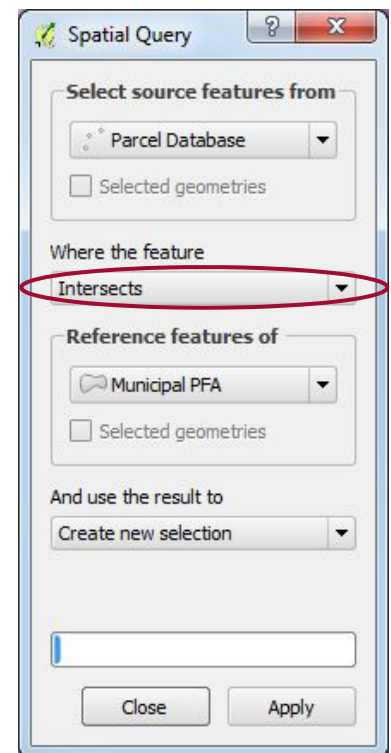
Next, choose the **Municipal PFA** under the **Reference features of** section of the Spatial Query (parameters) dialog window.

After you make both selections, the middle section of the Spatial Query (parameters) dialog window, **Where the feature**, should read **Intersects**. If it doesn't, manually change the setting to Intersects.

You can adjust this relationship as necessary when building your own spatial queries. Intersects is the setting in this example because the Parcel Database map layer and the Municipal PFA map layer spatially overlap. Depending on the map layers queried, other possibilities might be **Crosses** or **Is disjoint** or **Touches** or **Within** etc.

For example, if both of the map layers you were using were point layers, the setting would be **Equals**.

4. Once your first set of query parameters has been selected, click on the **Apply** button and the query will run.



Note that the **selected geometries** box in the **Select source features from** section of the Spatial Query (parameters) dialog window should be checked only if you are ready to run your final query on the currently selected features. This would be useful if, for example, you had already selected a particular Municipal PFA feature and you then only wanted to select all parcels within that particular Municipal PFA to finish. The Spatial Query in this example is more complex, as illustrated on the next page.

- Once you click apply, the Spatial Query (parameters) dialog window expands out to the right and becomes a **Spatial Query (results)** dialog window, as shown below. The Spatial Query (results) dialog window shows you a list of the selected features for your query – the results of your query. At this point in the query, the **Result query** section of the dialog window shows that there are **3,986 Parcel Database parcels** currently located within Kent County Municipal PFAs.

Unfortunately, the **Result feature ID's** shown in the **Result query** section of the Spatial Query (results) dialog window are not a useful way of viewing query source features (in this example, Parcel Database parcels) that fit your query parameters. Why? Because Result feature ID's are merely random ID numbers assigned to your query source features, in this case, Parcel Database parcels that fit your query parameters, by QGIS. You can't tell which parcel accounts have been selected by viewing the Result feature ID's.

Ending a Spatial Query

If you were going to end this spatial query here, a better way to view your query results would be to click on the button circled below in the **Selected Features** section of the Spatial Query (results) dialog window. Doing this exports the results of your query to a new map layer and you can then view the query results attribute table associated with the new query map layer.

IMPORTANT: Note that the **Zoom to Item** checkbox in the **Result features ID's** section of the window is not consistently operational with database layers – therefore Planning does not recommend checking this box as a way of viewing your query results.

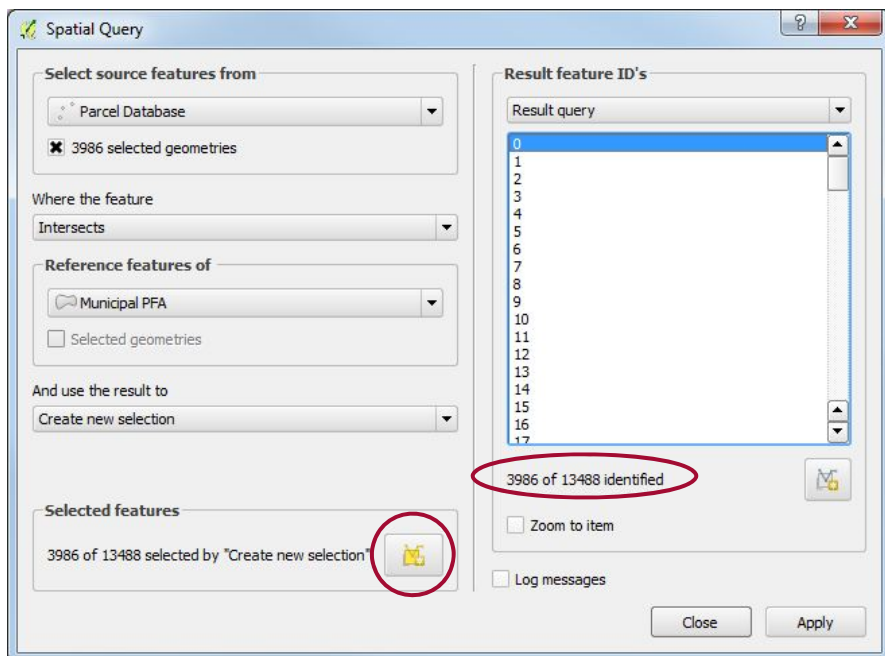
Continuing on to Build a Two-Step Spatial Query

- In this example, because you are not ending the query at this point, you will now take advantage of the QGIS feature that gives you the ability to run another query based on the query current results.

IMPORTANT:

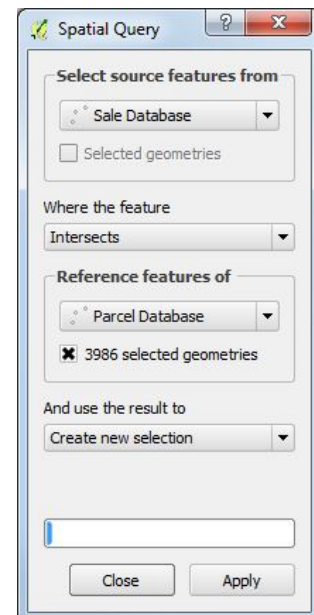
If you don't see a Spatial Query (results) window as you are building a two-step query or once your query is complete, it might be because the window has "gone behind" the map view area.

To fix this, click on the icon at the bottom of the map view area to view what's behind the map view area:



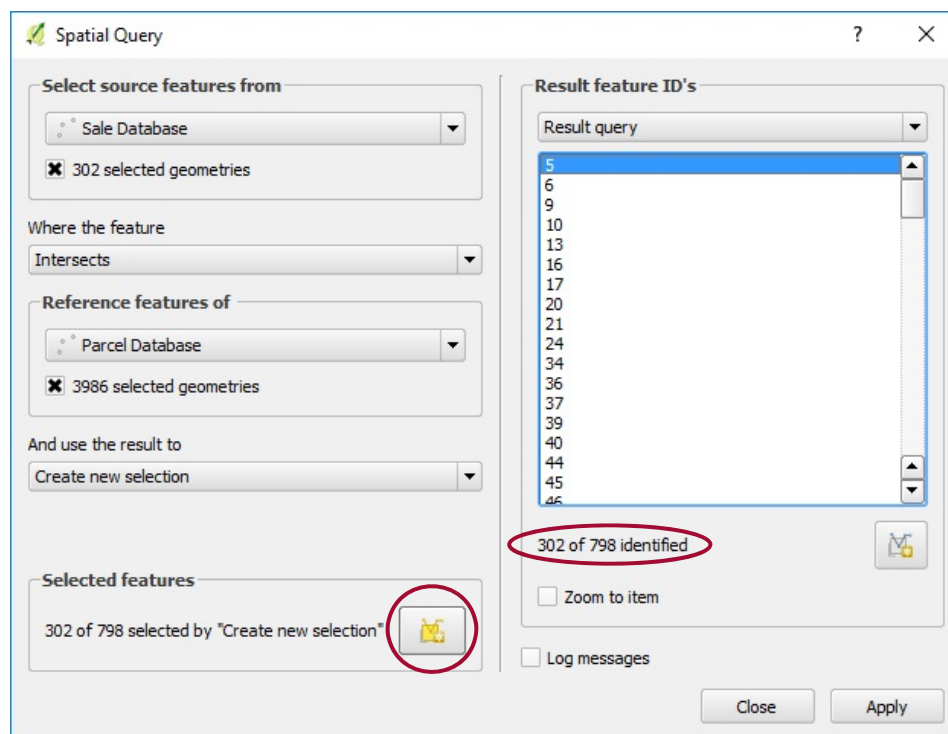
- First, choose the **Sale Database** under the **Select source features from** section of the Spatial Query (parameters) dialog window. Once you make this selection, the Spatial Query (results) dialog window contracts back into a Spatial Query (parameters) dialog window so you can enter the rest of your parameters for the next stage of this query.

Reference features of should be set to the Parcel Database parcels selected in the first stage of your query, those within the Municipal PFA, and **Where the feature** should still be set to **Intersect** because the Sale Database –and the Parcel Database parcels within the Municipal PFA – spatially overlap.



- When the final Spatial Query (results) dialog window opens, you can see that **798 of the 3,986** Parcel Database parcels selected in the first stage of this query are Sale Database parcels, and that **302 of these 798 Sale Database parcels are currently located within Kent County Municipal PFAs**.

You can now create your own map layer out of the spatial query results by clicking on the button circled below in the **Selected features** section of the Spatial Query (results) dialog window, as described under **Ending a Spatial Query** on the previous page.



- As you can see below, final query results map layer from your two-part query is automatically added to the Layers panel on the left-hand side of the map view area and your query results are displayed in the map view area. All of the Sale Database attributes selected in the query are transferred over into the new map layer.

From within the query results **Attribute table** window, you can run additional queries and/or apply custom symbolization to this layer. You can also export this map layer to Microsoft Excel or to Google Earth as a .kml file.

The screenshot displays the QGIS 2.14.10 interface with a map of Kent County, 2015/16. The Layers Panel on the left shows various data layers, including 'Sale Database selected'. The 'Spatial Query' dialog box is open, showing the following configuration:

- Select source features from:** Sale Database (302 selected geometries)
- Where the feature:** Intersects
- Reference features of:** Parcel Database (3986 selected geometries)
- And use the result to:** Create new selection
- Selected features:** 302 of 798 selected by "Create new selection"

The 'Result feature ID's' window shows a list of feature IDs from 5 to 45. Below the map, the 'Sale Database selected' attribute table window is open, showing the following data:

JURSCODE	ACCTID	DIGXCORD	DIGYCORD	CT2010	BG2010	G
KENT	1501001175	496795.5	186582.7	24029950100	240299501001	82
KENT	1501001361	500418.8	177308.6	24029950100	240299501004	82
KENT	1501002457	496881.2	186772.4	24029950100	240299501001	82
KENT	1501002651	496673.8	186496.8	24029950100	240299501001	82



Save Project

This function can also be accessed via the File Menu.

The work that you do in a *FINDER* Quantum session can be saved to your own **custom QGIS project file (.qgs)**. The project file saves any changes that you have made to the map view area and to the Layers panel on the left-hand side of the map view area. The saved changes may include additional layers and tax maps added to the map view area, layer classification and color changes and the zoom extent at the time of the save. When you open your saved custom QGIS project file to resume work, the map view area loads as it was the last time you saved it.



Save Project As

This function can also be accessed via the File Menu.

Click on the **Save Project As** icon to save one of your existing custom project files as a new custom project file under a different name.



Open Project

This function can also be accessed via the File Menu.

To open one of your existing custom project files after the QGIS software has already been launched, click on the **Open Project** icon and navigate to your saved custom QGIS project file (.qgs).



New Project

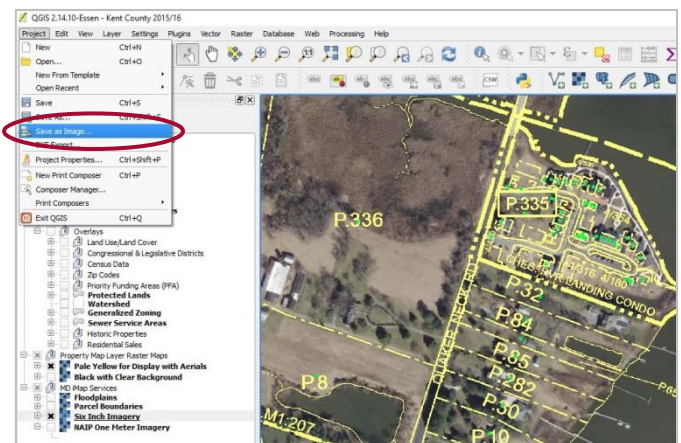
This function can also be accessed via the File Menu.

To create a new custom project file after the QGIS software has already been launched, click on the 'New Project' icon on the top left corner of the toolbar.

Note that if you select this option and you already have an existing project open, the QGIS software will ask if you wish to save your current (open) project file. This occurs because the QGIS software does not allow you to have two project files open simultaneously without running an additional session of the QGIS software.

There is no tool icon for this function. This function can be accessed via the File Menu.

On the **File Menu** you can choose to save your current screen display as an image file (.bmp, .jpeg, .tif, etc.). Images can be saved to your desired location and then printed as a quick way to print an area of your map display or inserted into documents or presentations such as Microsoft PowerPoint presentations.





This function can also be accessed via the File Menu.

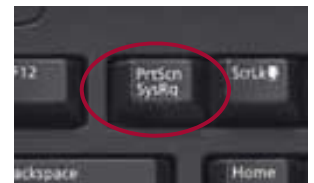
FINDER Quantum offers several improvements in printing and PDF/image export that were unavailable in earlier Editions of *FINDER*. Most notably, navigation of items within the print canvas is more fluid and customizable. What follows is a brief overview of the main print and export tools that you need to successfully print and export a map from within the *FINDER* Quantum map view area.

USER TIP: Planning encourages users to seek out further printing and export options and explanations provided in [QGIS-2.14-UserGuide-en.pdf](#) found in the [Quantum\Datadocs\Qgis](#) folder included in your product download.

Printing What's on Your Computer Screen



Many times, all you want is a simple snapshot image of what is currently displayed on your computer screen. To capture and print exactly what you are viewing, follow these simple steps:



1. On your keyboard, locate the **PrntScrn** button, usually found at the top of the keyboard.
2. Use the Alt-PrntScrn key combination to copy the active window. Your screen display will be copied to the Clipboard, similar to copying and pasting text.
3. Open MS paint or any other image editor and press the **Ctrl-V** keys to paste your screen display into the software and then print your screen display from within Microsoft Paint or your selected image editor.



IMPORTANT: Alt+Print Screen allows you to capture only an active window, such as an attribute table, versus the entire screen. Microsoft's **Snipping Tool** is another useful resource for targeted captures.

Setting up the Print Canvas to Print or Export

To print and/or export to PDF/image, click on the **New Print Composer** icon  or access New Print Composer via the File Menu. This opens a new window with a blank print canvas.  are several options noticeable on the right side of the print canvas including composition and snapping.

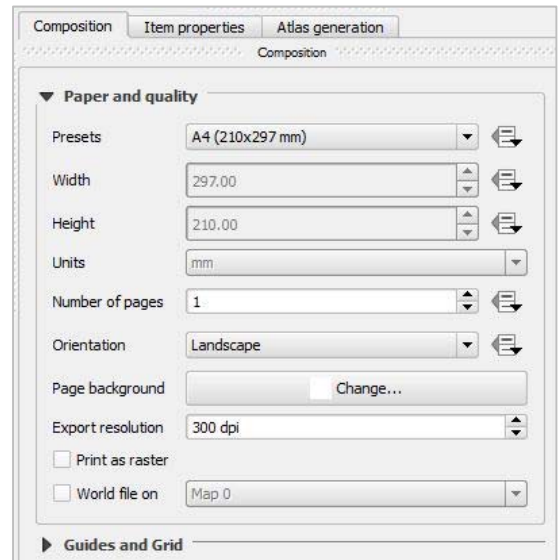
For now, click on the **Add New Map** icon  in the left toolbar. After you click the icon, it becomes active but nothing appears in the print canvas. g the mouse, left-click somewhere in the top left area of the print canvas, drag the mouse across the canvas and release the mouse. A border immediately appears where you drew on the canvas. After approximately 5 to 10 seconds, depending on the speed of your computer, the *FINDER* Quantum map view area will appear in the area you created on the print canvas. You can adjust the print canvas area in 2 ways:

- To adjust the entire area to be printed or exported from within the print canvas, click and drag one or more of the 4 corners of the framed area you just created when you dragged and dropped the mouse. Notice that for this task, the Select/Move item tool  from the top bar is active:
- To move the contents within the print/display portion of the print canvas, click on the **Move item Content** icon  and move the items within the print area by dragging them with the mouse.

Print Composer Options

- To print the print canvas select the **Paper and quality** size, orientation, and quality desired from the bottom left menu under the **Composition** tab, then go to File > Print or click on the **Print** icon

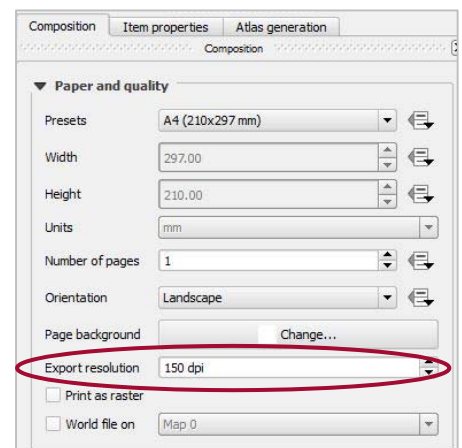
IMPORTANT: If you are printing a map that includes an MD iMap web map service and that imagery does not appear as part of your printed map, you may have to take a screenshot of the map view area using the **Alt-PrintScrn** key combination and then paste the screenshot into your software of choice and then print in order to create a printed map that includes this imagery.



- To export to a file from the print canvas, you can choose from among three export formats; image file (PNG, BPM, TIF, JPG, etc.), PDF or SVG. Click on the icon corresponding to the format you desire, image PDF or SVG

IMPORTANT: When exporting a map that includes an MD iMap web map service (WMS), you may have to to create an export file that includes this imagery for that imagery to appear as part of your exported file if the MD iMap imagery doesn't print. **If that happens, you must reduce the composition's DPI settings to 150.**



Note that changing this setting will slightly reduce the image quality, and the change will only affect the current Print Composer template. If you want to export a different image later, you will have to change the DPI setting again.



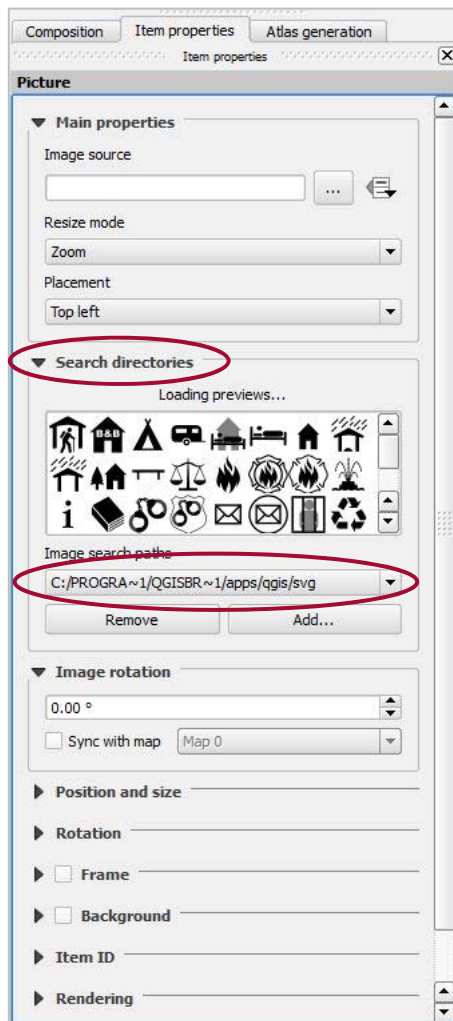
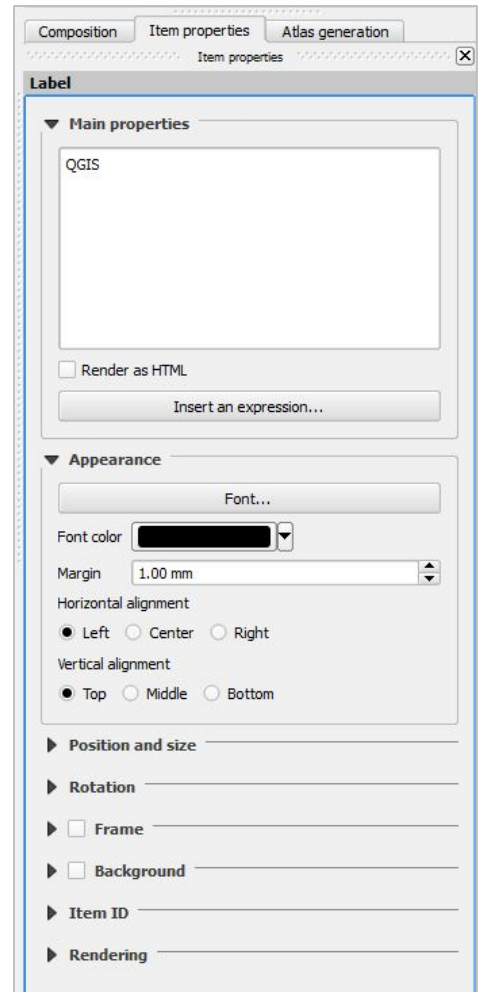
- To save the **Print Composer** in its current state and with the current contents included, click on the **Save As Template** icon – you can then open this template at a later time using the **Load From Template** icon:

The **Composer Manager** icon accessed via the *FINDER* Quantum map view area or accessed via the File > Composer Manager menu option also allows access to previously saved Print Composer templates.

Print Composer Options Using the Item Properties Tab

- To add a label to your map click on the **Add New Label** icon  and then click anywhere on your map. To change the text within the label, change label alignment, the label color, etc. use the **Item Properties** tab shown to the right and found in the bottom-right corner of the print canvas:
- To add a picture to your map such as a North Arrow, click on the **Add Image** icon  and then click anywhere on the print canvas.

Preloaded images are readily available in the **Search directories options** sub-menu of the Item Properties tab, shown below. Also available in this sub-menu is an option for you to add or remove searchable directories that contain images in SVG format, as shown below:



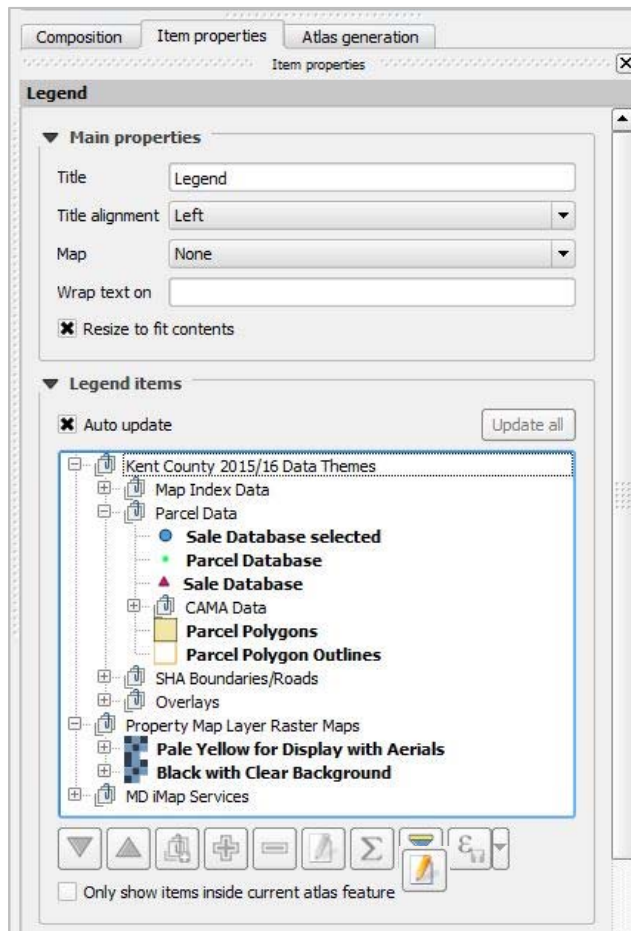
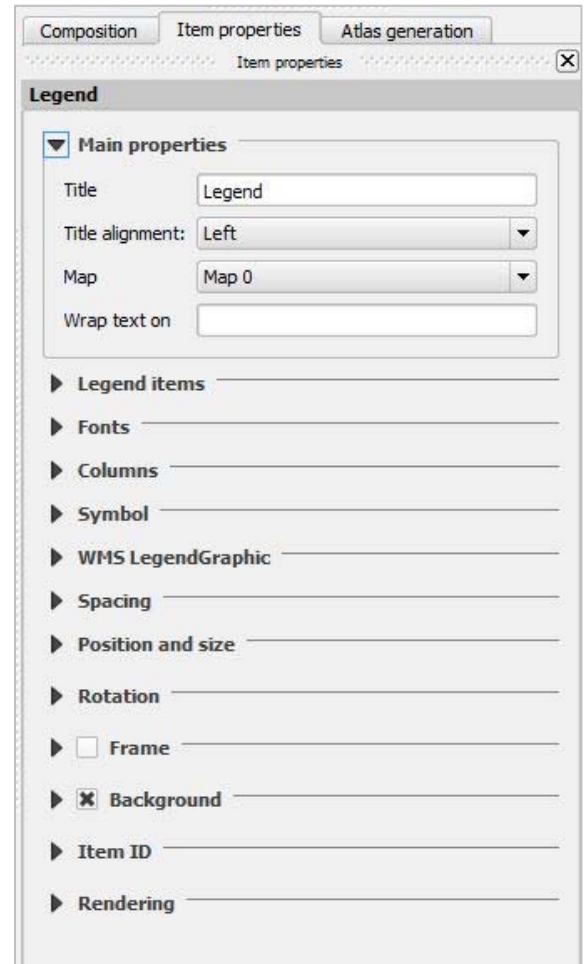
- To add a legend to your map click the **Add New Legend** icon  and place the legend onto the canvas with the left mouse button.

You can position the legend and customize the appearance and contents of the legend from the **Item Properties** tab found in the lower right corner of the print canvas.

Of particular note are the **Legend items** and **Main properties** sub-menus of the Item Properties tab, which provide additional display options.

The **Main properties** sub-menu of the Item Properties tab is shown to the right. In this sub-menu, you can select various overall formatting options such as Title, Title alignment, Map and text wrapping options.

Don't change the Map setting to None, or the map you are labeling won't print – leave the default setting at Map 0.



The **Legend items** sub-menu of the Item Properties tab is shown to the left.

You can remove certain items from the legend that you do not want included by using the **Remove** icon

You can re-order the items using the **Up and Down Arrow** icons

You can change the text of the legend items using the **Legend Items Properties** icon

Please note that graduated colors and symbology changes within the legend are not controlled from the legend Item Properties tab. Instead they are map layer properties that are controlled from within the **Layers panel**.

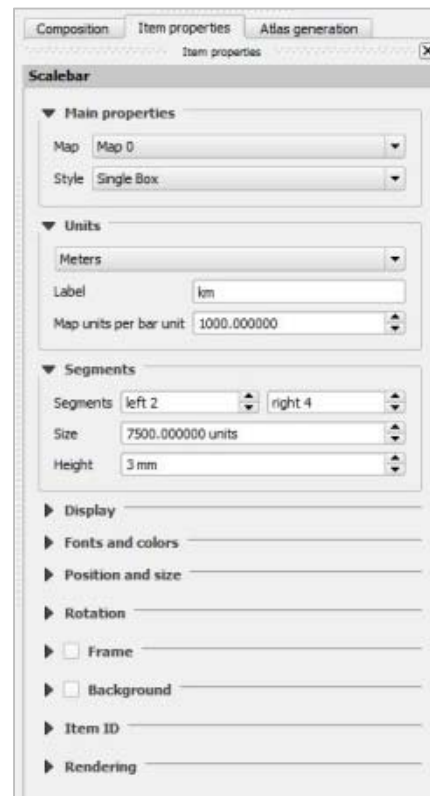
For example, if you want to change the appearance of the **Parcel Database** layer in the legend, you need to change the appearance of the Parcel Database layer from within the Layers panel. This is accomplished by **right-clicking on the Parcel Database layer in the Layers panel**, selecting Properties and then altering the symbology from within the Style sub-menu. See **12.3 Vector Properties Dialog** in the QGIS User Guide for additional information.

USER TIP: Planning encourages users to seek out further options and explanations for their map legends provided in **QGIS-2.14-UserGuide-en.pdf** found in the **Quantum\Datadocs\Qgis** folder included in your product download.

- To add a scalebar to your map click the **Add a New Scalebar** icon.



Place the scalebar onto the canvas with the left mouse button. You can position and customize the appearance and contents of the scalebar from the **Scale bar** sub-menu show to the right, accessed via the Item Properties tab found in the lower right-hand corner of the print canvas:



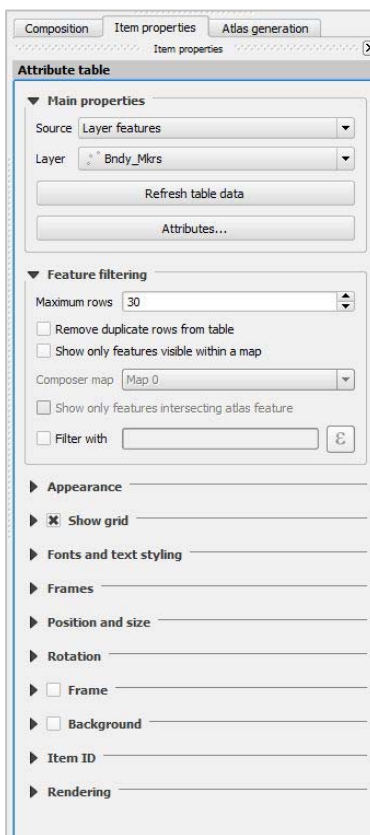
- To add attribute data values to your map click on the **Adds Attribute Table** icon



Place the attribute data onto the canvas with the left mouse button. You can position and customize the

appearance and contents of the attributes from the **Tables** sub-menu shown to the left and found under

the Item Properties tab located in the lower right-hand corner of the print canvas.



In a similar fashion, you can add basic shapes to your map using the using the **Add Ellipse** icon



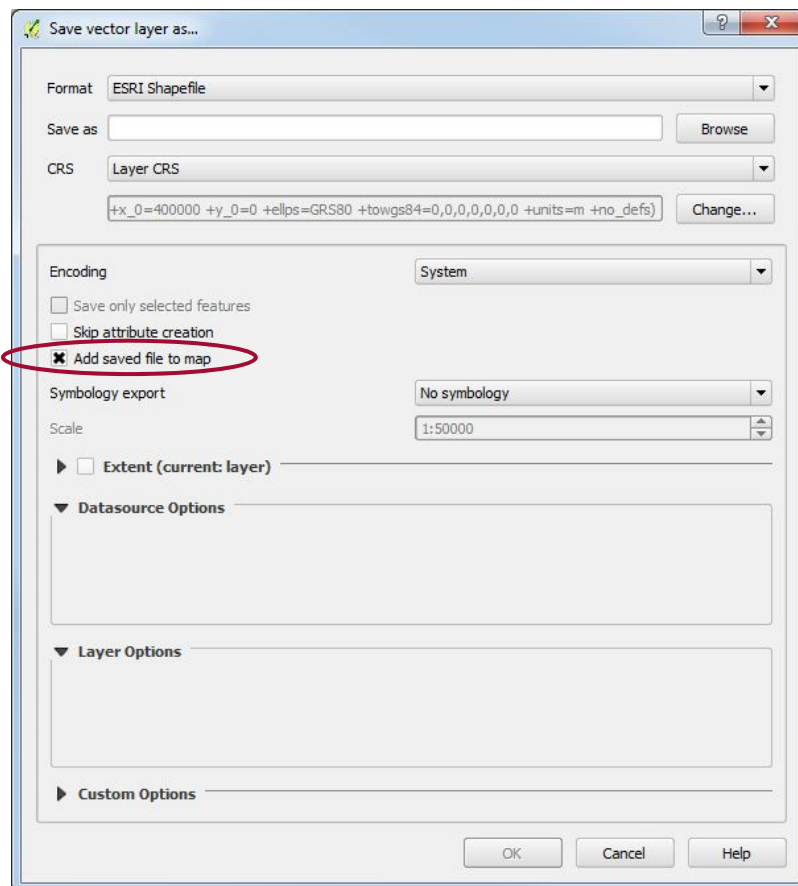
and arrows using the **Add Arrow** icon



There is no tool icon for this function.
This function can be accessed via the Layer Menu.

If you wish to export a map or data layer from your project, for example, the Parcel Database Layer, you can export the layer to an ESRI shapefile for use in ArcGIS software, to a Keyhole Markup Language (.kml) file for use in Google Earth, or you can export the map layer to several other file formats.

To export a map layer to a file, right-click on the desired map layer in the **Layers panel** on the left-hand side of the map view area and select Save As to open the **Save vector layer as...** dialog window:



From this window you should select an export file format, for example ESRI Shapefile, using the **Format** drop down menu, select a name for your export file and note the Coordinate Reference System (CRS) for your export file – the options are Layer or Project, Planning recommends that you not browse to note the CRS.

Optionally, you can also create metadata for your export file, enter notes about your export file and/or save the export file attributes

IMPORTANT: Once you have made all of your selections and entered any optional information that you want to track about your export file, check the **Add saved file to map** checkbox if you want to immediately add your export file to the current map view area. This will save you the trouble of using the



Additional *FINDER* Quantum Resources

Remember, Kent County is used as the example jurisdiction throughout this document. Please substitute your current jurisdiction as applicable.

As mentioned on Page 1, in addition to this *FINDER* Quantum QGIS Custom Project File Guide you may want to download the *MdProperty View/FINDER Quantum/FINDER Online User's Guide (MdpUsr15.pdf)* from Planning's Open Data GIS Downloads website:

<http://planning.maryland.gov/Pages/OurProducts/DownloadFiles.aspx>

You can find the DATADOCS.zip file under this area of the website:

Current User's Guide for *MdProperty View, FINDER Quantum, CAMA, and Sales*

In the User's Guide you will find a description of the map and data layers included in your *FINDER* Quantum product download in **Part I: What's Included in *MdProperty View/FINDER Quantum/FINDER Online?*** as well as these helpful appendices:



Part I: What's included in *MdProperty View/FINDER Quantum/FINDER Online?*



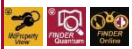
Part II: Using the ESRI Tools with *MdProperty View*



Appendix A: Hardware/Software Requirements and Software Support



Appendix B: Help Desk, Support and How to Contact Planning



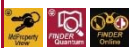
Appendix C: Parcel and Sale Dataset Structures



Appendix D: CAMA Dataset Structures



Appendix E: Commercial and Industrial Use Codes



Appendix F: Exempt Class Codes and Descriptions



Appendix H: Assessment Office Supervisors and Determining Zoning Authorities



Appendix I: 2016-2002 Residential Sales



Appendix J: Parcel, Sale and CAMA Property and Building Codes and Descriptions



Help with Installing the QGIS Software

Detailed instructions for installing the QGIS software are not included in this document. Instead, in and under the **Quantum** folder included in your product download, you will find a wealth of resources that describe how to get started with the QGIS software and how to explore and utilize the software features:

- In the Quantum folder:

This folder contains the QGIS software installation file and installation instructions (Install.pdf).



Planning's Open Data GIS Downloads Website

The Open Data GIS Downloads website is your place to go for downloadable datasets such as monthly Sales transaction files and the latest product updates:

<http://planning.maryland.gov/Pages/OurProducts/DownloadFiles.aspx>



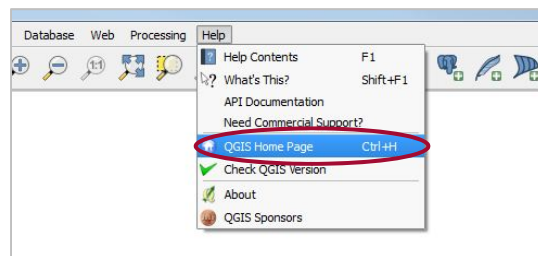
Help with QGIS from OSGeo

- In the Quantum\Datadocs\Qgis folder:

This folder included in your *FINDER* Quantum product download contains [QGIS-2.14-UserGuide-en.pdf](#) developed by the Open Source Geospatial Foundation (OSGeo). You can also visit the QGIS website to access additional support resources and get information on updates to the QGIS software:

<http://qgis.org/>

The QGIS website can also be accessed from within the software via the **Help Menu**:



Also included in this folder for users who want a more in-depth understanding of the QGIS software is [QGIS-2.14-QGIS Training Manual-en.pdf](#).



Help with QGIS from Private Organizations

Additional QGIS training and resources are also available from private organizations such as GeoAcademy:

<https://fossgeo.org/>



Maryland Department of Planning Websites

Maryland Department of Planning

<http://planning.maryland.gov/Pages/default.aspx>

MdProperty View is available as a *free* Open Data GIS Download via the *MdProperty View* home page:

<http://planning.maryland.gov/Pages/OurProducts/PropertyMapProducts/MDPropertyViewProducts.aspx>

FINDER Online can be accessed here:

<http://planning.maryland.gov/Pages/finderOnline/finderonline.aspx>

FINDER Online Light

FINDER Online Light is a simplified version of *FINDER Online* that is compatible with tablets, including iPads, and other mobile devices. You can access the application here:

<http://mdpgis.mdp.state.md.us/finderonlinejs/pi/index.html>

FINDER Online Mobile

FINDER Online Mobile is a further simplified application for tablets and mobile devices that incorporates responsive design. You can access the application here:

<http://mdpgis.mdp.state.md.us/findermobile/index.html>



Other Useful Websites

Maryland State Department of Assessments and Taxation

<http://dat.maryland.gov/Pages/default.aspx>

Real Property Search Website:

<http://sdat.dat.maryland.gov/RealProperty/Pages/default.aspx>

Local Assessments Offices:

<http://dat.maryland.gov/realproperty/Pages/Maryland-Assessment-Offices.aspx>

Metropolitan Regional Information Systems, Inc. (MRIS)

MRISHomes Real Time Local Listings™ of homes for sale:

<http://www.mrishomes.com/>

Parcel Viewer

Planning's Parcel Viewer application, available via this web link, is hosted by the Metropolitan Regional Information Systems, Inc. (MRIS). Parcel Viewer allows users to search for parcel information by address, place name or parcel account number (ACCTID field) using either an address or parcel search locator. You can access the application here:

<http://mdpgis.mdp.state.md.us/mris/pi/index.html>

Maryland State Geographic Information Committee (MSGIC)

<http://www.msgic.org/>

Maryland Mapping & GIS Data Portal (MD iMap)

<http://imap.maryland.gov/Pages/default.aspx>