MetroBoston DataCommon

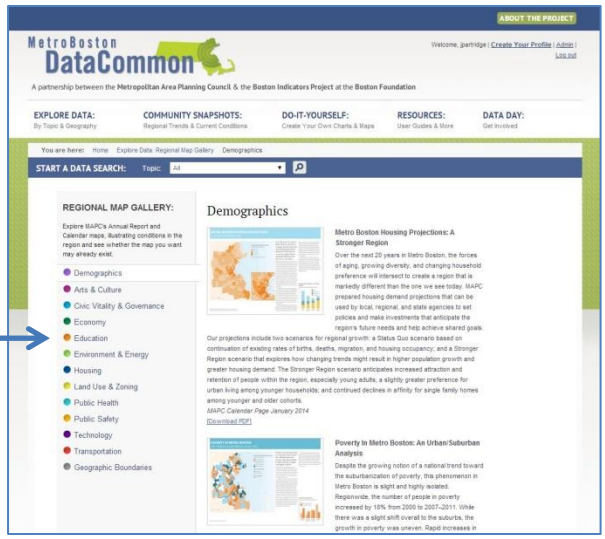
A partnership between the Metropolitan Area Planning Council & the Boston Indicators Project at the Boston Foundation

MetroBoston DataCommon Training

Whether you are a data novice or an expert researcher, the MetroBoston DataCommon can help you get the information you need to learn more about your community, understand regional trends, and make more informed decisions. You can use the DataCommon to document existing conditions, research compelling data to make your case, design responsive policies, and measure progress on shared goals. In this training, we will cover the basics of the DataCommon.

Regional Map Gallery

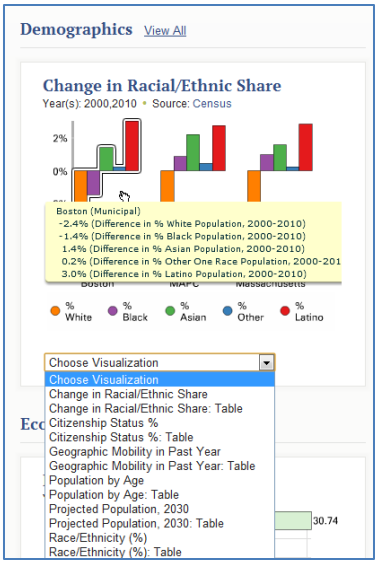
The Regional Map Gallery includes maps about the Metropolitan Area Planning Council (MAPC) region along with analysis explaining those maps. This is a good place to start searching for a map you want to make because it may already exist.



- Go to Explore Data, and click Regional Map Gallery.
- These maps can be filtered by topic, which you will see listed on the left side of your screen.
- Click on the thumbnail map image or the Download PDF command to open the map. From here, you can either save or print the map.

Community Snapshots

Community Snapshots are a quick and easy way to access and interact with information about a specific city or town in the MAPC region. This tool is interactive and allows you to customize the snapshot based on the information available and your interests. We have created snapshots for MAPC's 101 cities and towns (the Boston Neighborhood Snapshots will be coming this Spring). The Snapshots include information on a variety of topic areas, including: Demographics, Civic Vitality & Governance, Economy, Education, Environment & Energy, Housing, Public Health, and Transportation.



- Click Community Snapshots in the main menu and once you land on the Snapshot page, use the dropdown menu on the right to select the city or town of interest. Let's try Boston.
- Below the context map of Boston and its description are a set of visualizations organized by topic. If you click, and then hover over the visualizations, a tooltip appears which provides information about the measure. For example, when we hover over the bars representing Boston, we see the percent change in population by race.
- Each topic holds several data visualizations, and most visualizations are also accompanied by a corresponding table, which can all be seen and selected through the dropdown menu.
- You can view all the visualizations at once by clicking "View All" or use the dropdown menu to populate the small box with the visualization of your choice.

- To print your snapshot – either what is preloaded or the visuals you have selected, at the top of the page, simply click:

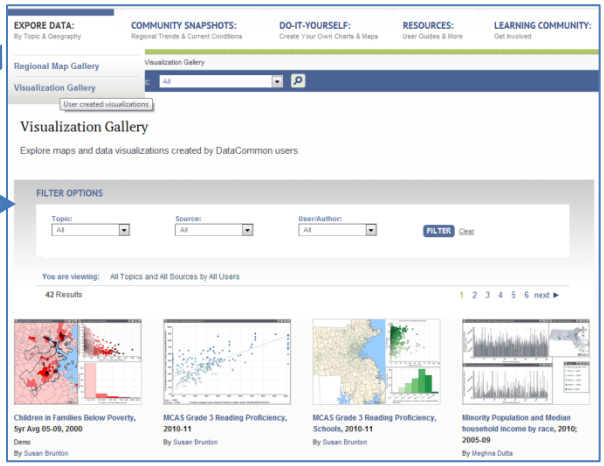
  This command will take an image of these visuals, which will no longer be interactive with tooltips. You can print directly from your browser and return to the interactive display by clicking back.

- Find your city or town in the dropdown menu. Can you find the unemployment rate in your city or town for both 2006 and 2010?

Visualization Gallery

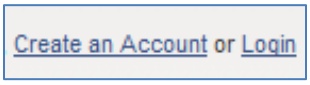
In the Visualization Gallery, search maps and/or charts that MetroBoston DataCommon users and MAPC staff have created and saved.

- Under Explore Data, click Visualization Gallery.
- Filter the visualizations by topic, data source, and/or author.

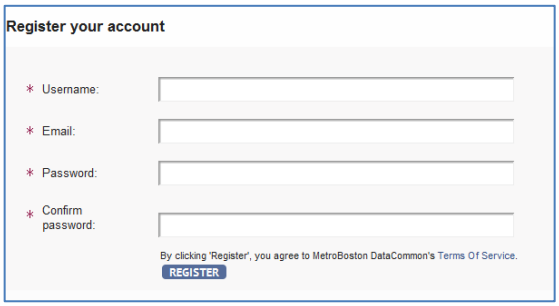


Create a Profile

In order to build upon an existing chart or map in the Visualization Gallery or develop your own visualizations, you will need to:



- Click this link, which can be found in the top, right corner of the site.
- You will receive an activation link in your e-mail.
- After you register your account, add your organization, e-mail and photo to your personal profile. To edit your profile information, simply click your Username, which will appear at the top of the site.

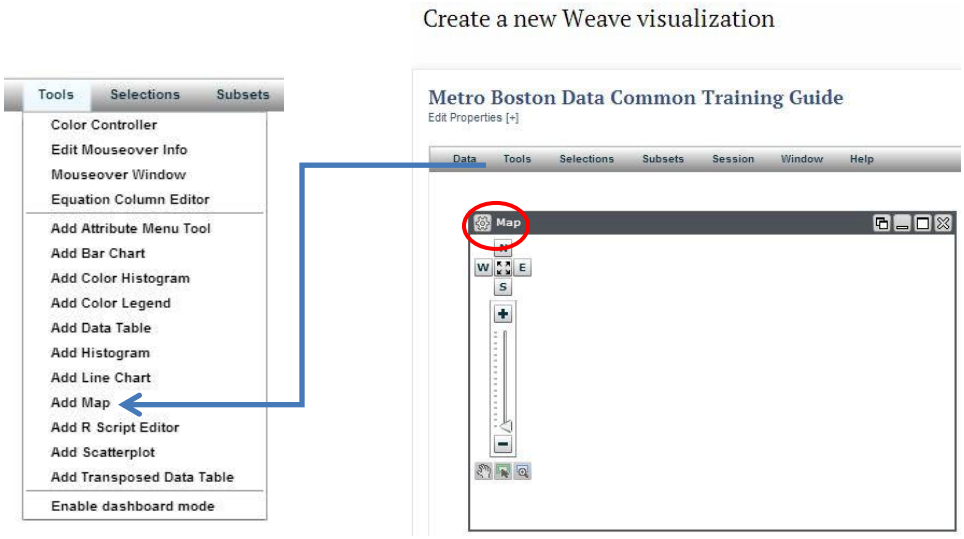


Do-It-Yourself

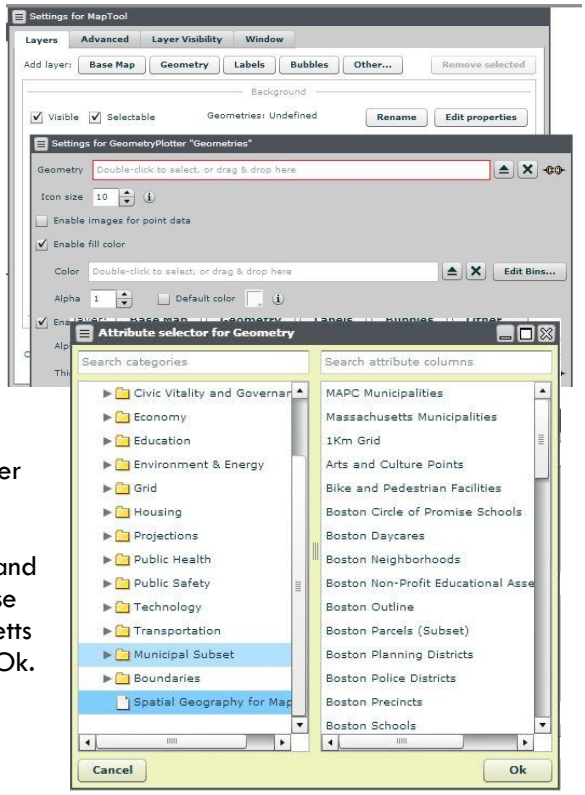
In this section of the MetroBoston DataCommon, you can create your own visualizations using Weave. There are many settings available to customize your visualizations. Let's start by making a basic map and bar chart.

Map

- Begin by clicking New Weave Visualization under Do-It-Yourself at the top of the page. A blank workspace will open.
- Create a name for your visualization by clicking on the Edit Properties hyperlink under "New Weave Visualization." You can edit this later, but you will not be able to save your visualization until you have given it a name.
- From the Tools Menu, select Add Map. Under Tools is where you select any data visualization tool that you would like to create.



- A blank screen will appear with a flag in the top left corner above a gear icon that reads "Start Here." The gear icon represents the location of settings for your visualization. Click on the gear to begin adding information to your map.



- The gear icon will take you to Settings for MapTool. In order to get some initial geography boundaries on your map, click on the load button next to the Geometry bar.

- The map geography MUST be selected from Spatial Geography for Maps at the bottom of the list. The other folders contain the tabular data which will be used to color the map. Let's create a map of Massachusetts Municipalities. Click on Spatial Geography for maps, and you will see a list on the right side of the screen. Choose Massachusetts Municipalities and a map of Massachusetts municipalities should appear in the background. Click Ok.

- It is a good idea to save your map now, and often. Do so by clicking on the Save hyperlink at the top right of the map.

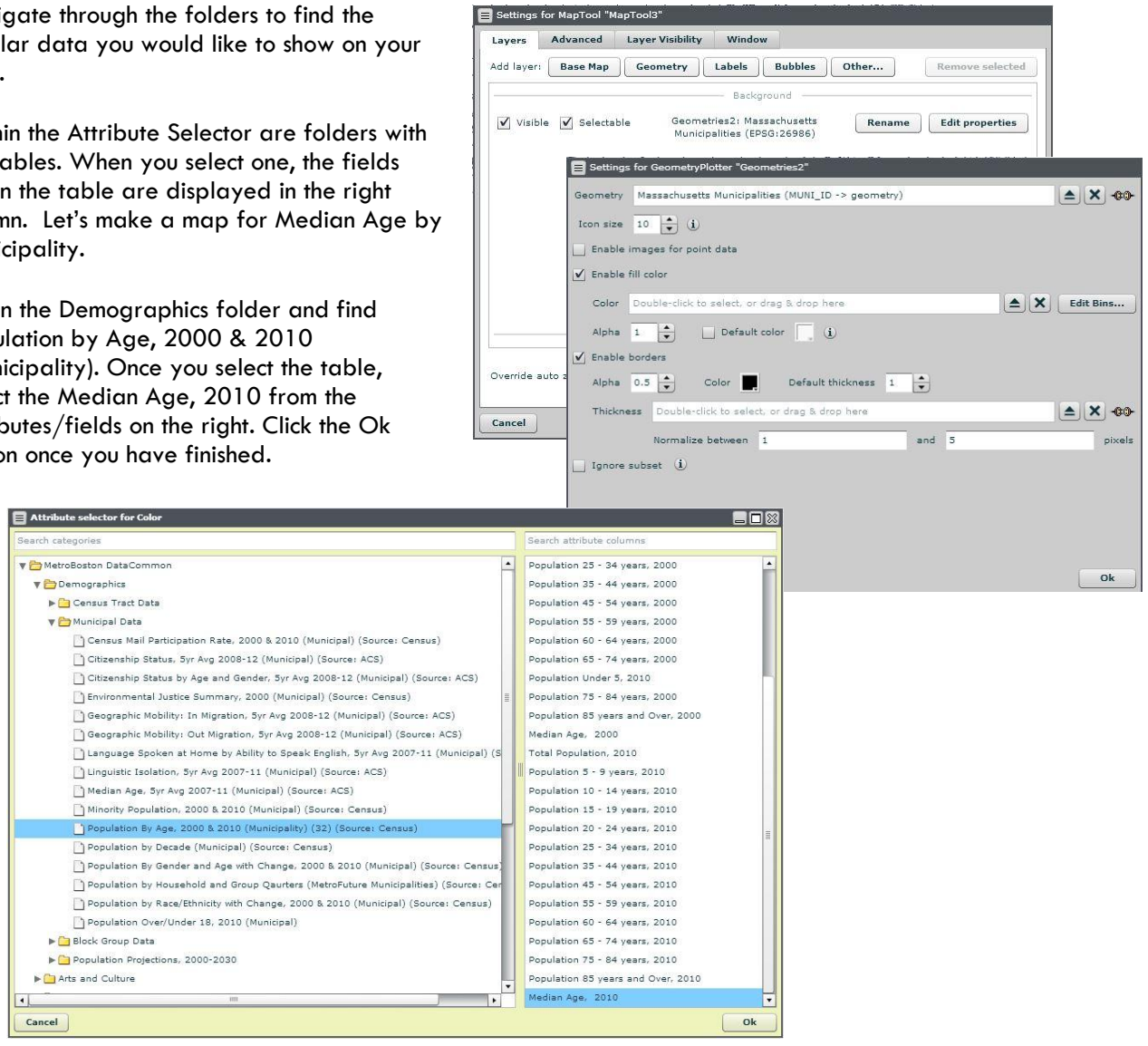
- Once you have your intial geometry selected you can customize your map by selecting the gear tool in the top left corner of the map. The gear will appear in the corner of every visualization you create and is what you click to begin editing your map or chart.

- You can join tabular data to your map to color it in. To the right of the geometry that you want to color, clock the Edit Properties button. In the Settings for GeometryPlotter window that pops up, click on the load button next to the empty Color box, as shown below.

- Navigate through the folders to find the tabular data you would like to show on your map.

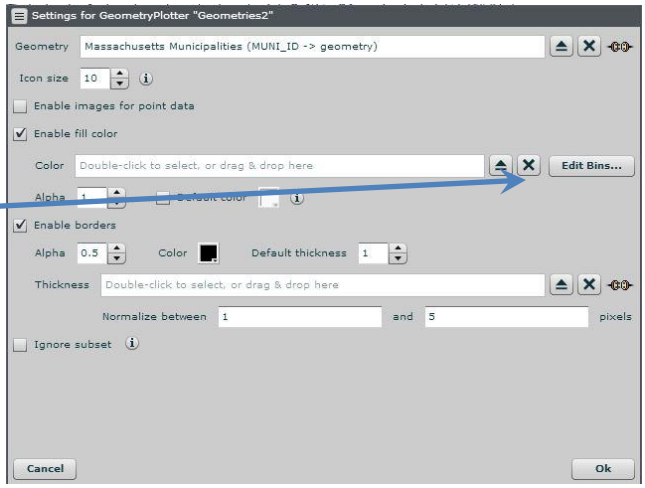
- Within the Attribute Selector are folders with the tables. When you select one, the fields within the table are displayed in the right column. Let's make a map for Median Age by Municipality.

- Open the Demographics folder and find Population by Age, 2000 & 2010 (Municipality). Once you select the table, select the Median Age, 2010 from the attributes/fields on the right. Click the Ok button once you have finished.

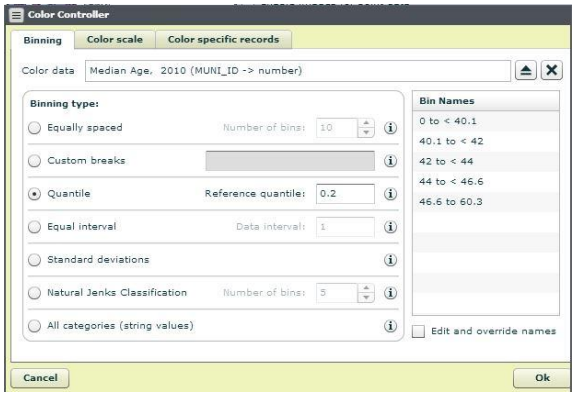


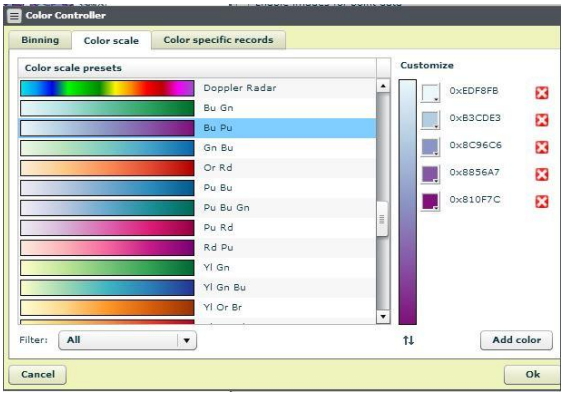
IMPORTANT: You must select only tables that match the geography you have selected. In this example, you need to select Municipal data to join to Massachhusetts Municipalities. If you picked a different geography the data, such as census tracts, it will not join or display any data.

- You should now see a color map of Massachusetts. To edit the color, click the click Edit Bins button next to the load button to the right of the Color box in the Settings for GeometryPlotter window.

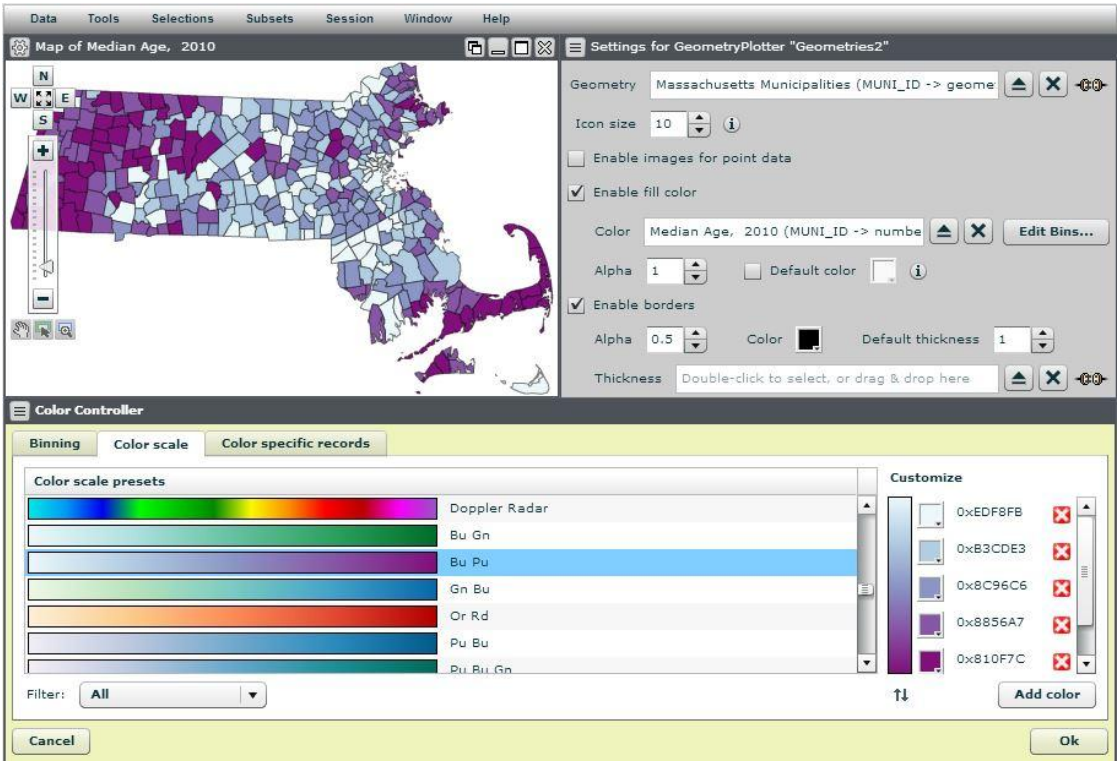


- This will display the Color Controller. The Binning tab is where you can decide how you want to categorize or define your data into groups/ranges. The Color Scale tab is where you can select from a number of predefined color ranges.

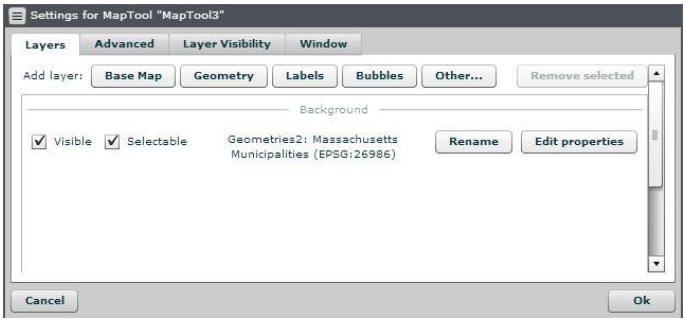




- Play with bins and colors to see how your map changes.



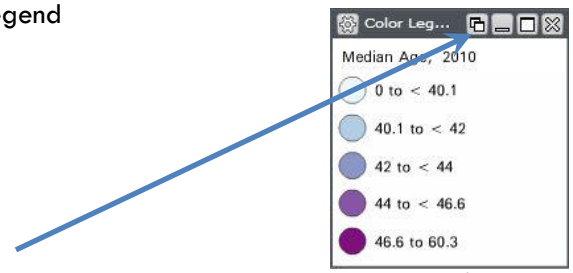
- Multiple geometries can be added to the map, but only one layer will have the color ranges. To add another geometry, click the Geometry Button in the Settings for MapTool window. A new Geometry Plotter will pop up.



- This will add a new geometry layer to the list. Follow the same steps you used to add the Massachusetts Municipalities layer, choosing the geography you would like to add from the Spatial Geography for Maps collection at the bottom of the folder list. Let's add US States. The geographies are listed in alphabetical order (except for Massachusetts and MAPC, which are the most often used). Click Ok.

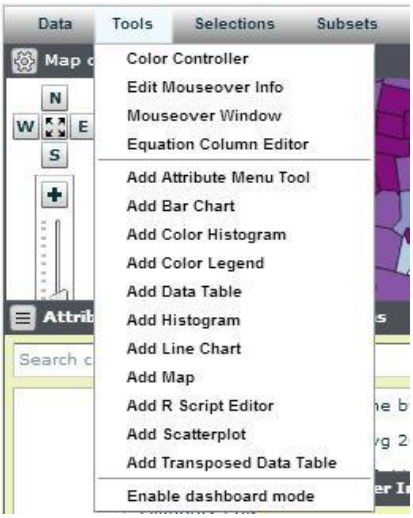
- *Optional*: The default settings for a layer can be modified by clicking the settings button next to the layer. This will expand the layer allowing you to pick the fill color and border. You can also rearrange the order of the layers by dragging the layer above or below. For example, if you scroll over your map, you will notice that since you added US states, you can no longer select an individual municipality because the state of Massachusetts is on top. Simply press the gear button, select the geometry layer for Massachusetts Municipalities, and drag it to the bottom of the list.

- You can add a legend for your map to your visualization, by Selecting Tools -> Add a Color Legend

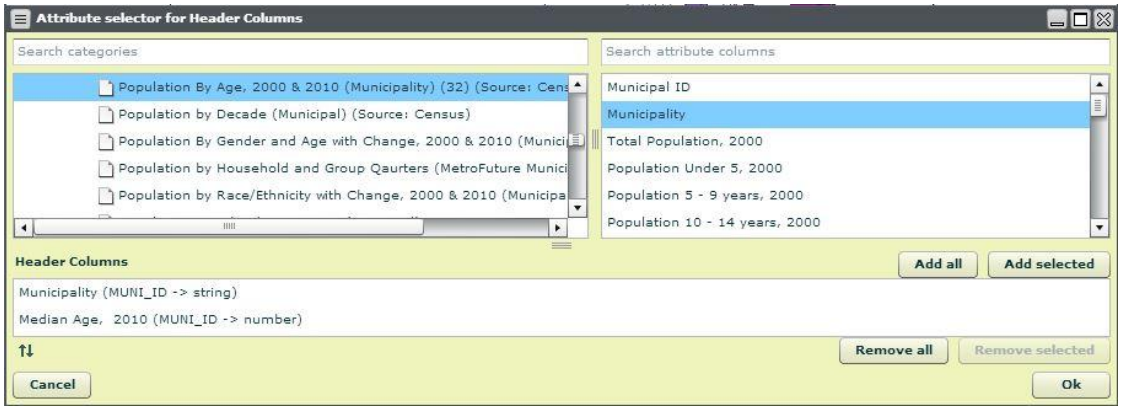


Tip: To ensure your visualizations do no cover/block other visualizations you can pin a visualization so it always remains on top by clicking the double window button on any visualization tool and choosing "Always above."

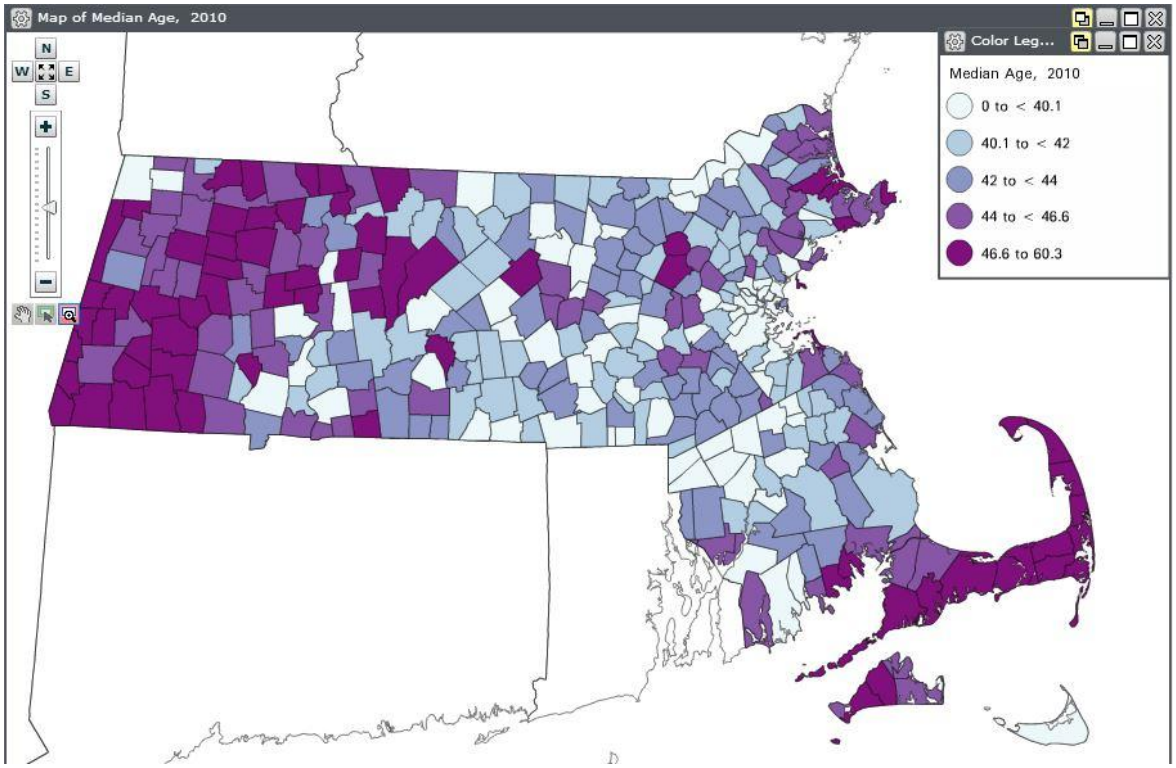
- To edit the information displayed in the Mouseover Info you see when you scroll over a municipality, click on Tools in the main header toolbar, and choose Edit Mouseover Info.



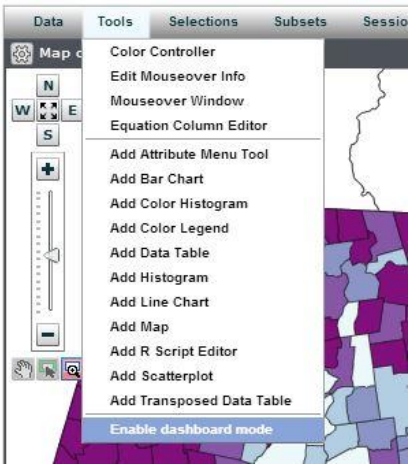
- There are two tabs in the Mouseover Info Editor window: Header Columns and Data Columns. The Header Columns tab will add the main labels you want to display. Scroll to the tabular data you would like to label. In our case, we want to show the Municipality's name and Median Age, so we will scroll to Demographics > Municipal Data > Population by Age, 2000 & 2010, and in the right hand window we will choose Municipality and Median Age, 2010 by selecting each and pressing the Add Selected button for each. Press Ok. Now when you scroll over a municipality, you should see the name of the municipality and the value for its median age.



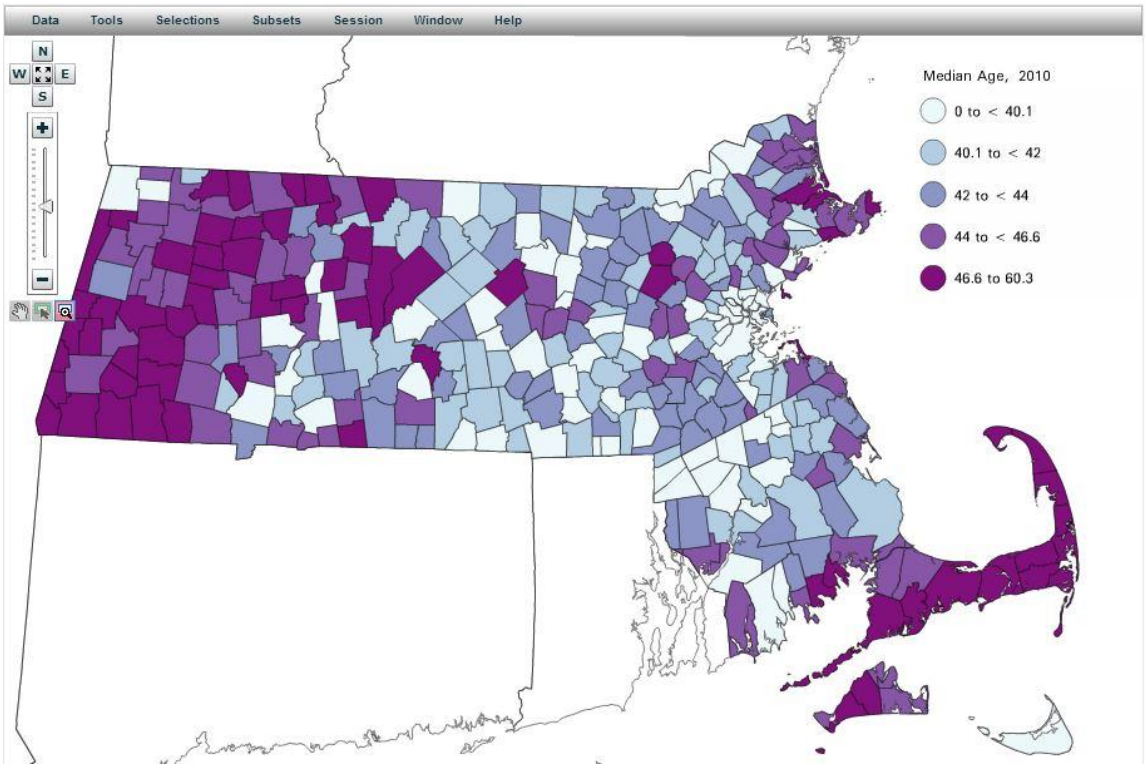
At this point, you can play with the size of your map and the zoom level.



When you are happy with how your map looks, you can hide the gray dashboards by going to the Tools tab on the main toolbar and selecting "Enable dashboard mode." If you later change your mind and want to adjust something on your map, you can always go back to Tools and select "Disable dashboard mode." You can also click on the Tools tab on the toolbar and select Enable Dashboard.

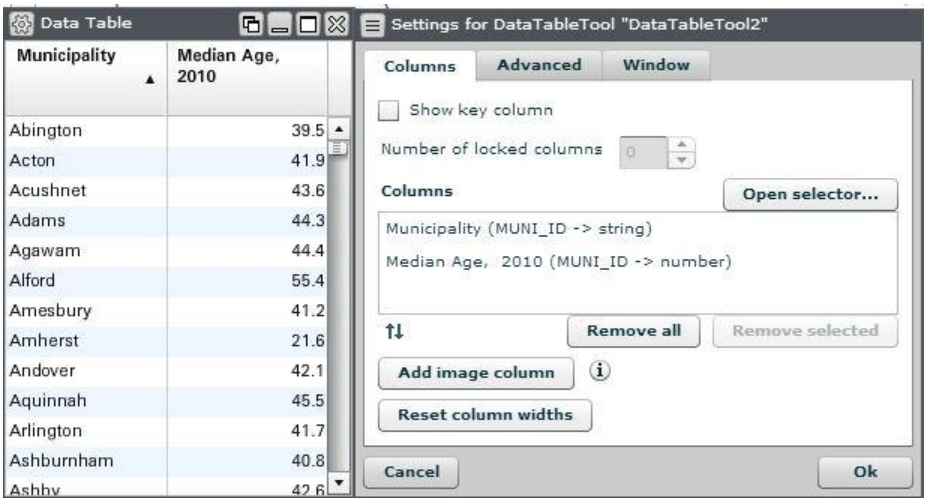


Your visualization should look something like this:



Data Table

- If you want to look at the data behind the visualization you can select Tools then Add Data Table.
- Clicking the gear button on the Data Table allows you to control which fields you see in the table. If you want to add fields, press the Open selector button and navigate to the data you want to add. If you want to remove any data, select it from the Columns tab and press the Remove selected button.

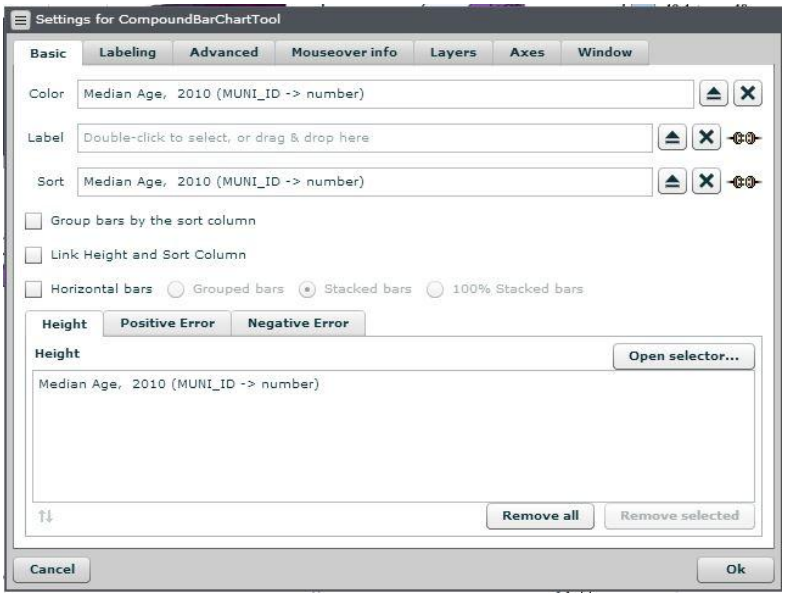


- Click the Open Selector button to launch the Attribute Selector and pick the field(s). Once you have selected a field click the Add Selected button to add it to the list of columns that will be displayed.

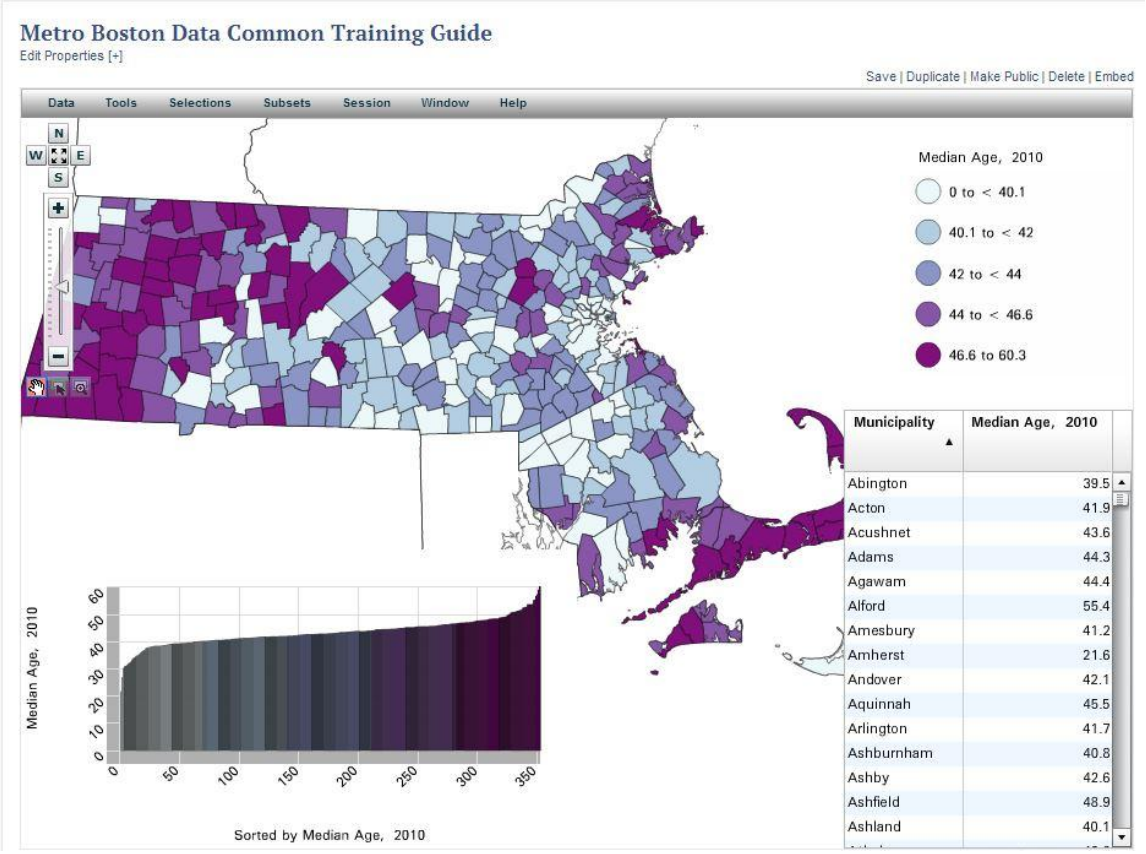
Bar Chart

- Let's add a bar chart that is linked to this map. Click Tools and Add Bar Chart.

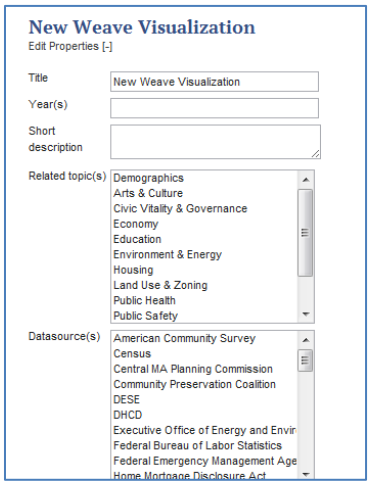
- The chart that appears needs to be modified. We want it to sort and order the bars by Median Age, and display the height of the bar based on Median Age. Click the gear in the left corner of your bar chart. Make sure both your Color field and Sort boxes are set to Median Age, 2010. You can change the Color and Sort fields by clicking the load button and navigating to the tabular data you want to use. Change the height field by pressing the Open Selector button at the bottom of the page.



- You should now see a linked map and bar chart. You can change the size of each visualization and organize them as you would like in the display space. The corner commands in each visualization allow you to maximize, minimize or pin the image within the workspace.



Save your Visualization



- Remember to title your visualization and describe it with the relevant characteristics by clicking Edit Properties in the top left corner of your workspace.

- To save your visualization (assuming you have logged in), click Save in the top, right corner of your workspace. Once you do this, other options will appear.

Save | Duplicate | Make Private | Delete | Embed

- Embed: your visualization into your own website.
- Duplicate: another person's visualization so you can modify it for your own use.
- Delete: your own visualization
- Make Private/Public: the option to keep your visualization private or public. If you make it private, you will only see it if when logged into your account, but if you make it public then anyone who is on MBDC can see it.

Modify an Existing Visualization

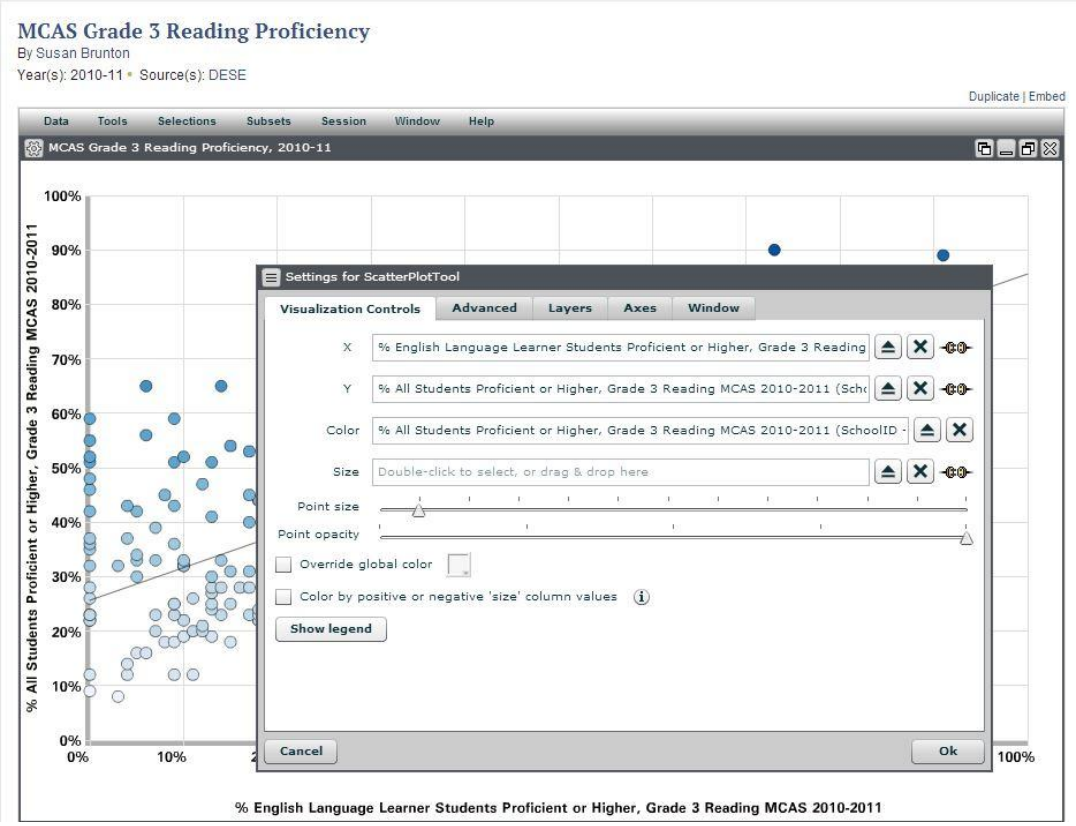
- You can also customize existing visualizations and save them to your profile. To do this, go to the Visualization Gallery and find the scatterplot titled Boston Grade Three Reading Proficiency. (Hint: You can find this visualization by filtering with Topic: Education and Source: DESE). You can also find this visualization by typing http://metrobostondatacommon.org/visualizations/78/ into your browser.

- To start making changes to this graph, click Duplicate in the top right corner.

- In this scatterplot, the dots represent Massachusetts schools. Both axes represent the % of All Students that scored Proficient or Higher on Grade 3 Reading. The deeper the color of the dot, the higher the percentage of All Students that scored Proficient or Higher of Grade 3 Reading.

- We can modify this graph to understand relationships between different variables by changing the X-axis. Click the gear, and Settings for the ScatterPlotTool box opens.

- Change the x column (axis) to different population groups to see how the scatterplot changes. You can also change the color field to see how the scatterplot changes. Click the load button to the right of the field to make your change.



Feedback and Support

- If you encounter any problems or difficulties while exploring the site or using our tools, please send us feedback at datacommon@mapc.org.

Visualization Tools

Bar Chart: A graph that uses rectangular bars, which can be plotted vertically or horizontally to show values for the items you are measuring. It allows people to compare values among the categories or groups of categories in a dataset.

Histogram: Shows the distribution of data in a bar chart format. It graphs groups of numbers depending on their frequency or how often they appear. It shows the shape of the data set's distribution. The groups are plotted along an X-axis and the frequency (number of records) of those groups along the Y-axis.

Scatterplot: Allows people to observe relationships, patterns, or correlations among sets of variables. It is a collection of points along an XY coordinate system. The position of each point is dependent on the value of the variables along the horizontal or X-axis and the value of the other variable along the vertical or Y-axis. Typically, a scatterplot is used to display two variables for one set of data, but Weave allows users to show up to four variables through not only values along the X- and Y- axes, but also but the size and color of the point plotted.

Line Graph: Used to show change over time. It is similar to a scatterplot because each point is connected to two variables, shown through the positions along the X- and Y -axis. However, in a line graph, typically the x-axis represents time intervals such as months or years.

Pie Chart: A circular visualization divided into segments. Each segment represents a piece of the whole, illustrating proportionate values.

Map: A representation of a geographic area highlighting spatial data such as physical boundaries, location points, natural terrain, etc. By linking geographic places such as census tracts, cities or counties with a quantitative data set, you can use color on your map to signify numeric values as well.