Background

According to the ESRI Online GIS Dictionary, a legend is “The description of the types of features included in a map, usually displayed in the map layout. Legends often use graphics of symbols or examples of features from the map with a written description of what each symbol or graphic represents” (support.esri.com). By using descriptive symbols in a map legend, the user can immediately determine which real-world features are represented on the map.

The purpose of this document is to describe how the layer names and symbology shown in the Table of Contents are connected to the Legend inserted into the Layout View. Additionally, the Legend properties will be explored and appropriate graphics for each feature type will be selected.

Inserting a Default Legend

Symbols that are more descriptive of the information displayed on the map are changed by accessing the Layer Properties window. The map below shows custom symbology for each layer listed in the Table of Contents. This map is designed to show the extent of cellular coverage in Genoa Township assuming each cell tower provides service for customers in a 1-mile radius surrounding each tower. Notice the custom symbols that were selected to show different types of towers and different road classifications.
Legends can be inserted into a map only when viewing the Layout View. To add a simple legend to a map:

1. Click the Layout View button (paper icon) near the bottom left corner of the map

2. Click Insert → Legend from the menu bar

3. The first panel of the Legend Wizard lists the layers to be included in the legend. The number of columns can also be changed.

4. Click Next to accept the default list of layers that will be displayed in 1 column

5. Panel #2 controls the Legend title's font and placement

6. Click Next to accept the title Legend that will be shown in bold Arial font, left-adjusted in the legend frame
7. Panel #3 allows the user to set the properties of the legend frame

8. Click Next to accept the defaults:
   a. Border: None
   b. Background: None
   c. Drop Shadow: None

9. Panel #4 allows the user to customize the Legend display by selecting default symbol patches for each line or polygon feature shown on the map

10. Click Next to accept the default patches:
    a. Line: Straight line
    b. Area: Rectangle

11. Panel #5 controls the spacing between legend items

12. Click Finish to accept the default spacing: 5.36 pts

13. A legend, which can be dragged/dropped & resized, is added to the Layout view
Explaining the Connection between the Table of Contents and the Map Legend

The default legend created in the previous section should look like this sample. The connection between the layers shown in the Table of Contents and the Legend is discussed below:

1. Each layer that is turned on in the Table of Contents will automatically show in the map Legend.
2. The layer order displayed in the Table of Contents is reflected in the Legend frame.
3. The symbols selected for point features such as Cell Towers will automatically display in the Legend. The colors and symbols selected for line and polygon features will also display in the map Legend.
4. The Legend will display the layer names as they are listed in the Table of Contents. In this example, removing the word “Genoa” from each layer name might be useful to focus attention on the features (not the location shown on the map).
5. By default, the Legend will also display the Category name used to sort the data that is shown in the Table of Contents. For example, the Legend will display TOWER_TYPE and ROAD_CODE above the symbol patches.

Creating an Effective Map Legend

Although the legend shown above provides some insight about the features present on the map, it could be more descriptive. Changing the layer names and selecting custom symbol patches will allow the map viewer to quickly associate the symbol on the map with the real-world feature.

Change Layer Names

1. In the Table of Contents, click a layer name once, hesitate, and click the name again
2. When the cursor appears, you can edit the layer name
3. Change the name of each layer in your map to something more descriptive
4. Notice that when the layer name is changed in the Table of Contents the legend also changes (compare this legend to the legend shown in the section above)
Override Legend Frame Defaults

1. Click Insert → Legend from the menu bar

2. In Panel #1:
   
   a. Change the display order of the Legend Items by clicking each layer and then using the Up/Down Arrow buttons

   b. Increase the number of legend columns to 3

   c. Click Next

3. In Panel #2:
   
   a. Change the legend title to Genoa Township

   b. Change font color to dark brown

   c. Select Center for the title placement justification

   d. Click Next
4. In Panel #3:
   a. Click the triangle button next to the empty Border area to open a list of options
   b. Select Double Line
   c. Click the triangle button next to the empty Background area to open a list of options
   d. Select Yellow for the background color
   e. Click Next

5. In Panel #4:
   a. Click the first layer listed, then select Ellipse from the Area drop-down
   b. Click Lakes, then select Water Body from the Area drop-down
   c. Click Pipelines, then select Zig-Zag from the Line drop-down
   d. Click Rivers, then select Flowing Water from the Line drop-down
   e. Click Roads, then select S-curve from the Line drop-down
   f. Click Sections, then select Urbanized Area from the Area drop-down
   g. Click Next

6. In Panel #5:
   a. Click Finish to accept the default spacing parameters
Working with Legend Properties

The legend created in the previous section now provides additional information about the data shown on the map. However, the legend seems unbalanced with more layers appearing in the right column than in the other two columns. Additionally, it is probably unnecessary to show the field names that were used to color-code the Cell Towers and Roads. The yellow background color selected also makes it difficult to view the 1-mile coverage area symbol.

Adjusting the legend properties after the legend has been created is possible. The Legend Properties dialog box allows the user to add additional columns to the Legend, to change the frame color and border and to turn off the field names can display.

Change Legend Frame Properties

1. Right-click on the Legend, then select Properties
2. Click the Frame tab
3. In the Background drop-down, select White
4. Click Apply
5. Notice that the Legend background is now white, which makes the symbology easier to read
Adjust Legend Frame Columns

1. In the Legend Properties dialog box, click the Items tab
2. Click Boundary, in the Legend Items area
3. Click the checkbox to Place in new column
4. Click Apply
5. Notice that the Boundary and Sections layers moved into a fourth column

Turn Off Field Heading Display

1. In the Items tab, right-click Cell Towers → Properties
2. In the Legend Items Properties dialog box, click the General tab
3. Uncheck Show Heading option
4. Click OK
5. In the Legend Properties dialog box, click Apply to view the change
6. Repeat the same process for Roads
7. Click OK in the Legend Properties dialog to close the window
8. Notice that the Legend now provides an easy method for determining the symbology for each map layer