Toronto Police Service

Know Your Neighbourhood (KYN) Application

Implementation Guide: Map Symbology

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Map Symbology

As part of the Know Your Neighbourhood (KYN) application design process, it was determined that new point symbology would be designed and implemented as part of the application development process. The following document outlines the general design specifications used.

The KYN symbology set consists of nine custom point symbols representing seven major crime indicators (MCI), bicycle theft, and traffic collisions.

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Symbol Design Principles

The overall design principles employed in the creation of the KYN symbology set was that symbols should be simple in their design, be clearly different from one another within the symbol set, and be recognizable **when used in association with the main KYN categories.** Additional considerations included the decision that the symbols should avoid, where possible, the use of hard corners to achieve an overall “smooth” design aesthetic.

It was recognized early in the design process that some KYN categories represented crimes that were sensitive in nature (Homicide and Shooting and Firearms Discharge). Due to this, two sets of symbols were created for these categories to provide for some variety in choice depending on the map developer and audience.

The use of symbology outside of the KYN application may require some additional design modifications to ensure differentiation from similar crime types not considered in this application.

Design Specifications and Format

All KYM point symbols were created in Adobe Illustrator 2020. The following basic design specification were used for the development of symbology:

Canvas Size: 24px by 24px.
Background Circle Diameter: 23px diameter centered on canvas.
Line thickness: 0.75pt where single line is used.
Corner rounding: 0.3px applied where appropriate.

Implementation and Use: Map Viewer

With the release of the new Map Viewer for ArcGIS Online, it appears as though some of the functionality for the use of custom symbology has been lost. While it is believed that these issues will be solved in future Map Viewer updates, a workaround exist where the map designer is still able to import custom symbology to the Map Viewer Classic using image URLs. Adding custom symbology can be accomplish by following these steps:

1) First, open your Web Map in Map Viewer Classic.
2) Navigate to the **Change Style** panel and set up you styles as preferred (either single or by attribute).
3) After selecting the preferred style type, open the style panel by selecting **Options**.
4) Select the symbol that you wish to change to open the pop out symbol selection panel.
5) At the bottom of the pop-out window there is an option to **Use an Image**. Select this option.
6) A blank space will now appear where you can paste the URL location of your image. Once you have pasted the URL click on the blue **+** plus button to add the image to you **Custom Images**.
7) You can now select your custom symbol from the **Custom Images** option in the shape dropdown menu.
8) Once you have selected your image and set the symbol size, select **OK** in the pop-out window, **OK** in the symbol panel, and **Done**.
9) Save your map in the Map Viewer Classic and return to the new Map Viewer. Your newly added custom symbology will now be usable in the new Map Viewer application.

As these symbols have been brought into Map Viewer as images, you will not be able to change the colour or shape from the Map Viewer or Map Viewer Classic. To do this you must adjust the original .SVG (or other file type) and save to a new URL location for use.

Implementation and Use: HTML Mark-Up and Use in Dashboards

One use of the custom symbology in the KYN application is the inclusion of images in Side Panel widgets for use as a legend. Two methods can be used for adding the custom symbols to text boxes in ESRI Dashboards. The first is to use the image option to link to the URL of the symbol, applying all sizing and styling to the image through the interactive window. The second option is to enter the image using source code (HTML) with all styles applied in-line.

If using source code in this application, it is recommended to use the following Pattern to ensure compatibility across browsers:

NOTE: If entering the above format into ESRI ArcGIS online Dashboards, this will automatically be changed to

Colour Selection and Values

To ensure the selection of colours for symbology were compliant with WCAG 1.4.11 Non-text Contrast (AA) which states that:

> *The visual presentation of the following have a contrast ratio of at least 3:1 against adjacent color(s):*
>
> ***User Interface Components***
> *Visual information required to identify user interface components and states, except for inactive components or where the appearance of the component is determined by the user agent and not modified by the author;*
> ***Graphical Objects***
> *Parts of graphics required to understand the content, except when a particular presentation of graphics is essential to the information being conveyed.*

https://www.w3.org/TR/WCAG21/#contrast-enhanced

To evaluate WCAG compliance, all colour choices were assessed using the Colour Contrast Analyser (CCA) program. The background colour for this test was set to HEX #EFEFEF – the grey used for the ESRI grey scale basemap.

Table 1: Symbology used in KYN application, corresponding HEX colour values, and WCAG contrast ratio.

Symbol	KYN Name	Hex Value	WCAG Contrast Ratio
	Assault	84091B	9:1
	Automotive Theft	009999	3:1
	Break and Enter	003399	9:4:1
	Homicide	333333	11:1
	Robbery	CC0000	5:1:1
	Shootings and Firearms	993399	5:6:1
	Theft Over	006699	5:4:1
	Bicycle Theft	006666	5:9:1
	Traffic Collision	663366	8:2:1