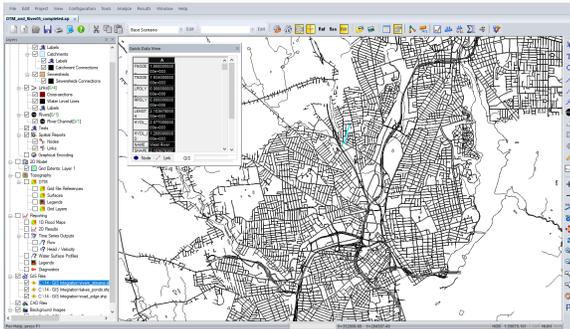# GIS Layers

GIS files may be added to an XPSWMM model as separate layers.

Working with GIS Layers

Files types include ESRI shape files and MapInfo mif files. The display properties of each layer may be adjusted and the attributes of any selected object may be viewed. Nodes and links and most polylines and polygons may be snapped to vertices of GIS arcs and polygons loaded through the GIS Layers. To snap to these items in the background ensure that the Snap has been turned on from the Job, Layer & Mode Control tools.

Adding a GIS Layer

To add a GIS layer, highlight the GIS Files line in the Layer Control Panel. Right click and select Load GIS File from the popup menu. In Windows Explorer, navigate to the target GIS file. Click on Open. Additional layers may be added using the same procedure.

Import Hydrologic Parameters

The following section discusses the option to Import Hydrologic Parameters from GIS layer database information
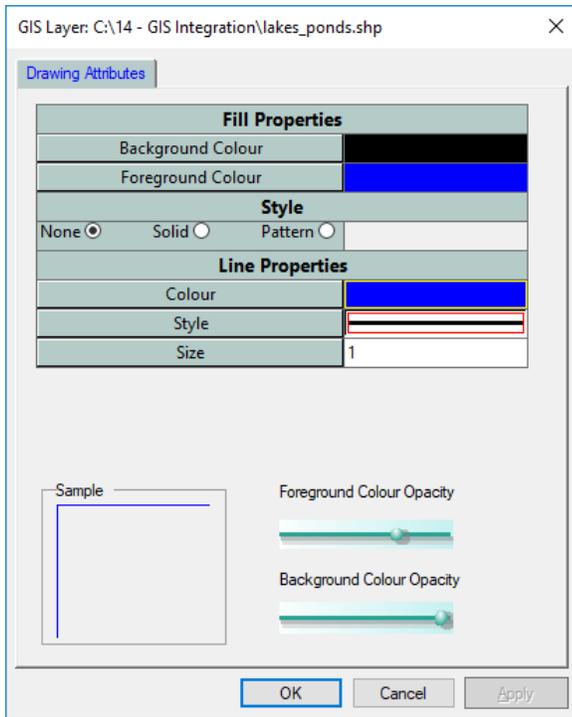
Display Properties

To adjust the display properties of a GIS layer, in the Layer Control Panel, right click on the name of the layer. Select Properties from the popup menu.

Adjust the Fill and/or Line properties for layers containing polygons. Adjust only the Line properties for layers containing polylines or points.

Displaying Attributes
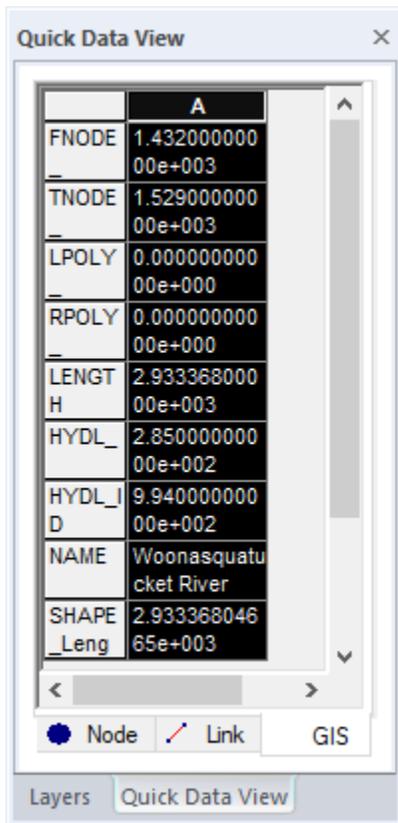
Attributes are displayed in the Quick Data View panel. On the View menu, select Quick Data View and check the Show/Hide line. Select the GIS tab at the bottom of the table.


Highlight the desired row in the GIS layer. Note that only one GIS layer can be viewed at a time. On the network view, select the desired GIS object. The attributes are displayed in the Quick Data View table. The data may be copied to the Windows clipboard. However the attribute tables may not be edited.

Import Hydrologic Parameters

By right clicking on a GIS layer, the option to Import Hydrologic Parameters based on GIS polygons /associated database records, and the Runoff Node Catchment areas can be selected.

> ⚠ Runoff Node Catchments must already exist in the model before attempting this import. Information on how to create or import Catchments is shown in the Runoff Node Catchment se ction.
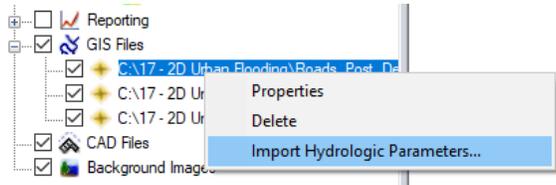
This option will allow the import of the Runoff node sub-catchment hydrologic input parameters (shown below) to be applied to nodes within the model based on the weighted averaging of values defined by different GIS polygon areas.
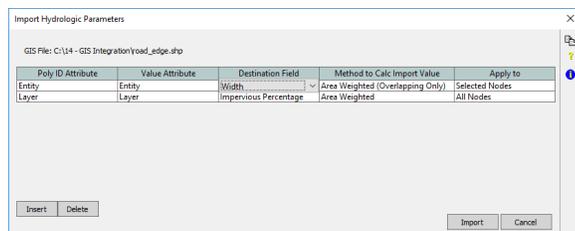
Source

GIS File will be automatically selected based on the selection within the Layer Control Pannel

Polygon Id Attribute: This field is optional, though if an attribute contains each polygon's Id, then these Id' s will be shown in the import summary report. [This is just a way to provide additional detail in the import report log]

Value Attribute: This is the attribute in the GIS file containing the data to import, i.e. the Percent Imperviousness

Destination

Field: This is the xp field to import – available options include the following

XP Field	Field ID Name	Unit	Appropriate Value Range
Percent Impervious	R_WIMP	% (percent)	0 – 100
Subcatchment Width	R_WIDTH	ft, m	0 < Width
Subcatchment Slope	R_SLOPE	ft/ft, m/m	0 < Slope
Laurenson Direct "B"	R_TC	-	0 < "B"
SCS Pervious Area CN	R_CN	-	0 < CN 100
SCS Shape Factor	R_SHF	-	1 < SHF (Typically 484)
Initial Abstraction Depth	R_IA Depth	In, mm	0 IA Depth
Initial Abstraction Fraction	R_IAFRACT	-	0 < IA Fraction 100

Method to Calculate

There are three import methods which will be used;

> *Area Weighted (overlapping only).* If the Catchment area is not completely covered by GIS polygons then the weighted average of the selected variable will be applied, factoring out the portion of the Catchment area which is not covered (i.e. not defined) by GIS polygons.

Area Weighted. The selected runoff variable will be applied by area weighting based on the defined GIS polygons, regardless of coverage (i.e. if a portion of the Catchment area is not covered by GIS polygons, the parameter value for this portion of the Catchment area will be assigned a zero).

Dominant. Of all GIS polygons covering the given Catchment area the one with the most coverage will decide the parameter value.

Apply to

The selected import parameters will be applied to either all nodes or only the nodes selected within the network view depending on which radio button is selected.