Exercise: Run the model and work with parameters

In this exercise, you will assign custom symbology to a model output with a layer file, run the model you just created, and view the results. You will also set model parameters so you can run your model from its tool dialog box, as well as prepare it for sharing by documenting it.

Note: To complete this exercise, you must have successfully completed the previous exercise, *Build a site selection model*.

Estimated completion time: 15 minutes

To complete exercises, you need the following:

   ArcGIS Desktop 10.0 or ArcGIS Desktop 10.1 or ArcGIS Desktop 10.2 (Advanced)

Note: This course contains four exercises. An Advanced license of ArcGIS for Desktop is required to complete two course exercises. An ArcGIS for Desktop Basic or Standard license can be used to complete the other course exercises.

-   Step 1: Run the model and view results

Before you run the model, you will import a layer file into the final result so that it is symbolized automatically when it is added into ArcMap.

> If you are continuing this exercise from the previous one, make ArcMap the active application (SitePlant.mxd should be open). Otherwise, navigate to **..\Student\BldgModels10_0** and open SitePlant.mxd.

> If necessary, from the Site_Plant toolbox, open the Wastewater Site Sel model.

Remind me how
Right-click Wastewater Site Sel and choose Edit.

> Right-click the Candidates output data element and choose Properties.

> Click the Layer Symbology tab, and then click the folder button.

> Navigate to **..\Student\BldgModels10_0**, double-click Candidates.lyr, and click OK.
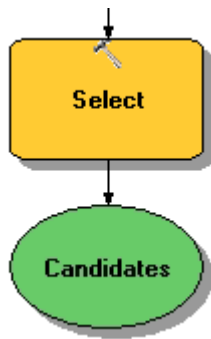
Now, when this Candidates layer is created and added to ArcMap, it will be symbolized automatically with custom symbology.

> Save the model.

> From the Model menu, choose Run Entire Model.

> **?** Why do the derived data elements and tools have a shadow under them?
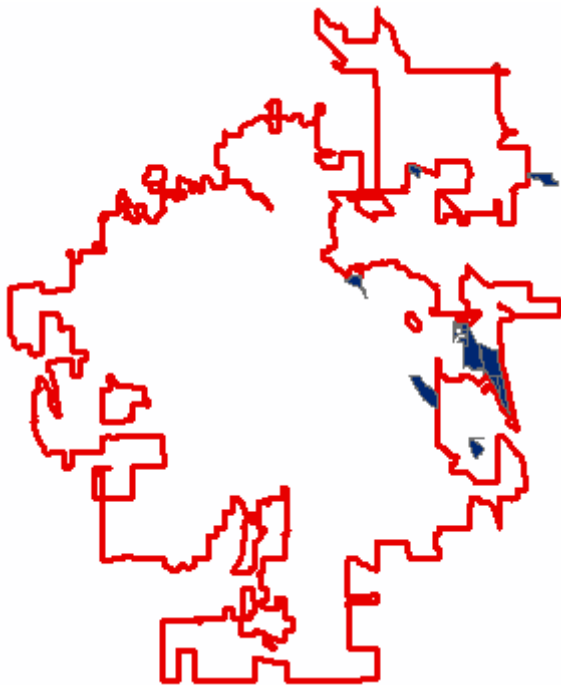

Step 1a: Run the model and view results.

If necessary, close the progress window, and then save and close the model.

In ArcMap, turn off all layers except Candidates and City Limits.

If necessary, zoom in to get a closer look.

You can see the candidate parcels, where those parcels fall relative to the city limits, and their symbology with the layer file you specified. All these candidates are within 1 mile of the city limits.

Step 1b: Run the model and view results.

Open the attribute table for Candidates.

Using GIS analysis, you narrowed down thousands of parcels to just a few candidates. The results of this analysis can be presented to decision-makers. The criteria can then be refined to further narrow down the list of candidates, eventually identifying the single best location for the treatment plant.

Save your map.

- **Step 2: Work with model parameters and intermediate data**

Next, you will compare the differences between running a model from ModelBuilder and from its tool dialog box. You will also incorporate model parameters.

In the Catalog window, locate the Wastewater Site Sel model and double-click it.

This tool has no parameters.

Step 2a: Work with model
parameters and intermediate
data.

Opening a model this way runs it from the tool dialog box. While models contain many processes, they are essentially tools. The note ("This tool has no parameters") only means that no model parameters have been set. If you ran this model from the tool dialog box, it would run properly, but it would contain all the tool parameters that were already set in the model. You would not be able to enter your own data.
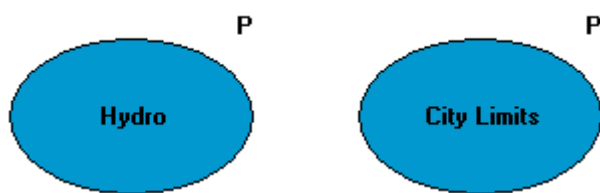
Click Cancel.

Right-click the Wastewater Site Sel model and choose Edit.

If necessary, zoom to the model's full extent.

Right-click each of the five blue input data elements at the top of the model and choose Model Parameter.

Each element will have a P next to its name.

Step 2b: Work with model parameters and
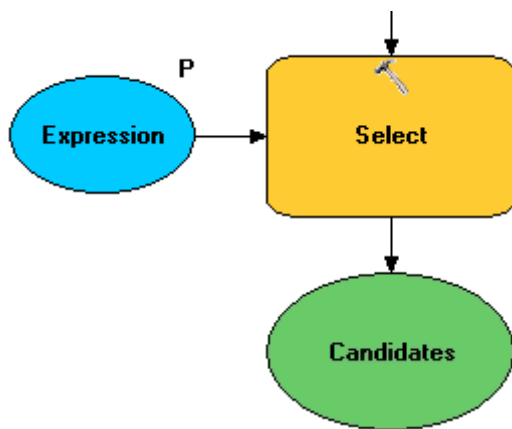intermediate data.

You are also able to set a parameter to a tool, such as an expression, as a model parameter so that others who use your model can easily enter their own expression when they run the model.

Locate the Select tool in the model and right-click it.

Choose Make Variable > From Parameter > Expression.

Move the newly added variable element to the left of the model.

Right-click the new expression variable and choose Model Parameter.

Step 2c: Work with model parameters and intermediate data.

Save the model and close it.

In the Catalog window, double-click the model again.

The elements you set as model parameters can now be modified before you run the tool.

Running a model from its tool dialog box allows you to modify model parameters easily and enter your own data. Another advantage is that all intermediate data is deleted automatically when a model is run as a tool. When you run a model from ModelBuilder, as you did in this exercise, all intermediate data is preserved.

Click Cancel.

If necessary, in the Catalog window, navigate to the FtCollins.gdb and expand it.

- ☐ 🗄 **FtCollins.gdb**
  - ▦ Background
  - ▦ Candidates
  - ▦ CityBuf
  - ▦ CityLimits
  - ⊞ ▦ demzft_int
  - ▦ FloodPlain
  - ⊞ ▦ hillsh
  - ▦ Hydro
  - ▦ MustBeIn
  - ▦ Parks
  - ▦ ParksBuf
  - ▦ ResBuf
  - ▦ ResParcels
  - ▦ RiverBuf
  - ⊞ 🗇 Site_Plant
  - ▦ SuitableAreas
  - ▦ Unsuitable
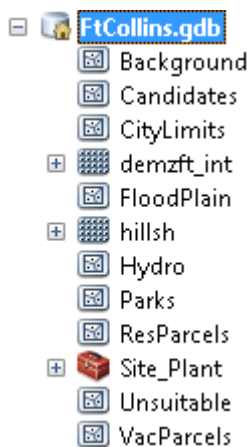 - ▦ VacantSuitable
  - ▦ VacParcels

Step 2d: Work with model parameters and intermediate data.

This geodatabase is filled with intermediate data from the execution of the model. These datasets (CityBuf, MustBeIn, etc.) are not needed anymore and can therefore be removed. You can quickly do this from the model.

> In the Catalog window, right-click Wastewater Site Sel and choose Edit.

> From the Model menu, choose Delete Intermediate Data.

FtCollins.gdb has been cleaned of all intermediate data.

- ☐ 🗄 **FtCollins.gdb**
  - ▦ Background
  - ▦ Candidates
  - ▦ CityLimits
  - ⊞ ▦ demzft_int
  - ▦ FloodPlain
  - ⊞ ▦ hillsh
  - ▦ Hydro
  - ▦ Parks
  - ▦ ResParcels
  - ⊞ 🗇 Site_Plant
  - ▦ Unsuitable
  - ▦ VacParcels

Step 2e: Work with model parameters and intermediate data.

Save the model.

- **Step 3: Document your model**

Before sharing your model, you may want to document it. Just as it is important to document your datasets, it is equally important to document your models.

> **?** Why do you think it is important to provide documentation for your models?

An easy way to document your model is by adding labels to the model, tools, or data elements.
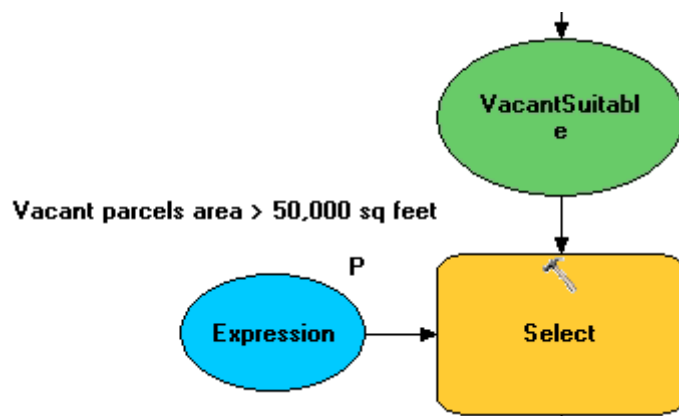
If necessary, zoom in to the Select tool in the model.

Right-click the Expression variable and choose Create Label.

With the Select tool ▶ , click anywhere inside the white space to unselect all elements and then drag the new label away.

The dashed line represents a connection between this label and the variable.

Double-click the text Label to select it and type **Vacant parcels area > 50,000 sq feet**, and then press ENTER.
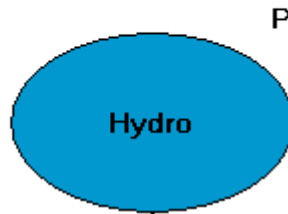

Step 3a: Document your model.

Click the Full Extent button 🔲.

Zoom in to the upper left of the model.

Right-click the white space and choose Create Label.

Position the label with the Select tool.

Change the text in the Label to **Locates suitable sites for new wastewater treatment plant**, and then press ENTER.

Locates suitable sites for new wastewater treatment plant

P

Hydro

Step 3b: Document your model.

Save and close your model.

You can also create an item description of your model in the Catalog window.

In the Catalog window, right-click your model and choose Item Description.

Notice the model summary, the parameter information, and additional information you can supply for your model. To save time, you will provide information for only a couple of items.

Click the Edit button.

For Summary, type **This model locates suitable sites for a new wastewater treatment plant**.

Scroll down and expand the Hydro parameter.

For Dialog Explanation, type **Input feature class for river the treatment plant must be near.**

You might also want to add contact, usage constraints, or other information about your model.

Click Save.

Close the Item Description window.

Open the model tool again.

Congratulations! You have successfully built a model that performs site selection analysis, and you have prepared and documented your model for sharing.

Save your map and close ArcMap.