

7-2016

# Getting Started with ArcGIS ModelBuilder - Part 1

Bailey A. Hanson

Iowa State University, bahanson@iastate.edu

Christopher J. Seeger

Iowa State University, cjseeger@iastate.edu

Follow this and additional works at: [http://lib.dr.iastate.edu/extension\\_pubs](http://lib.dr.iastate.edu/extension_pubs)

 Part of the [Architectural Technology Commons](#), [Landscape Architecture Commons](#), [Other Architecture Commons](#), and the [Urban, Community and Regional Planning Commons](#)

---

## Recommended Citation

Hanson, Bailey A. and Seeger, Christopher J., "Getting Started with ArcGIS ModelBuilder - Part 1" (2016). *Extension and Outreach Publications*. 122.

[http://lib.dr.iastate.edu/extension\\_pubs/122](http://lib.dr.iastate.edu/extension_pubs/122)

**Iowa State University Extension and Outreach publications in the Iowa State University Digital Repository are made available for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current publications and information from Iowa State University Extension and Outreach, please visit <http://www.extension.iastate.edu>.**

## Getting Started with ArcGIS ModelBuilder - Part 1

ArcGIS 10.4+

Welcome to the Essential ArcGIS Task Sheet Series. This series supplements the Iowa State University GIS Geospatial Technology Training Program short course series, “Essential ArcGIS Tutorial Series.” The task sheets are designed to provide quick, easy instructions for performing specific tasks in GIS.

ModelBuilder is a visual programming language for building geoprocessing workflows. Geoprocessing models automate and document your spatial analysis and data management processes. You create and modify geoprocessing models in ModelBuilder, where a model is represented as a diagram that chains together sequences of processes and geoprocessing tools, using the output of one process as the input to another process. This task sheet will step you through the process of creating a new toolbox, and geoprocessing model in ArcMap to find all the highways within 10 miles of a hospital.

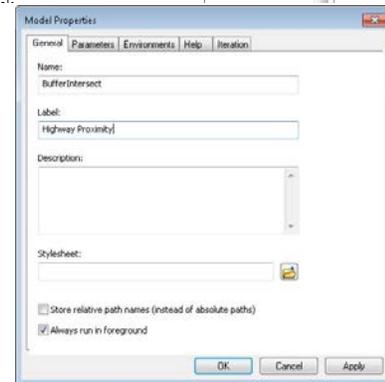
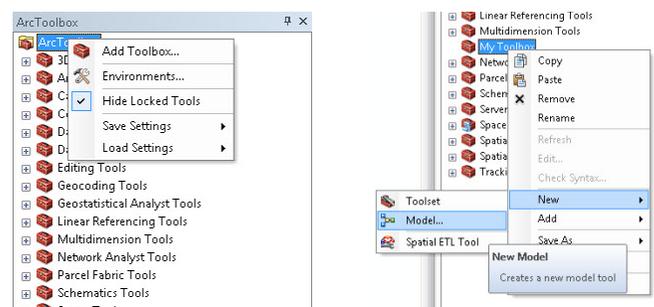
### 1. Download the Data

- To download the data used in this task sheet, navigate to [www.extension.iastate.edu/communities/gis/quicktasksheets/data](http://www.extension.iastate.edu/communities/gis/quicktasksheets/data) in a web browser. Click on the publication number: **PM2082-16m**.
- When the download is complete, you will need to unzip the folder in order to access the files in ArcGIS. The folder contains a the following shapefiles: highways, hospitals, and museums.



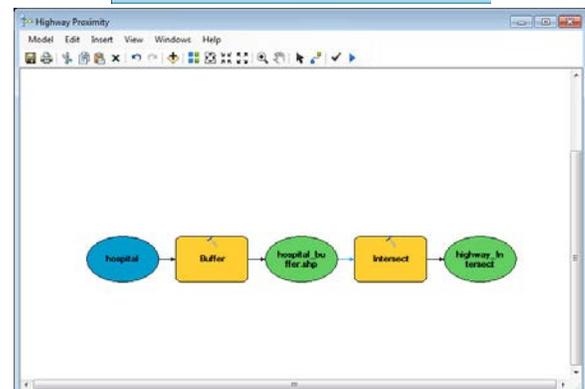
### 2. Create a New Toolbox and Model

- In a blank ArcMap document, open **ArcToolbox**. Right-click **ArcToolbox** and select **New Toolbox**. Name the new toolbox **My Toolbox**. Right-click on **My Toolbox** and select **New > Model**.
- In the **Model** window select **Model > Model Properties**. In the **Model Properties** window type **BufferIntersect** under **Name** and type **Highway Proximity** under **Label**. Click **OK**.

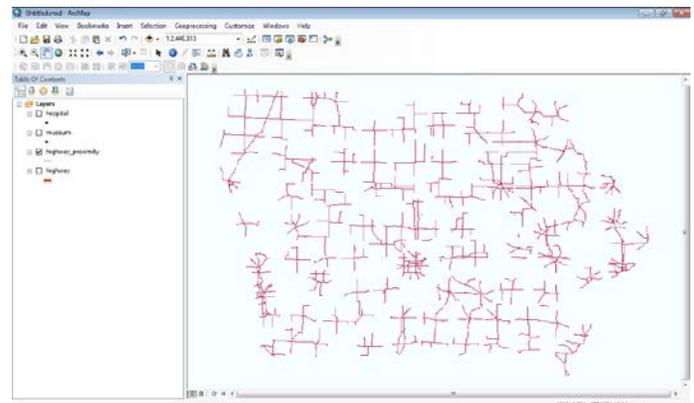
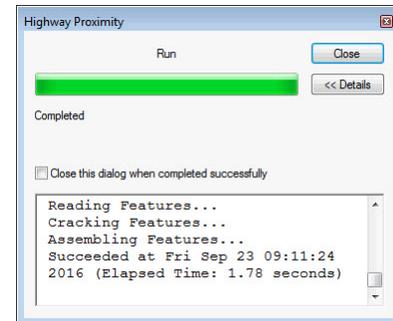
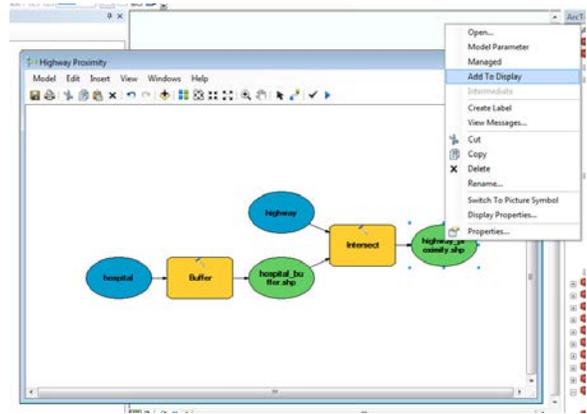


### 3. Build a New Model

- With the **Highway Proximity** model still open, view the **ArcToolbox** and expand **Analysis Tools > Proximity** and click and drag the **Buffer** tool into the model window. Right-click the **Buffer** tool within the model and select **Open**.
- From the **Input Features** drop-down menu, select **hospital**. Under **Output Feature Class**, click the folder icon and browse and select an appropriate location for the output file. Under **Linear units**, type **10**, and select **Miles** as the units from the drop-down menu. Click **OK**.



- c. You will notice that the hospital layer get added to the model, with a line connecting it to the Buffer tool.
- d. From the **Table of Contents**, click and drag the **highway** layer into the **ModelBuilder** window. Select the **Add Connection** tool and use it to connect the highway layer to the **Intersect** tool, select **Input Feature**.
- e. Right-click on the output file **highway\_proximity.shp** and select **Add to Display**. *Note: this will add the resulting file to the ArcMap display.*
- f. Save the model by selecting **Model > Save**. Then run the model by selecting **Model > Run Entire Model**. When the model is finished running click **Close** on the window. Close the model to see the highway proximity model results in ArcMap.



## Contact:

Bailey Hanson bahanson@iastate.edu, 515-520-1436 or Professor Christopher J. Seeger, ASLA, GISP cjseeger@iastate.edu, 515-509-0651 for more information about the Geospatial Technology Program. This task sheet and more are available at [www.extension.iastate.edu/communities/gis](http://www.extension.iastate.edu/communities/gis)

...and justice for all  
 The US Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue SW, Washington, DC 20250-9410, or call 800-795-3272 (voice) or 202-720-6382 (TDD).

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the US Department of Agriculture. Cathann Kress, director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.