

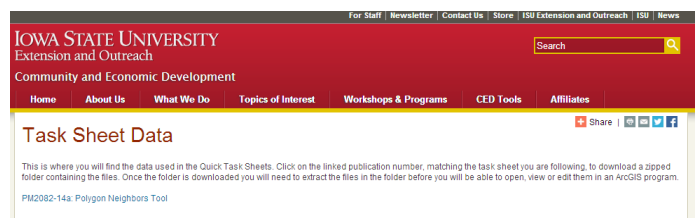
The Polygon Neighbors Tool

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.

The ArcGIS Polygon Neighbors geoprocessing tool analyzes polygon contiguity by statistically summarizing areas of overlap, coincident edges, or nodes. Only first-order contiguity is analyzed and results are written to an output table. This task sheet will demonstrate how to use the Polygon Neighbors geoprocessing tool to identify the neighboring counties for each county in Iowa.

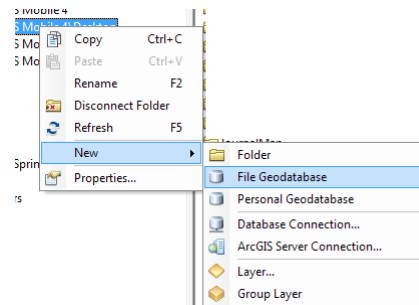
1. Download Data

- Download the data used in this task sheet by navigating to www.extension.iastate.edu/communities/gis/quicktasksheets/data. Click on the publication number that matches this task sheet. In this case, the publication number is **PM2082-14a**. *Note: the publication number can be found on the bottom right-hand corner of the second page of this task sheet.*



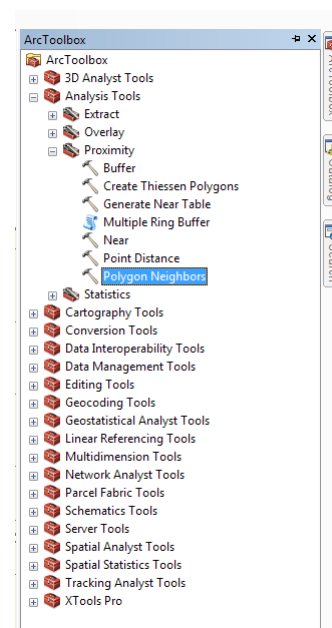
2. Create an Output File Geodatabase

- Open **ArcCatalog**, click **Start > All Programs > ArcGIS > ArcCatalog**.
- Browse to the appropriate location or folder and right-click. Select **New > File Geodatabase** and give it a meaningful name. *Note: this is where you will save your output table.*

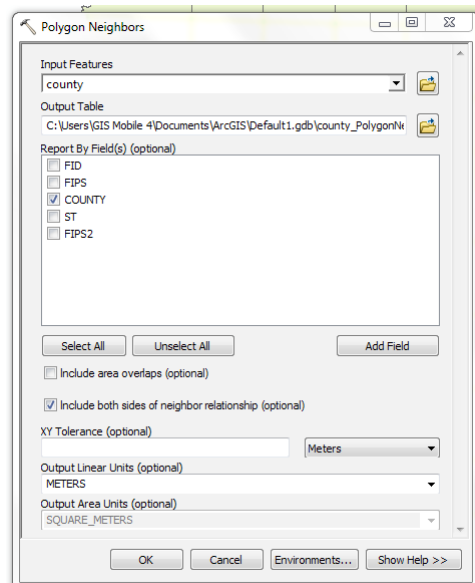


3. Fill Out Tool Parameters

- Open a blank **ArcMap** document, click **Start > All Programs > ArcGIS > ArcMap**.
- Click the **Add Data** icon and select **county.shp** from the folder it resides in. *Note: the shapefile will need to be extracted from the zipped folder before it can be added or viewed in ArcGIS programs.*
- Open the Polygon Neighbors tool, click on the **ArcToolbox** icon on the Standard toolbar and open **Analysis Tools > Proximity** and double-click on **Polygon Neighbors**. *Note: or use the Search window with the keyword 'neighbors'.*
- In the **Polygon Neighbors** dialog box, click on the drop-down arrow in the **Input Features** box and select **county**.



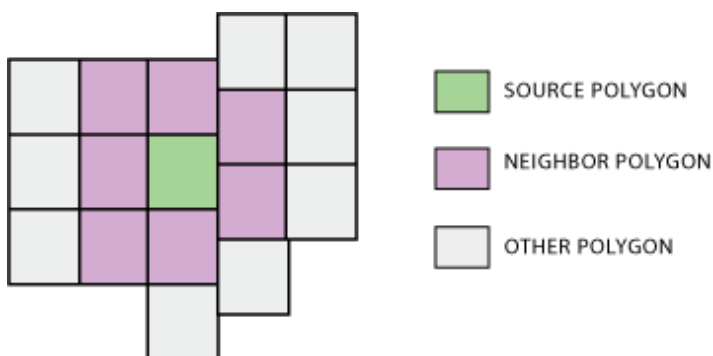
- e. Click on the folder icon next to the **Output Table** box and navigate to your new file geodatabase, created in step 2, and name the table **CountyNeighbors**.
- f. Check the box next to **COUNTY** in the **Report By Fields** box. This is an optional setting: all or none of the fields could be select. The COUNTY field will be used to identify the source county and its neighboring counties in the output table.
- g. Uncheck the **Include area overlaps** box and check the **Include both sides of neighbor relationship** box.
- h. Leave the **XY Tolerance** box blank and leave all other default settings the same.
- i. Click **OK**.



4. Add Output Table to ArcMap

- a. Add the output table to your ArcMap document. Select the **Add Data** icon, navigate to your new file geodatabase, and select the **CountyNeighbors** table.
- b. Your table should have five fields: OBJECTID, src_COUNTY, nbr_COUNTY, LENGHT, and NODE_COUNT. In this case only two fields are important to us. The **src_COUNTY** (source polygon) and **nbr_COUNTY** (neighbor polygon) fields. *see the figure below.*
- c. You now have a table listing each county in Iowa and their respective neighboring Iowa counties. *Note: if you want to know all neighboring counties (e.g. out-of-state counties) you will need to use a shapefile that includes the counties surrounding Iowa.*

OBJECTID	src_COUNTY	nbr_COUNTY	LENGHT	NODE_COUNT
1	Adair	Adams	19282.049806	0
2	Adair	Audubon	0	1
3	Adair	Cass	38459.759987	0
4	Adair	Dallas	0	1
5	Adair	Guthrie	38318.152804	0
6	Adair	Madison	38479.331172	0
7	Adair	Union	19228.132072	0
8	Adams	Adair	19282.049806	0
9	Adams	Cass	19051.520344	0
10	Adams	Montgomery	28653.135316	0
11	Adams	Page	0	1
12	Adams	Ringgold	0	1
13	Adams	Taylor	38550.63164	0
14	Adams	Union	28676.652641	0
15	Allamakee	Clayton	34920.33352	0
16	Allamakee	Fayette	0	1
17	Allamakee	Winneshek	47103.248283	0
18	Appanoose	Davis	34192.127703	0
19	Appanoose	Lucas	0	1
20	Appanoose	Monroe	38605.907556	0
21	Appanoose	Wapello	0	1
22	Appanoose	Wayne	34890.36253	0
23	Audubon	Adair	0	1
24	Audubon	Carroll	28894.768075	0
25	Audubon	Cass	28411.260315	0
26	Audubon	Crawford	0	1
27	Audubon	Guthrie	43391.664007	0
28	Audubon	Shelby	44122.712202	0
29	Benton	Black Hawk	19274.032219	0
30	Benton	Buchanan	19268.826888	0
31	Benton	Iowa	38721.21947	0
32	Benton	Johnson	0	1
33	Benton	Linn	48549.423326	0
34	Benton	Poweshiek	0	1



<http://resources.arcgis.com/en/help/main/10.2/index.html#//000800000045000000>

Contact:

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

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