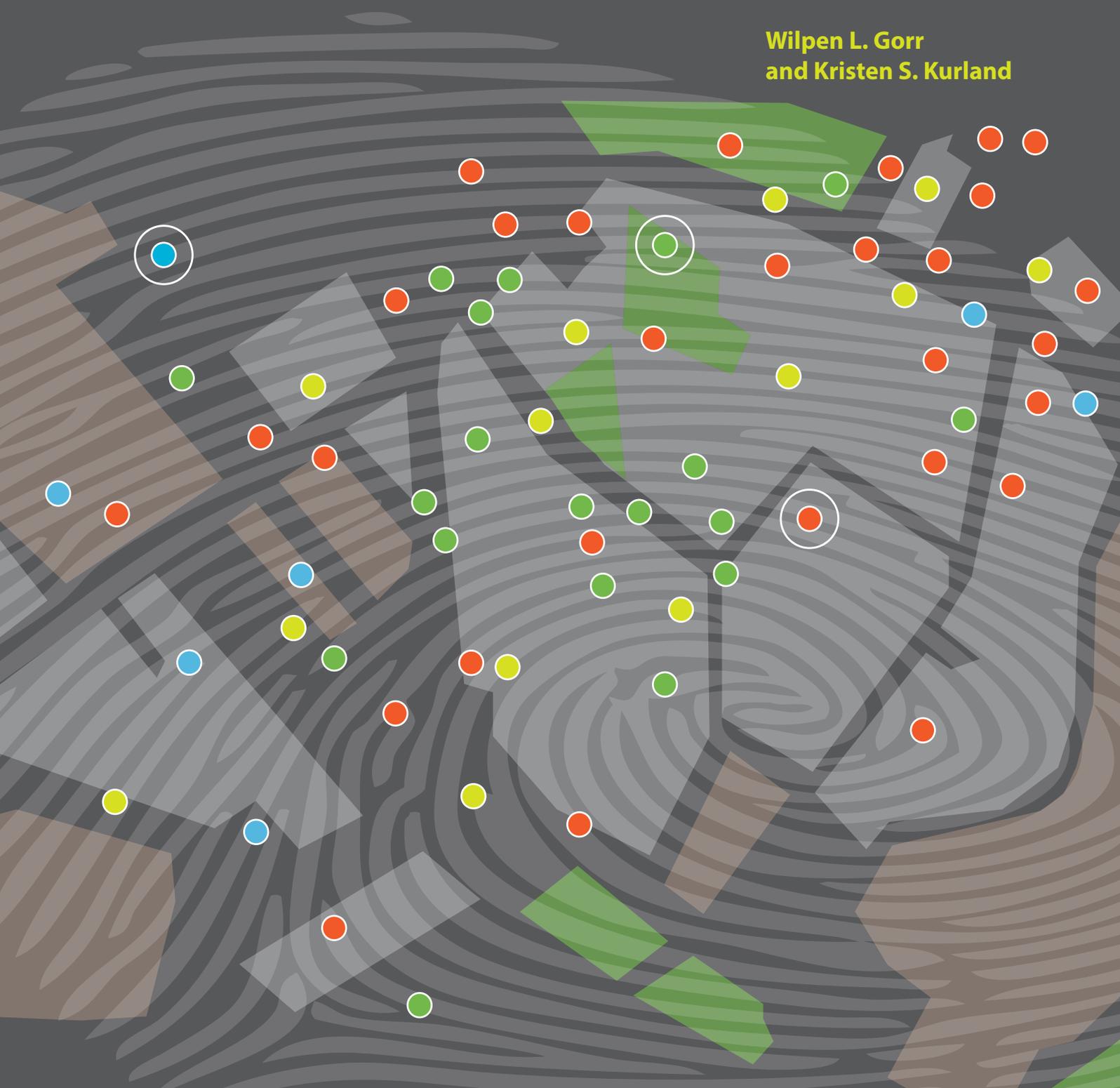


# GIS Tutorial for Crime Analysis

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*GIS Tutorial for Crime Analysis Supplement for ArcGIS 10.2*

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## Introduction

This supplemental booklet has updates, changes, additions, and corrections for *GIS Tutorial for Crime Analysis*, first edition (2012). There are many reasons for this Supplement for ArcGIS 10.2 booklet. First, websites are frequently updated, so workbook steps or readings that have you refer to or use websites sometimes need corresponding changes. Also, the developers of ArcGIS for Desktop provide quarterly software releases with new and revised functionality. Some of these software changes need corresponding changes in workbook steps. This booklet is based on the ArcGIS 10.2.2 for Desktop Advanced license. Finally, there are always some errors or unclear workbook instructions discovered by users, such as yourself, that simply need to be fixed. Please e-mail either author ([gorr@cmu.edu](mailto:gorr@cmu.edu) or [kurland@cmu.edu](mailto:kurland@cmu.edu)) with any new errors or problems that you encounter, and you'll get a quick response, either a thank-you or some help.

Here's how to use this booklet. When working through a chapter of the workbook, first scan this booklet's corresponding section (identified by chapter number and title), looking for changes as provided by page and step numbers of the workbook. A good practice is to make a mark in the workbook for each change or addition in this booklet, and then when you come to a marked location in the workbook, read and use the material in this booklet. Alternatively, just keep both the workbook and this booklet open, checking for changes as you work.

There are no tutorial steps using ArcGIS in chapter 1, so the booklet starts with chapter 2.

## Part 1

Working with crime maps

### Chapter 2

#### Changes for Exploring ArcGIS Desktop

Page 16, “Add and remove layers in the table of contents,” step 1

Replace “expand the My Computer directory” with “Expand the Computer directory”.

Page 17, map at the top of the page

**Note:** Although the map in the book shows all of Pittsburgh, your map should still be zoomed into Pittsburgh’s point. If you have the wrong map extent on your computer, you can use navigation tools on the Tools toolbar to get to Pittsburgh’s point—the blue arrows to go to previous or next extent, and the blue and green world button to go back to all of Pittsburgh (full extent).

Page 17, step 4

**Note:** The Zoom To Nearest Cache Resolution option is no longer available. This would have zoomed to the nearest, best map extent given the quality of the image.

Page 18, Your Turn

**Note:** Shaded Relief and USA Topo Maps are no longer available. Instead, try the Topographic basemap. Although you are using the File > Add Data > Add Basemap option, you can also try the File > Add Data > Add Data From ArcGIS Online option, which allows you to search for data from Esri’s vast collection of map layers as supplied by Esri, spatial data vendors, and users.

**Page 20, Your Turn**

**Note:** To read and access data, click the Description tab in ArcCatalog. If an Upgrade Metadata window appears, click Yes (then wait a moment) > OK > Close to upgrade the internal storage of Blocks metadata.

## Chapter 3

### Changes for Using crime maps

#### Page 37, "Create new bookmark," step 2

Replace "Create" with "Create bookmark".

#### Page 37, "Create new bookmark," step 4

Replace "Manage" with "Manage Bookmarks".

#### Page 37, "Export map," step 7

Replace "My Computer" with "Computer".

#### Page 40, Your Turn

**Note:** You can copy the minimum or maximum scales (which are the same) from the General tab of Burglary Count: July 2008 or Burglary Level: July 2008 and paste to the appropriate Out beyond or In beyond fields to set the visible scale ranges of additional map layers.

## Chapter 4

### Changes for Designing and building crime maps

#### Page 60, step 3

Also, make the street outline width **0.75**.

#### Page 63, step 6

The query that you build will have additional zeros for date values, to represent times.

There are no time values in the data. Your query should look like this:

```
DateOccur >= date '2008-06-14 00:00:00' AND
```

```
DateOccur <= date '2008-07-04 00:00:00' AND
```

```
Hierarchy >= 1 AND
```

```
Hierarchy <= 7
```

#### Page 67, “Set field properties,” step 1

A better instruction for clearing fields is to clear the check boxes from OBJECTID through ARC\_STREET to turn off the labels for the first seven fields.

#### Page 72, Create “change map” data using spreadsheet software (optional exercise), step 1

Before you open BurlarySeriesComplete200810.xlsx, you have to save and close ArcMap because ArcMap has control of that spreadsheet and Windows won't let you open it in another package. Then open whatever version of Microsoft Excel you have and complete the step.

#### Page 74, step 8

Rename the tab at the bottom left of your worksheet **BurglarySeriesCompleteChg200810**.

**Page 75, step 2**

Your query should look like this:

```
DateOccur >= date '2008-07-01 00:00:00' AND
```

```
DateOccur <= date '2008-07-31 00:00:00' AND
```

```
Hierarchy = 5
```

## Part 2

Conducting crime analysis

### Chapter 5

Changes for Querying crime maps

Page 100, "Obtain statistics on crimes within a buffer area," step 2

Replace the figure with the one below. Also note that 27 records, not 26 records, are selected.

Select By Location

Select features from one or more target layers based on their location in relation to the features in the source layer.

Selection method:  
select features from

Target layer(s):

- BarsSouthside
- Robberies, Drug Offenses
- BarBuffer275
- Police Sectors
- Rivers
- Streets

Only show selectable layers in this list

Source layer:  
Police Sectors

Use selected features (1 features selected)

Spatial selection method for target layer feature(s):  
intersect the source layer feature

Apply a search distance  
800,000,000 Feet

[About select by location](#) OK Apply Close

**Page 101, step 4**

**Note:** If you get an error message with ERROR 000210, change some of your environmental settings. Click Geoprocessing > Environments > Workspace, and set both the Current Workspace and Scratch Workspace to **\EsriPress\GISTCrime\MyExercises\Chapter4\Chapter4.gdb**.

## Chapter 6

### Changes for Building crime map animations

**Note on this entire chapter: make changes if you are running ArcGIS for Desktop 10.2.2. Otherwise if using an earlier version, just work the tutorial as is.**

ArcGIS for Desktop 10.2.2 has a bug in its Time Slider and similar Time View graphical interfaces, so if you are running that version of ArcGIS follow instructions below carefully. Do not select Time Slider or Time View at any time!

**Page 111, do not do steps 1 and 2! Skip them. Start with step 4.**

**Note:** The Time View tab used in these steps has a bug. If you select this tab, your computer will freeze, and you'll have to close ArcMap and start over.

**Page 111, replacement for step 5**

- 5. Do not click the Calculate button. Check to make sure that the “By number of frames” option button is selected and that 34 is the value in that field. If the value is not 34, type 34 and press the Tab key. Change the Frame duration value to 0.5 seconds and press the Tab key.**

**Page 112, Your Turn**

Do not use the Time Slider. Instead, play the animation using the controls on the Animation toolbar. Change the frame duration from 0.5 to **1.0** seconds using Animation Controls Options to study the pattern more easily.

Pages 113–14, “Add XY layer,” replacement for steps 1–3

1. **Open Catalog and expand the tree to find ATMDateStamp.cvs.**
2. **In the Catalog tree, right-click ATMDateStamp.cvs and click Create Feature Class > From XY table. In the Create Feature Class From XY Table window, set the coordinate system to [NAD\\_1983\\_StatePlane\\_Pennsylvania\\_South\\_FIPS\\_3702\\_Feet](#). Save the output shapefile as [XYATMDateStamp.shp](#) to the Chapter6 folder. Click OK. Drag XYATMDateStamp.shp from Catalog to the table of contents. Close Catalog.**
3. **In the table of contents, double-click XYATMDateStamp.shp, click the Symbology tab, and click the Symbol button. Change the symbol to [Circle 1, Size 1, No Color](#). Click OK.**

Page 116, Your Turn

For the first bullet, make sure that the time properties for Serious Crimes 4 Weeks Context Hierarchy are not enabled.

For the third bullet, make sure that the unit for Keyframes is Days. Each time you make a new animation, set keyframe units to days.

For the fourth bullet, select “By number of frames”, and if the value is not 366, type **366** in the corresponding field. Then select “Play only from”, and type **172** to **195**, corresponding to July 6 through July 27. If the time slider did not have a bug, you would have a graphical way of selecting values such as the range 172 through 195.

**Page 117, Your Turn**

Use the new instructions for the page 116 Your Turn given on the previous page to do this Your Turn. Do not use the Time View window, but instead play the animation with the Animation toolbar controls. Create an XY feature layer from PinMapDateStamp.csv in the Chapter6 folder in FinishedExercises.

**Page 118, skip the “Explore emerging hot spot” exercise**

Using the Time View tab would freeze your computer.

**Page 119, step 7**

**Note:** Do not enable time properties for FiremanWay.shp. You’ll use it in a group animation that has a different way of displaying layers in an animation.

**Page 120, skip steps 3–8 and do this work-around**

**Note:** The Time View graphical interface would crash your computer. Instead, use the following work-around, in which the instructions directly give you the start and end points for displaying FiremanWay.shp, from just before to just after the hot spot is active in that area.

- 3. In Animation Manager, click the Keyframes tab and type 0.480 for the End Fade In time and 0.520 for the End Fade Out time so that the three values in the Time column are 0.000, 0.480, and 0.520.**
- 4. Play the animation using the Animation toolbar controls.**

## Chapter 7

### Changes for Conducting hot spot analysis

#### Page 131, “Create size-graduated point markers,” step 3

**Note:** After the Collect Event tool finishes running, you may notice a warning in the lower right of your computer screen. Click it to open the warning message. It says that there was a problem reading 214 of the drug call events, but these are just the records that were not geocoded (because either the corresponding police records had poor address data or the street centerline layer used in geocoding had some errors) and thus are not on the map. You’ll learn about geocoding in chapter 9.

#### Page 138, “Create contour polygons defining a drug hot spot”

**Note:** The steps in this exercise create *polylines*, and not *polygons* as stated. The reason is that some contours may not form closed polygons, and you can find one of these in your output after step 5. Consequently, you cannot select features from other map layers, such as Drug Calls, using the contours.

#### Page 139, step 5

Instead of opening the HotSpotContour table, with a contour selected just press the Delete key.

#### Page 141, “Create block centroid map layer,” step 4

To click Import, click the Add Coordinate System button  , click Import, navigate to Pittsburgh.gdb, and click Blocks > Add > OK > OK.

## Part 3

Building a crime mapping and analysis system

### Chapter 8

Changes for Assembling jurisdiction maps

Pages 154–157, replacement for tutorial 8-1

**Note:** This replacement, for page 154 to the middle of page 157 of tutorial 8-1, has you use the new Census Bureau website.

#### Tutorial 8-1 Downloading and preprocessing basemaps

The first task for assembling a jurisdiction map is to download free basemaps and census data. You need to process some of the downloaded files before using them, but those instructions will follow in subsequent exercises later in this chapter.

#### Download TIGER basemaps from the Census Bureau website

1. **Start a web browser, such as Internet Explorer, and go to [www.census.gov](http://www.census.gov).  
Click to open the website.**
2. **On the horizontal navigation bar, hover over Geography, and from the resulting drop-down list, click the Maps & Data link, and then click the TIGER Products link, in the left panel under Data.**

3. Click **TIGER/Line Shapefiles** in the **Product** column under “**which product should I use?**” Then click the **2009** tab > **Download** > **Web Interface**.

A shapefile is a simple map file format designed by Esri that is in wide use.

4. In the **state- and county-based shapefiles** panel on the right, select **Pennsylvania** and click **Submit**. Then select **Allegheny County** and click **submit**.
5. Select files as shown in the figure below.

U.S. Department of Commerce | Blogs | Index A-Z | Glossary | FAQs

Search

United States Census Bureau

Topics  
Population, Economy

Geography  
Maps, Geographic Data

Library  
Infographics, Publications

Data  
Tools, Developers

About the Bureau  
Research, Surveys

Newsroom  
News, Events, Blogs

## 2009 TIGER/Line® Shapefiles for: Allegheny County,

[Return to: national files](#) | [Pennsylvania files](#) | [TIGER/Line Shapefiles Main](#)

### Files for: Allegheny County

Select All Clear Selection

- All Lines
- Area Hydrography
- Area Landmark
- Point Landmark
- Topological Faces (Polygons With All Geocodes)
- Block (Current)
- Block (Census 2000)
- Block Group (Census 2000)
- Census Tract (Census 2000)
- County Subdivision (Current)
- County Subdivision (Census 2000)
- Traffic Analysis Zone (Census 2000)
- Voting District (Census 2000)
- Address Range-Feature Name Relationship File
- Address Ranges Relationship File
- Feature Names Relationship File
- Topological Faces-Area Hydrography Relationship File
- Topological Faces-Area Landmark Relationship File

Download Selected Files

- 6. Click Download Selected Files > Open. Extract all files to the Downloads subfolder in the Chapter8 folder in MyExercises.**

The result is five compressed files in a ZIP folder called multiple\_tiger\_files with subfolders 42\_Pennsylvania, then 42003\_Allegheny\_County, and finally zipped files as follows:

tl\_2009\_42003\_areawater.zip

tl\_2009\_42003\_cousub00.zip

tl\_2009\_42003\_edges.zip

tl\_2009\_42003\_tabblock00.zip

tl\_2009\_42003\_tract00.zip

- 7. Open a Computer window and extract each of the compressed files to the Downloads folder (double-click each zipped file and click the Extract all files button).**
- 8. Delete the multiple\_tiger\_files folder that has the compressed files to save space on your hard drive.**

**9. Look in a Computer window to see that each shapefile consists of five data files.**

For example, tl\_2009\_42003\_areawater.shp is the shapefile for water features and so carries the .shp file extension. The .shp file stores the graphic features, the .dbf file stores the attribute table, the .prj file stores metadata on the coordinate system or projection of the map layer, and the .shx file contains an index to speed up processing of the shapefile. The fifth file is an XML document that has metadata for the layer (try double-clicking it to see the metadata). Note that the “42” in the file names is the Census Bureau code for Pennsylvania, and “003” is the code for Allegheny County.

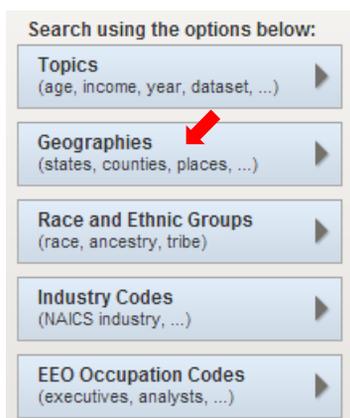
### **Download census data**

Census data for 2000 and 2010 and American Community Survey (ACS) data is available from the same web pages of the Census Bureau website. The Census Bureau’s SF1 (Summary File 1) data provides basic census data on population, housing units, and households. This data is available for all census levels, including tracts, block groups, and blocks. For detailed data on education, income, transportation, and other subjects, you can download sample-based estimates from the ACS. In the 2000 and previous censuses, such data was collected in the census long form randomly from one out of six households and was called SF3 (Summary File 3) data. Now the Census Bureau collects ACS data monthly—approximately 3 million housing units annually receive a survey similar to the old long-form questionnaire. Annual, three-year, and five-year estimates produced from ACS samples are available. To learn more

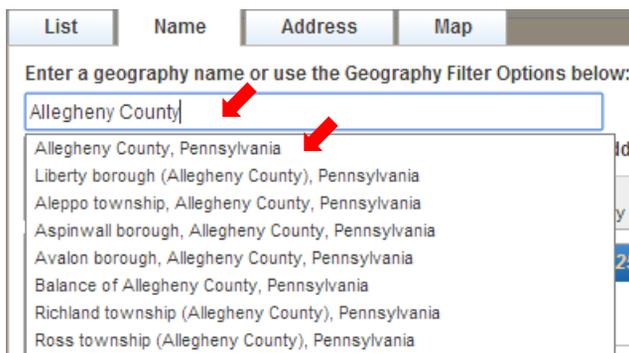
about the ACS, visit the website at [www.census.gov/acs/www/](http://www.census.gov/acs/www/). In this tutorial, you extract 2000 SF3 data on poverty at the tract level for Allegheny County.

### Get started on downloading census data

1. Using your browser, go to <http://factfinder2.census.gov>.
2. On the horizontal toolbar, click **ADVANCED SEARCH**. Then click the **Geographies** button.



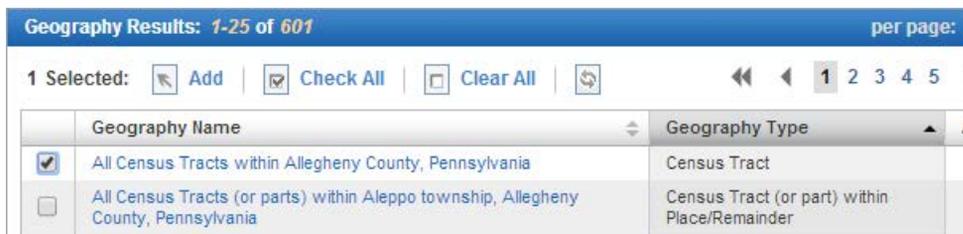
3. Click the **Name** tab of the **Select Geographies** window; type **Allegheny County**; click **Allegheny County, Pennsylvania**, in the drop-down list; and click **Go**.



**4. In the Geography Filter Options panel, click Census Tract.**

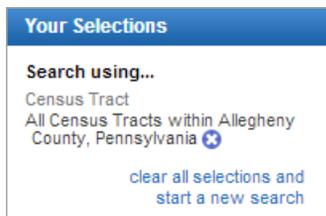


**5. In the Geography Results panel, select the check box for All Census Tracts within Allegheny County, Pennsylvania, and then click Add.**



**6. Close the Select Geographies window.**

Your selection should be as follows. The Search Results panel displays data collections that are available at the census tract level.



### Finish up downloading census data

1. In the Refine your search results text box, type **P087** and click Go. Then select the check box for **Poverty Status in 1999 By Age**.

|                                     | ID   | Table, File or Document Title                      | Dataset              | About  |
|-------------------------------------|------|--|----------------------|--|
| <input checked="" type="checkbox"/> | P087 | <a href="#">POVERTY STATUS IN 1999 BY AGE [17]</a> | 2000 SF3 Sample Data |  |

2. Click the **Download** button > **OK** > **Download** and open the downloaded compressed file.
3. Extract all files to the **Chapter8/Downloads** folder of **MyExercises**.

The DEC\_00\_SF3\_P087\_with\_ann.csv file has the SF3 data.

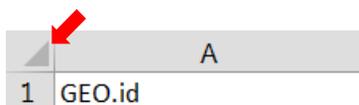
4. **Close your browser.**

### Preprocess census data in Microsoft Excel (optional exercise)

The data you just downloaded needs to be put into table form, with the top row containing attribute names and all the remaining rows containing raw data only. Instead, the data has two identifying rows at the top, and the remainder of the rows have raw data. You'll need to replace these two rows with one that has self-documenting attribute names. Of the many columns available in the data table, you only need the first half and thus will delete the rest. The easiest way to carry out these tasks is to open the data in Microsoft Excel and do the work there.

1. **Start Microsoft Excel.**
2. **Click File > Open.**

3. In the open window, change “Files of type” to All Files (\*.\*), browse to the Downloads folder in Chapter8 in MyExercises, and double-click DEC\_00\_SF3\_P087\_with\_ann.csv.
4. Click the sheet selector button (to the left of the A column header and above the row 1 selector) to select the entire sheet, and then double-click between any two column headings to automatically resize all column widths to fit the data so that you can read all the cell contents.



5. Clear your selection by clicking in any cell. Then delete the GEO.ID and GEO.display-label columns, identified in row 3, by right-clicking their column selectors one by one and clicking Delete. Then using identifiers in the second row, delete columns starting with VD10 and all remaining columns to the right that have data.

**6. Rename row 1 attributes by replacing the values as follows:**

|         |                    |
|---------|--------------------|
| GEO_ID2 | <b>Tract</b>       |
| VD01    | <b>Pop</b>         |
| VD02    | <b>PopPov</b>      |
| VD03    | <b>PopPovU5</b>    |
| VD04    | <b>PopPov5</b>     |
| VD05    | <b>PopPov6T11</b>  |
| VD06    | <b>PopPov12T17</b> |
| VD07    | <b>PopPov18T64</b> |
| VD08    | <b>PopPov65T74</b> |
| VD09    | <b>PopPov75U</b>   |

**7. Select row 2, right-click in the selection, and click Delete.**

**8. Double-click the tab at the lower-left corner of the spreadsheet that has the label DEC\_00\_SF3\_P087\_with\_ann, and type **AllCoPoverty** to give the tab a new label.**

|   | A           | B    | C      | D        | E       | F          | G           | H           | I           | J         |
|---|-------------|------|--------|----------|---------|------------|-------------|-------------|-------------|-----------|
| 1 | Tract       | Pop  | PopPov | PopPovU5 | PopPov5 | PopPov6T11 | PopPOv12T17 | PopPov18T64 | PopPov65T74 | PopPov75U |
| 2 | 42003010300 | 1083 | 635    | 16       | 0       | 15         | 7           | 569         | 16          | 12        |
| 3 | 42003020100 | 2082 | 704    | 6        | 0       | 0          | 0           | 602         | 75          | 21        |
| 4 | 42003020300 | 315  | 115    | 25       | 0       | 19         | 10          | 55          | 6           | 0         |
| 5 | 42003030500 | 2693 | 897    | 97       | 19      | 62         | 88          | 516         | 69          | 46        |
| 6 | 42003040200 | 1302 | 386    | 41       | 0       | 33         | 28          | 262         | 6           | 16        |

9. **Click File > Save As. Change the file name to [Poverty](#), change the Save As type to Excel Workbook, and click Save. Then close Microsoft Excel.**

Start working in the book on page 158 with the section “Project coordinates for the Census Bureau All Lines shapefile” and complete the chapter.

[Page 159, replacement for step 5](#)

5. **Expand the Projected Coordinate Systems tree to State Plane > NAD 1983 (CORS96) (US Feet), and click NAD 1983 (CORS96) StatePlane Pennsylvania South FIPS3702 (US Feet). Then click OK.**

[Page 168, after step 4 at the top of the page, add new steps 5 and 6.](#)

If you export the tracts feature layer as it is now with joined data, the exported layer will have tract data joined permanently, instead of just joined on the fly as it is now. Permanently joined data is required in newer versions of ArcMap to use the Field Calculator on page 170.

5. **Right-click PennHillsTracts, click Data > Export Data, save the output as [PennHillsTracts2](#) in Chapter8.gdb, and click OK > Yes.**
6. **Open Catalog, delete PennHillsTracts, rename PennHillsTracts2 as [PennHillsTracts](#), and in the table of contents, change the name PennHillsTracts2 to [PennHillsTracts](#).**

If you open the attribute table of PennHillsTracts, you’ll see that attribute names for the joined census data are no longer qualified with the prefix of the joined table name, AllCoPovberty\$. This means that the census data attributes are permanently joined in the PennHillsTracts attribute table.

**Page 170, step 5**

**Note:** The CarBeat column is no longer qualified with a prefix source name because you permanently joined the census data to the tract feature class.

**Page 171, “Dissolve polygons,” figure and step 5**

**Note:** Attributes in the figure and step are no longer qualified with a prefix source name because of the permanent join.

**Page 173, “Assign aliases to attributes,” steps 2 and 3**

**Note:** Again, attribute names are no longer qualified.

**Page 174, after step 9**

Add a new step 10. This step has you change the full extent of the map to Penn Hills, so if you need to zoom to all of Penn Hills it’s convenient to use the Full Extent button.

**10. Zoom so that Penn Hills fills your map window. Right-click Layers in the table of contents. Then click Properties > Data Frame tab > Other option button in the Extent panel (it defaults to the current extent), and click OK.**

**Page 177, at the end of step 3**

On the Editor toolbar, click the Create Features button (last button on the right), select CarBeatsCustom in the Create Features window, and close the Create Features window.

**Page 178, Your Turn**

**Note:** if you get stuck at a point and cannot continue tracing, click on the traced part near the end of the trace, click near the end trace on the undigitized side, and then keep tracing.

Page 179, "Set up to digitize lines for block watches," replacement for step 5

5. **On the Editor toolbar, click the Create Features button, select BlockWatches in the Create Features window, and then close the Create Features window.**

Page 180, step 4

**Note:** You don't have to trace the same street segment twice. When finished with a segment, click the end point. Then go to a new starting point, click, and start digitizing again.

## Chapter 9

### Changes for Preparing incident data for mapping

Page 193, replacement for steps 2–5

- 2. In the Address Locator Properties sheet, expand Place Name alias tables and click the builder button at the right.**
- 3. Browse to the Data\Locators folder and double-click PittsburghAlias.csv.**
- 4. Click in the Alias Field row of the property sheet, click the arrow at the right, and click Alias.**
- 5. Expand the remaining properties in the tree and examine them, making the change as seen in the figure on the next page.**

Replace the figure at the bottom of page 193 with the one on the next page. The “Match with no zones” property with the value of Yes is appropriate for a police jurisdiction with one municipality, such as the case with the Pittsburgh Bureau of Police. County police, on the other hand, have multiple municipalities and likely will have repeating street addresses (e.g., 100 Main St.). Then the street map would need CityLeft and CityRight attributes as zones, and the incident data would need to have City as an attribute and have the same city spellings as in the street map.

Address Locator Properties

|   |   |
|---|---|
| GDB transactional version                     | N/A                                       |
| Configuration keyword                         |   |
| Support intersections                         | True                                      |
| <b>Reference data tables</b>                  |   |
| <b>Place name alias table</b>                 |   |
| Alias Table                                   | PittsburghAlias.csv ...                   |
| Alias Field                                   | Alias                                     |
| <i>Address Fields</i>                         |   |
| Street or Intersection:                       | Address                                   |
| <b>Input address fields</b>                   |   |
| Street  | Address;Street;Streets;StreetAddr;... ... |
| <b>Outputs</b>                                |   |
| Write X and Y coordinates                     | No  |
| Write reference data ID field                 | Yes                                       |
| Write percent along                           | No  |
| Write user-specified additional output fie... | Yes                                       |
| Write locator-specific output fields          | No  |
| Return display extent output fields           | No  |
| Write elapsed time                            | No  |
| Write score per component                     | No  |
| <b>Geocoding options</b>                      |   |
| Minimum match score                           | 85  |
| Minimum candidate score                       | 75  |
| Match if best candidates tie                  | Yes                                       |
| Spelling sensitivity                          | 80  |
| Side offset                                   | 20  |
| Side offset units                             | Feet                                      |
| End offset                                    | 3   |
| End offset units                              | Percent                                   |
| Intersection connectors                       | & @   and at                              |
| Match without house number                    | No  |
| Match with no zones                           | Yes                                       |
| Left side value                               | L   |
| Right side value                              | R   |
| <b>Performance</b>                            |   |

**Reference data tables** [<More>](#)  
Description of reference data tables.

[About locator properties](#)

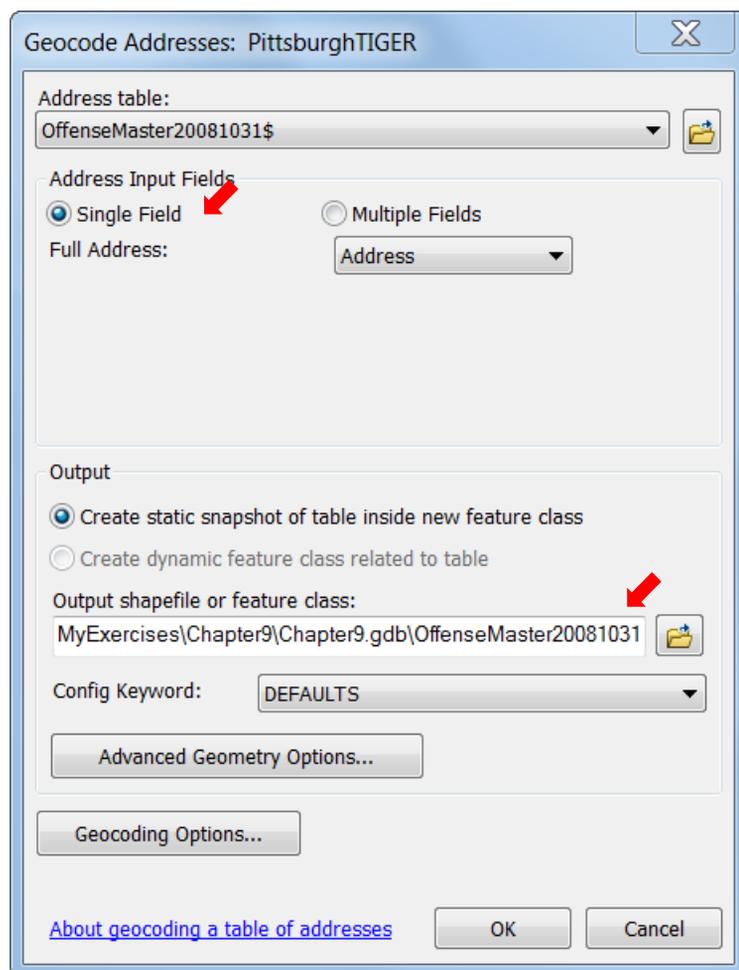
Page 194, start of the “Batch address match incident data” exercise

**Note:** The batch geocoding algorithm is now much more efficient. Instead of taking 20 minutes to geocode the over 51,000 records, it takes only about four or five minutes, so you can let it finish running instead of canceling it in step 5.

Page 194, step 2

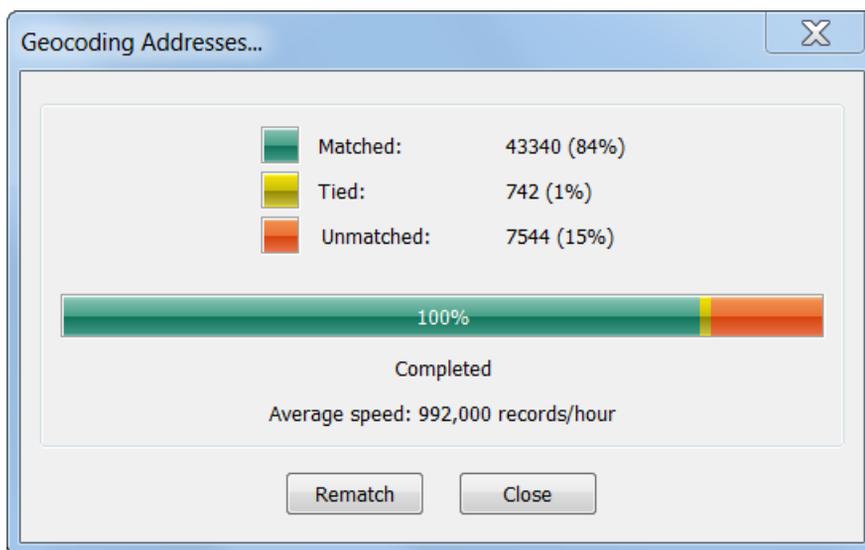
**Note:** If the PittsburghTIGER address locator is not in the Choose an Address Locator to Use panel, click Add, browse to Chapter9.gdb, and double-click PittsburghTIGER.

Page 194, replacement for the figure at the bottom of the page



**Page 194, step 5**

Let the geocoding algorithm finish instead of canceling it. You'll find that 84% of records are matched and mapped, while 1% have tied address candidates and 15% are unmatched. Tied cases had two or more candidate addresses on the street map with equally good matches, and ArcMap selected one arbitrarily for mapping. Click Close when you are finished.

**Page 195, "Batch address match incident data," steps 6–8**

Esri software developers are always improving the complex geocoding algorithm, making it faster and more accurate, so the geocoded map layer that you just created is different from the one created when this book was written. To minimize changes in the following exercises, remove OffenseMaster20081031 from the table of contents, and add and use OffenseMaster20081031b as instructed. Notice that only 82% of the records are matched in OffenseMaster20081031b, another indication of the improvement in the current geocoding algorithm.

**Page 201, replacement assignment for Your Turn**

Try finding a few more of the alias addresses.

**Page 203, Your Turn, replacement for the last paragraph**

Right-click the PittsburghTIGER locator of Chapter9.gdb in Catalog, click Rebuild, and click OK. Rename the rebuilt locator **PittsburghTIGER2**.

**Page 203, skip steps 2–4**

The current geocoding algorithm will yield different results from those in the book that were done with an earlier version of ArcGIS for Desktop. So instead, remove OffenseMaster20081031b, and add OffenseMaster20081031c for further processing as instructed in steps 1 and 5.

**Page 204, “Rematch addresses interactively,” replacement for steps 3 and 4**

- 3. Scroll down and click in the first of two rows with 1 GERBER AV. The street number is way off according to the incident report—a typo. It should be 3501.**
- 4. In the Full Address field on the lower right of the Interactive Rematch window, type 3501 to replace the 1 and press the Tab key.**

**Page 206, Your Turn**

The match statistics with ArcGIS 10.2.2 are as follows:

**Matched:** 171 (90%)

**Tied:** 0 (0%)

**Unmatched:** 19 (10%)

Page 211, replacement for the top figure on the page

|  | ObjectID * | Sector | Count_Sector |
|--|------------|--------|--------------|
|  | 1          |        | 0            |
|  | 2          | 1-1    | 2            |
|  | 3          | 1-2    | 9            |
|  | 4          | 1-3    | 15           |
|  | 5          | 1-4    | 1            |
|  | 6          | 1-5    | 1            |

Page 211, Your Turn

The hint doesn't work. You will have to re-create the query.

## Chapter 10

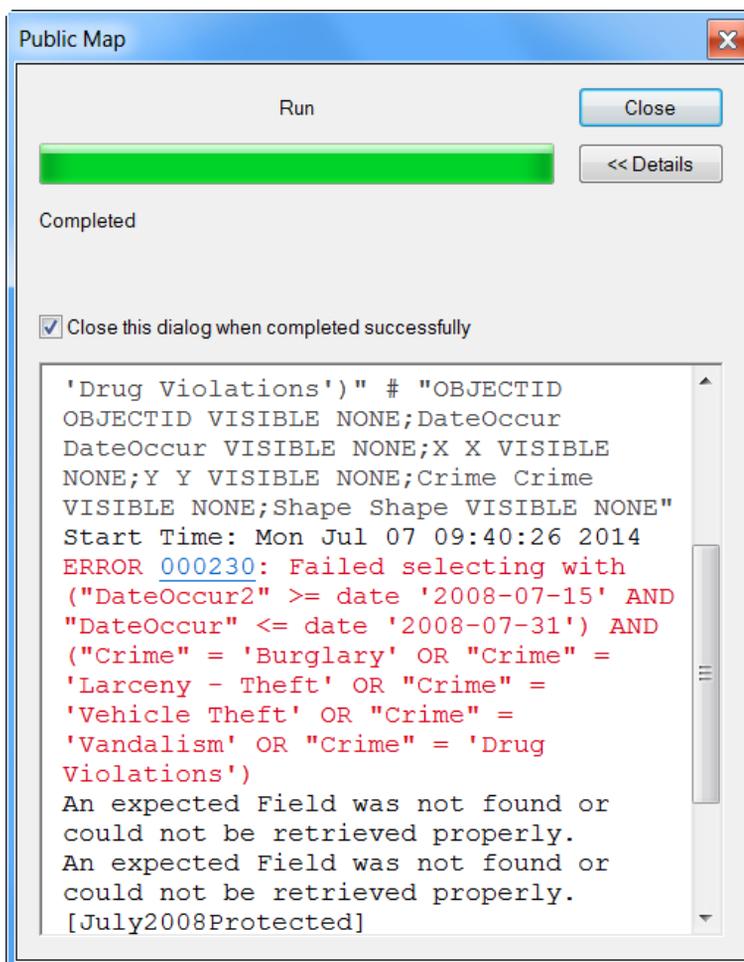
### Changes for Automating crime maps

Page 229, "Create and fix bugs in Edit mode," step 2

Instead of typing ?, type 2 at the end of the first occurrence of DateOccur to produce "DateOccur2" and create a bug.

Page 230, step 5

ArcMap no longer provides a separate error message. Leave the Public Map run window open and scroll down to see the error message. When finished, close the window.



**Page 230, step 6**

There's no drawing errors window to close, so skip that part of this step and delete the 2 in "DateOccur2".

**Page 230, step 8**

After deleting the final single quotation mark in the value for StartDate, it will be

```
date '2008-07-15
```

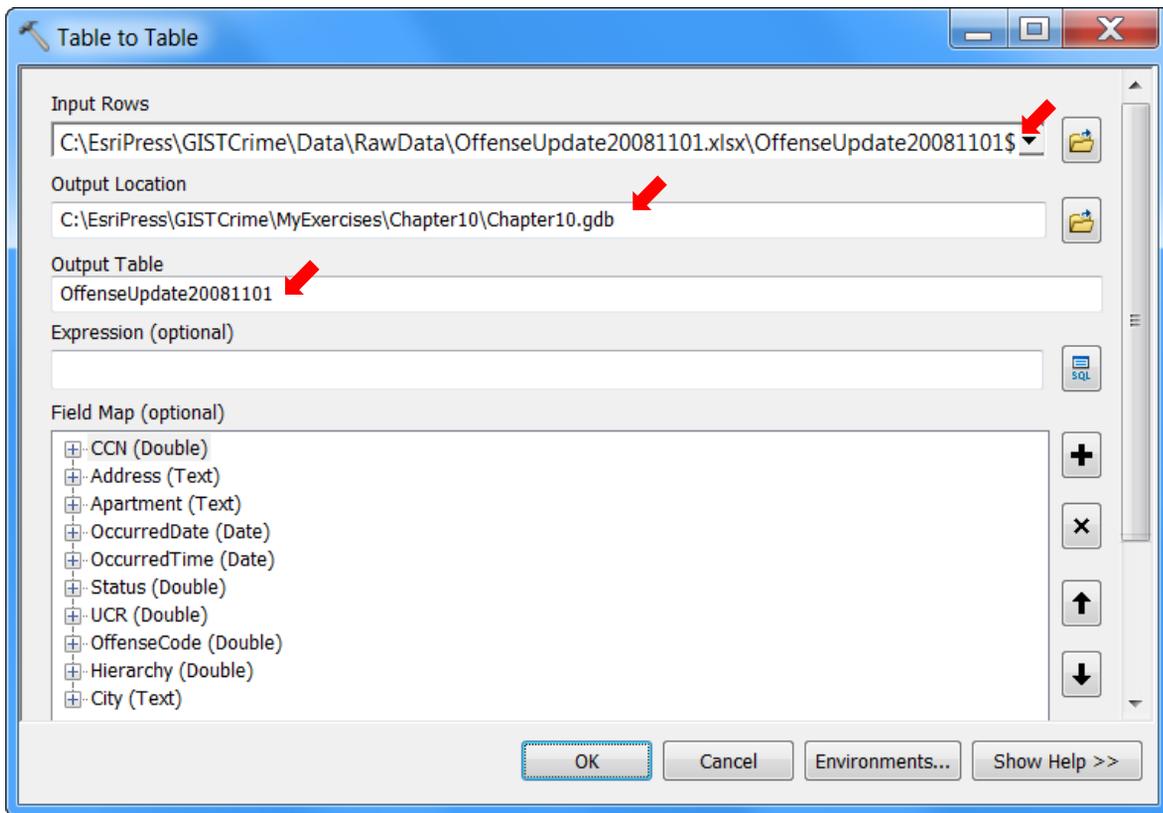
**Page 230, step 9**

**Note:** Again, ArcGIS no longer provides a separate error message, but you can find the error information in the Public Map run window.

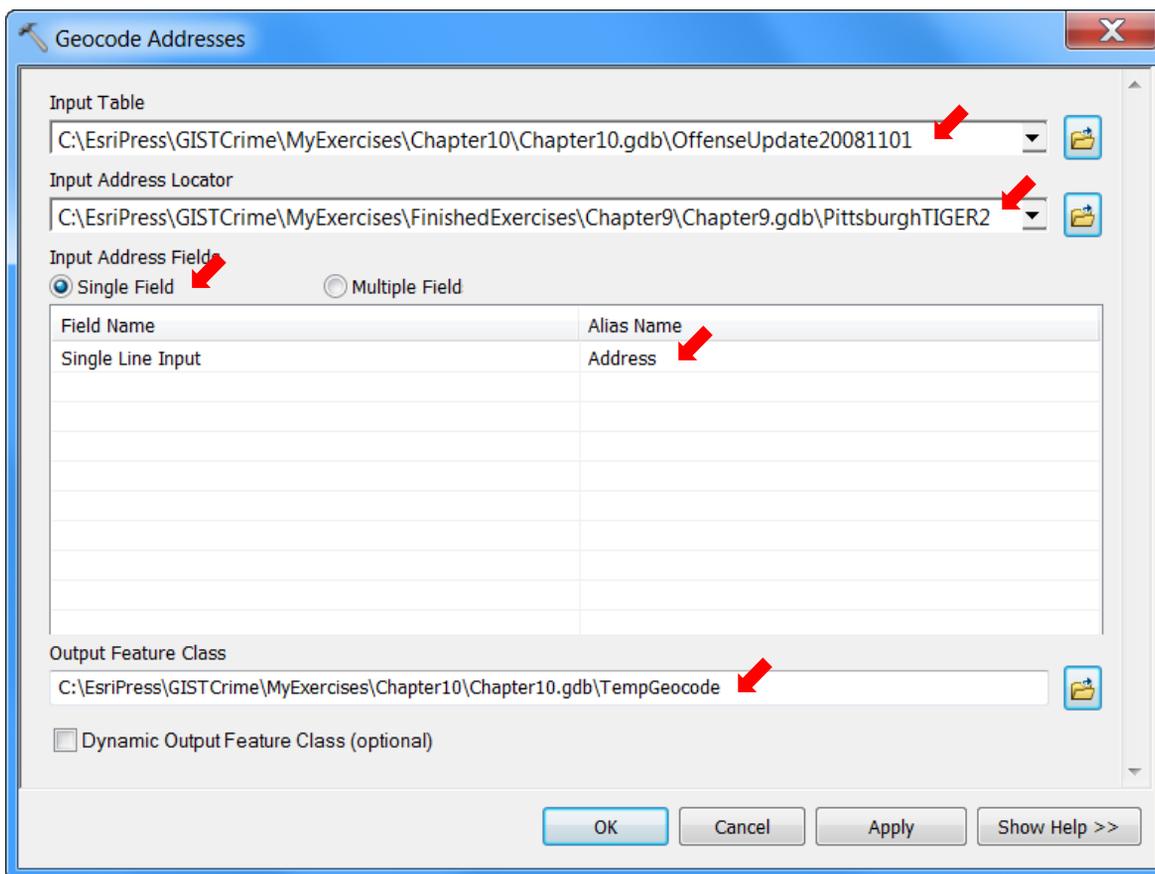
**Page 232, before starting the "Build 'geocoding addresses' process"**

Geocoding requires three elements: an input table with addresses, streets, and a locator file that stores parameters for the geocoding process. While in model edit mode of a model, the input table can be an external file, such as a Microsoft Excel spreadsheet, and geocoding will work, but when running the model from the user interface, the input table must be imported into the ArcGIS format for a table. So now you will do the importing to enable the interface to run later:

- **Open Catalog and expand the tree to Chapter10.gdb.**
- **Right-click Chapter10.gdb and click Import > Table (single).**
- **Complete the Table to Table process as shown on the next page. When you are finished, click OK.**



Page 233, replacement for the figure at the top of the page



Page 233, “Build spatial join process,” step 4

**Note:** You can click View and 75% or another size for your model to make it more compact on your screen.

Page 235, “Build append process,” step 2

In the Append tool dialog box, also click No\_Test for Schema Type.

Page 236, “Run model,” step 2

If geocoding does not work in your model, open the property sheet for the PittsburghTIGER2 locator in Chapter9.gdb of FinishedExercises\Chapter9 and make sure that the Geocoding options > Match with no zones property is set to Yes. Then try again if you had to change the property to Yes.