

# ArcMap Editing Tips and Tricks

By Colin Childs and Keith Mann, ESRI Educational Services

ArcMap is the comprehensive map authoring application for ArcGIS Desktop. In addition to data display and query, it is also used for high-level map creation and sophisticated CAD-like editing so features can be created quickly and easily while maintaining the spatial integrity of a GIS database.

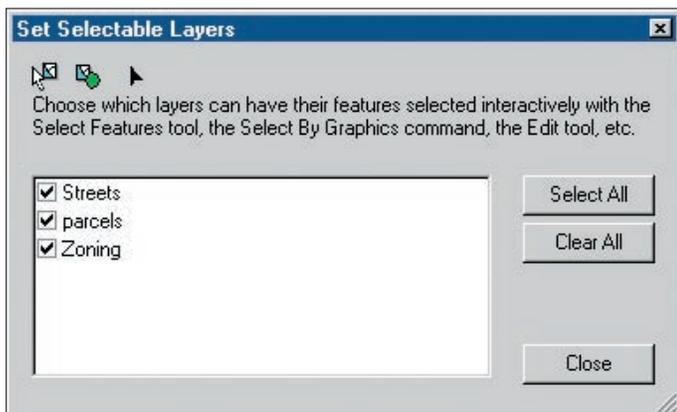
The same editing tools are available in ArcMap at all license levels—ArcView, ArcEditor, and ArcInfo. In ArcMap, you can edit shapefiles and geodatabases using a common user interface. This article highlights 11 useful tips and tricks that will make you more productive when editing in ArcMap. In this article you will learn how to perform the following tasks:

Task	Challenge
Modify feature selection by individual layer.	1
Select the desired feature from overlapping selectable layers.	2
Prevent selected features from being moved accidentally.	3
See the feature type or layer currently affected by the active snap agent.	4
Control which features snap.	5
Override snapping environment settings.	6
Toggle between the Sketch tool and other editing tools using shortcut keys.	7
Use units different than the map units when specifying distance for a sketch segment.	8
Cut polygon features based on a specified distance from a line feature.	9
Rotate a selected line feature on one endpoint and snap the other endpoint to another feature.	10
Explore a map in detail and perform edits without changing the map display scale.	11

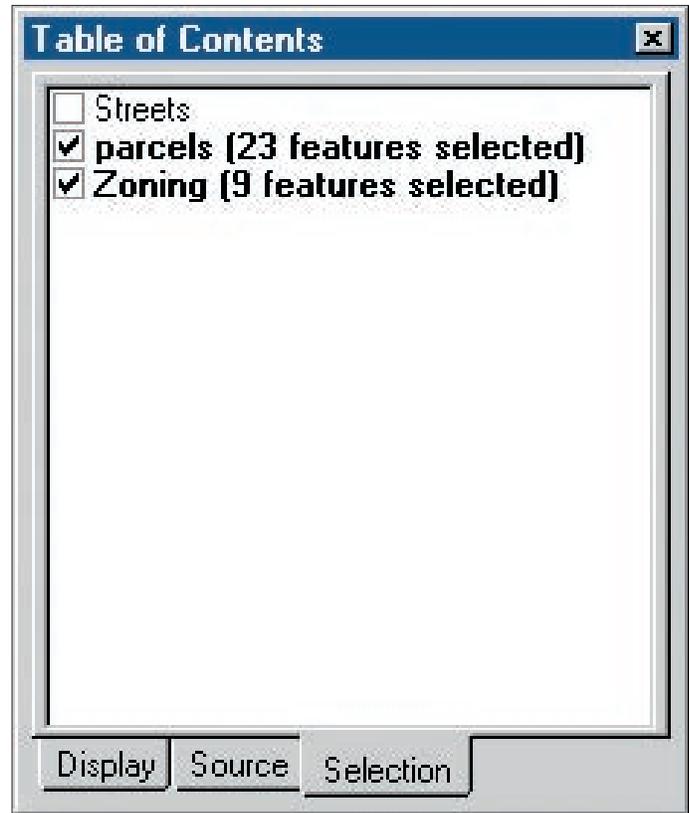
Each topic will be presented as a challenge with a solution. This article assumes you are already familiar with the edit features in ArcMap, know how to start an edit session, and are familiar with the Editor toolbar in ArcMap.

## Challenge 1

*When working with multiple selectable layers, how can you modify feature selection by individual layer?*



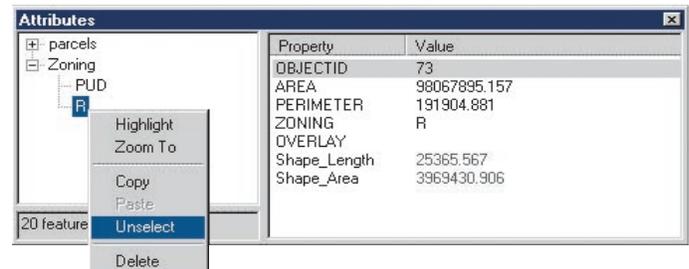
Shortcut keys let you change selectable layers without returning to the Set Selectable Layers dialog box.



Use the Selection tab of the Table of Contents in ArcMap to quickly turn selectability off and on for layers.

**Scenario:** Often in an edit session, more than one layer has been made selectable in the Set Selectable Layers dialog box. However, there are occasions when you may want to modify a selection from a layer or disable a selection from a layer without returning to the Set Selectable Layers dialog box.

**Solution:** Use the Selection tab on the ArcMap Table of Contents. With this tab selected, you can control which layers are selectable by checking them. When you select features in the map, those layers are shown in bold and the number of selected features on each layer is reported in parentheses.



Right-click on the feature attribute and choose Unselect from the context menu to use the Attributes dialog box to modify a selection.

On the Selection tab, right-clicking on a layer with selected features invokes a context menu that contains options for modifying the selection that include Zoom to Selected Features, Clear Selected Features, and Switch Selection. Note that each function in this context menu operates only on features in that layer, not on all features in all selectable layers (which is the case when using the Selection dialog box).

The Attributes dialog box can also be used to modify a selection by un-

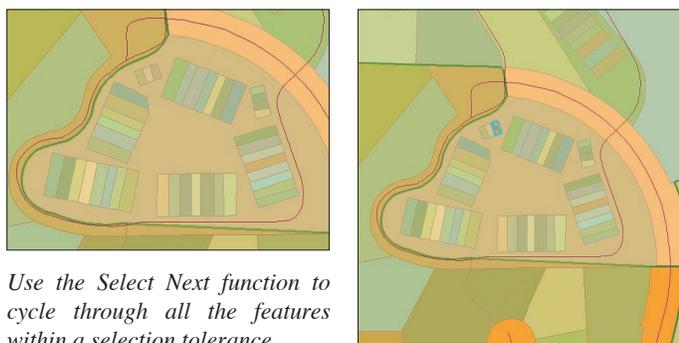
selecting features from a set of selected features based on an attribute value. Click on the Attributes button on the Editor toolbar to open the Attributes dialog box. Expand the layer in the layer list of selected features. Right-click on the feature attribute and choose Unselect from the context menu.

## Challenge 2

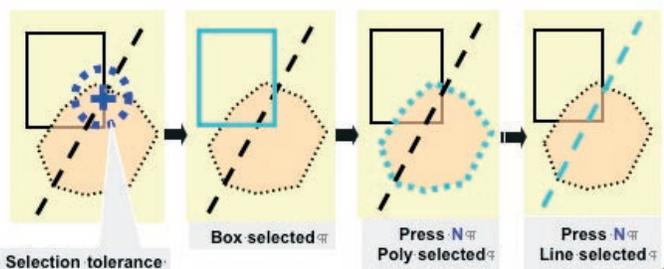
*How can you make sure you are selecting the right feature from overlapping selectable layers?*

**Scenario:** When selecting features that overlap with other features within the selection tolerance, how do you ensure you've selected the right feature? Furthermore, how can you cycle between the overlapping features to choose the correct one for editing?

**Solution:** Select a feature on the map with the Edit tool, and use the Select Next function to cycle through all features within the selection tolerance of that selected feature. Simply press the N key to cycle through the selections. This is a useful way to select a particular feature where several features overlap. If you select the wrong feature with the Edit tool, press the N key to deselect this feature and select the next feature within the selection tolerance. Continue pressing the N key to cycle through all the features under the originally selected feature, based on the order of the selectable layers.



Use the Select Next function to cycle through all the features within a selection tolerance.



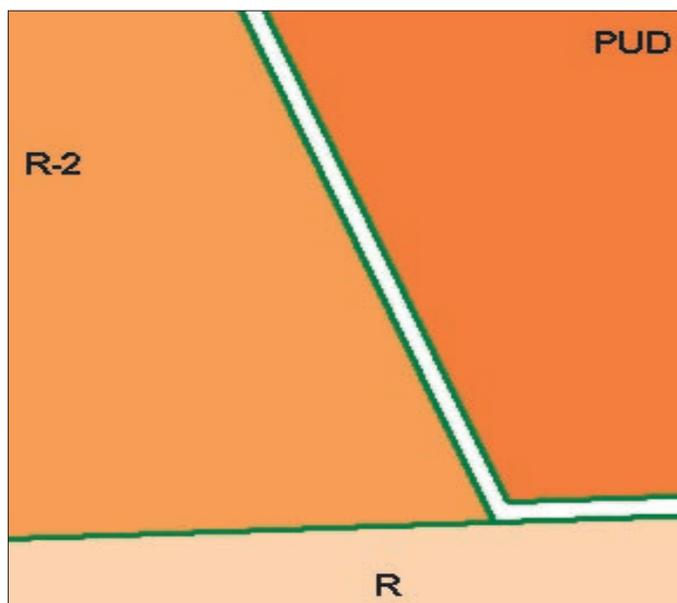
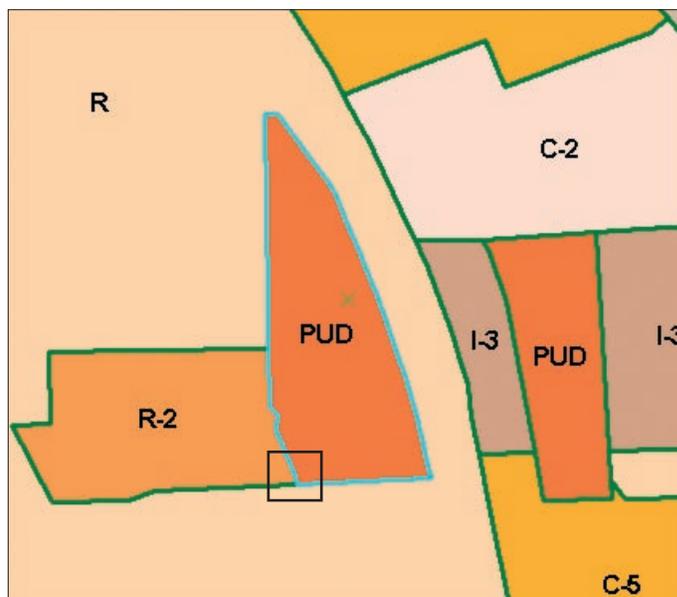
If you select the wrong feature with the Edit tool, simply press the N key to deselect this feature and select the feature that is within the selection tolerance.

## Challenge 3

*How can you avoid accidentally moving selected features?*

**Scenario:** While editing features, it is easy to unintentionally move a selected feature. This can create small gaps between features that should be contiguous and share coincident boundaries or edges.

**Solution:** Set the Sticky Move Tolerance in the Editing Options dialog box. Click on the Editor menu in the Editor toolbar, choose Options, and click on the General tab in the Editing Options dialog box. The Sticky Move Tolerance sets the minimum distance, in pixels, that the cursor needs to be moved before selected features will be moved with the Edit tool. This minimizes the risk of inadvertently moving selected features with the Edit tool.



Set the Sticky Move Tolerance to avoid unintentionally moving features and creating small gaps between features. These gaps, not be visible when zoomed out (top), become apparent when zoomed in (bottom).

## Challenge 4

*How can you visualize the snapping environment while editing?*

**Scenario:** It is often difficult to visualize which feature type or layer is currently affected by an active snapping agent. Knowing the feature type and/or layer gives greater control over snapping operations and minimizes the chances of inadvertently snapping to the wrong feature.

**Solution:** There are several tools that help identify whether snapping will be to a vertex or edge and on which layer snapping is taking place. These tools—snap tips, the snapping indicator, and the T shortcut key—are available during an editing session if the snapping tolerance on the General tab of the Editing Options dialog box has been set.

*Continued on page 48*

# ArcMap Editing Tips and Tricks

Continued from page 47

Click on the Editor menu in the Editor toolbar, choose Options, click on the General tab in the Editing Options dialog box, and check the box next to Show Snap Tips. When snapping, a snap tip (a small text box) will appear on the map identifying the layer and showing the type of features just snapped to. The snapping indicator displays the same information in the ArcMap window status line in the snapping indicator. Holding the T shortcut key down while using the Sketch tool will display a circle showing the current snapping tolerance around a vertex.

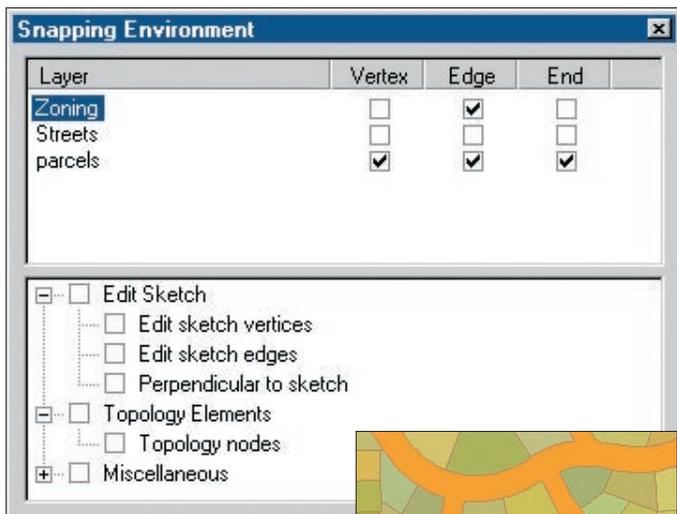
## Challenge 5

**How do you control how features snap to one another and which snap agents take precedence when snapping occurs?**

**Scenario:** Snapping is an important ArcMap function that allows you to make precise and efficient edits. However, it is important to control how features snap together by setting snap agents and their priorities.

**Solution:** In addition to choosing layer snapping agents (vertex, edge, or endpoint), set the snapping tolerance and snapping priority of the layers. Set snapping tolerance explicitly on the General tab of the Editing Options dialog box as a distance value in either map units or pixels. Alternately, the Snap Tolerance tool can be used to interactively set the snapping tolerance. Add the Snap Tolerance tool to the Editor toolbar by choosing Tools > Customize, clicking on the Commands tab, and dragging the Snap Tolerance tool to the Editor toolbar. To use the Snap Tolerance tool, click on it in the toolbar, click on the map, and drag out a circle the size of the desired snapping tolerance.

Prioritizing snap layers controls the actions of snap agents. From the Editor toolbar menu, choose Snapping. Snapping occurs first to features on the top layer listed in the Snapping Environment dialog box. Drag layers with priority to the top of the list. Setting snapping priorities helps in situations in which the target features in one layer are surrounded by features from other layers.



Explicitly set layer snapping agents in the Snapping Environment dialog box.

Alternatively, layer snapping agents can be set interactively by adding the Snap Tolerance tool from the Customize dialog box.



## Challenge 6

**How can you override the snapping environment?**

**Scenario:** You may want to snap to a vertex, edge, or endpoint of a feature regardless of the current snapping environment settings and snap agents.

**Solution:** Use the Snap To Feature option available from the Sketch tool context menu. While sketching, right-click and choose Snap to Features > Endpoint, Vertex, Midpoint, and Edge from the context menu. Snapping on the fly overrides the current snapping environment settings. Snap to Features can also enable Snap to Feature Geometry without setting individual snap agents. Using Snap to Features also allows for snapping to the midpoint of a line or polygon boundary—an option not available with the regular snap agent. The snapping environment can temporarily be suspended by holding down the spacebar.

## Challenge 7

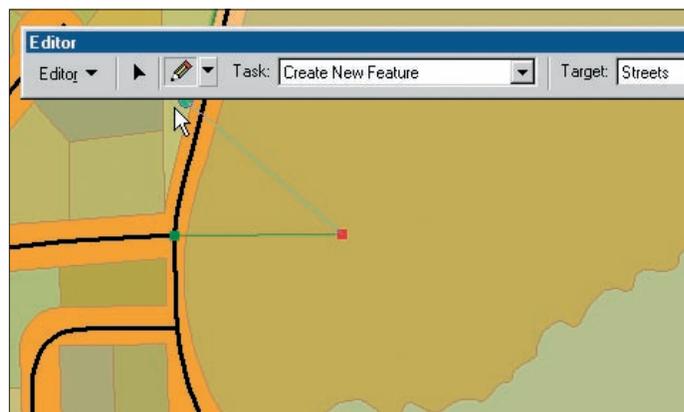
**How can you quickly switch between the Sketch tool and other tools without visiting the toolbar?**

**Scenario:** While constructing a new feature with the Trace sketch tool, you realize you need to suspend tracing to select additional features. However, you don't want to complete the current sketch feature and restart a new feature.

**Solution:** Use the shortcut keys. For the scenario just described, use the E shortcut key to toggle between Sketch and Edit tools. Some of the most useful shortcut keys are listed in Table 1. More shortcut keys can be found in ArcGIS Desktop Help by typing "shortcuts" in the Index search box and choosing "For editing in ArcMap" in the results list.

Shortcut key	Editing function
Z key	Zoom in
X key	Zoom out
C key	Pan
V key	Show vertices
Esc	Cancel
Ctrl + Z	Undo
Ctrl + Y	Redo
Spacebar	Suspend snapping

Table 1: Useful shortcut keys



Toggle between the Sketch tool and other editing tools by using the shortcut keys.

### Challenge 8

*When sketching a segment, how can you specify a distance in units that are different than the map units?*

**Scenario:** You received data in feet but the map units for the features your database features is meters. Rather than converting this data before creating new features, you want to specify lengths in meters while sketching.

**Solution:** While sketching, type an abbreviation for any unit and ArcMap will convert the sketch unit automatically to the map unit used in the Data Frame.

Unit	Abbreviation
Meter	m
Kilometer	km
Millimeter	mm
Foot	ft
Mile	mi
Nautical mile	nm
Chain	ch
Yard	yd
Inch	in
Survey Foot	ftUS
Survey Chain	chUS
Survey Mile	miUS
Survey Yard	ydUS

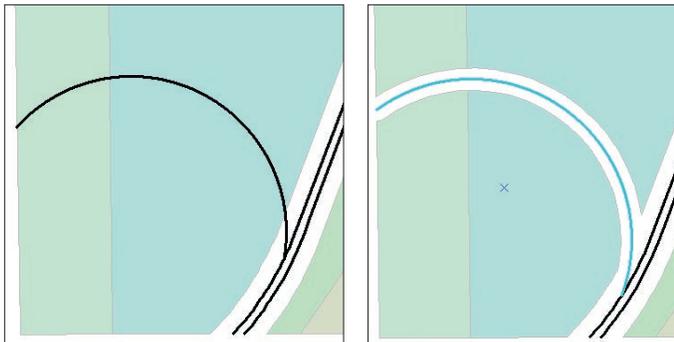
Table 2: Unit abbreviations

### Challenge 9

*How can you cut polygon features based on a specified distance from a line feature?*

**Scenario:** You need to use a line feature as a template for constructing new features in a polygon target feature class. The line feature serves as a basis for cutting away from the target polygon feature class.

**Solution:** Use the Clip tool in the Editor toolbar menu. Before using the Clip tool, select the source feature and set the target layer where features will be modified. The Clip tool will buffer the selected feature and erase the buffer area from the target feature class.



Cut polygon features based on a specified distance from a line feature using the Clip tool.

### Challenge 10

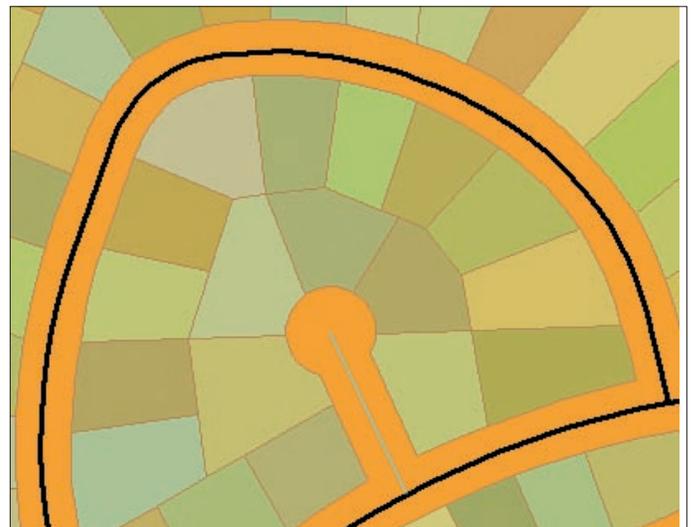
*How can you rotate a selected line feature on one endpoint and snap the other end to another feature?*

**Scenario:** You have received some coordinate geometry data that describes length and other characteristics of a new road located in a cul-de-sac. When you construct the road with the traverse tools, you find the angle supplied was incorrect. The feature needs to be rotated and snapped to another street, but you do not want to alter the starting position of the feature and you want to snap the endpoint to the existing road.

**Solution:** Use the Auxiliary Selection Anchor. Add a secondary selection anchor to a feature by pressing the S key while the feature is selected. The original selection anchor serves as a pivot point and the new auxiliary anchor becomes the snapping point. Accomplish this by

- Setting the snapping environment.
- Selecting the line feature.
- Pressing the S key to create an Auxiliary Selection Anchor. Position both anchors.
- Clicking on the Rotate tool in the Editor toolbar. Use it to position the selection anchors. The first anchor acts as the pivot point and the second anchor acts as the snapping point so the features can rotate and snapping will occur.

*Continued on page 50*



Use the Auxiliary Selection Anchor to rotate and snap features.

# ArcMap Editing Tips and Tricks

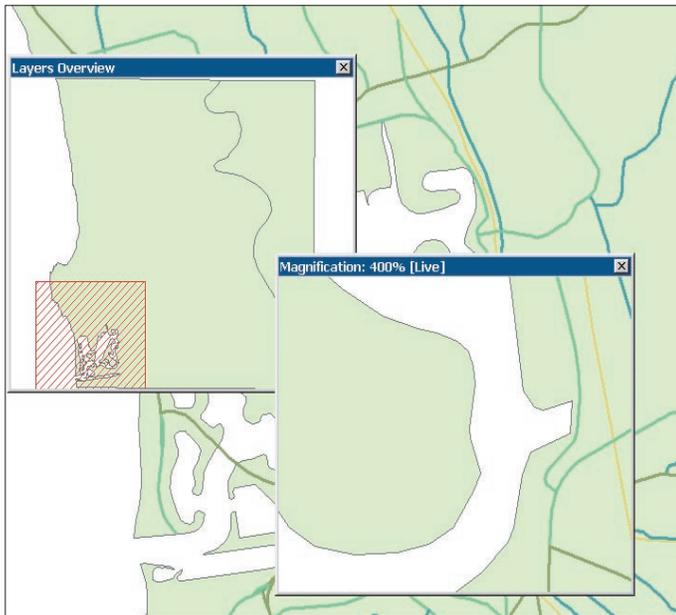
Continued from page 49

## Challenge 11

**How can you explore your map in detail and edit without changing the map display?**

**Scenario:** While editing data, you want to magnify an area without changing the map scale. You may have several edits located across an area and you need to locate where these edits will be made and make snapshots of each location so the edits can be executed later.

**Solution:** Use the Overview and Magnifier windows. The Overview window shows the full extent of the data. Adjust the selection box in the Overview window by dragging, shrinking, or expanding it to change the map display in the active data frame.



Use the Magnifier window to view an area more closely without changing the map scale. Create snapshots of several areas using the Magnifier window and return quickly to them later to complete the edits. Use the Magnifier window in conjunction with the Overview window to speed editing tasks (see illustration in next column).

The Magnifier window works like a magnifying glass. Pass the window over the desired map features to see a magnified view of that location. Moving the Magnifier window does not affect the current map display. Right-click the title bar and click Properties to set the zoom property for the window. Create snapshots from the Magnify window by right-clicking on the title bar and choosing Snapshot to capture the current view.

## Conclusion

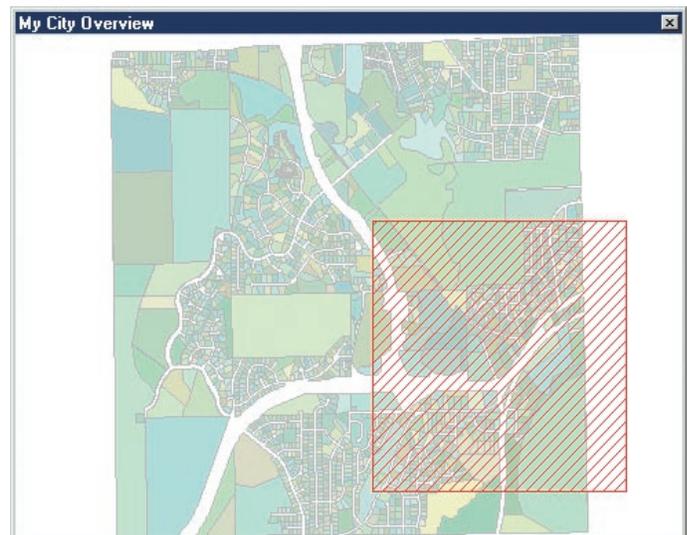
Much of the content covered in this article is demonstrated in *Editing in ArcGIS 9: Tips and Tricks*, an hour-long, self-paced, online training seminar presented by one of the authors, Colin Childs, and offered at no charge by the ESRI Virtual Campus.

There are many ways to make editing easier and more efficient, and these are just a few techniques. For one of the best sources for more editing tips, see *Editing in ArcMap*, a manual that is part of documentation for ArcGIS 9. Also, the ESRI Virtual Campus ([campus.esri.com](http://campus.esri.com)) offers several courses such as *Creating and Editing Geodatabase Features with ArcGIS 9*, *Creating and Editing Linearly Referenced Features with ArcGIS 9*, and *Creating and Editing Geodatabase Topology with ArcGIS 9*. Visit [www.esri.com/training](http://www.esri.com/training) to learn about instructor-led training courses that include information on editing such as *Introduction to ArcGIS II*, *Building Geodatabases I*, and *Creating and Editing Parcels with ArcGIS*.

## About the Authors

Colin Childs is an ESRI software instructor in Redlands, California. He has a degree in geography from the Rand Afrikaans University in Johannesburg, South Africa. He was a software instructor for Geographic Information Management Systems (GIMS), the ESRI distributor in South Africa, before joining ESRI in Redlands four years ago.

Keith Mann is an education specialist for the ESRI Virtual Campus in Redlands. He has a master's degree in urban and regional planning from California Polytechnic University, Pomona. He has worked as a GIS coordinator for the U.S. Bureau of Land Management and the California Desert District and as a community planner for the United States Forest Service, Fire and Aviation Division, San Bernardino National Forest, California.



The Overview window shows the full extent of the data. Adjust the selection box in the Overview window by dragging, shrinking, or expanding it to change the map display in the active data frame.

## Size Map Elements to Margins

When in Layout View, three new options in the Draw toolbar automatically size selected map elements or graphics to fit within the margins of a map layout. These commands—Fit To Margins, Fit Width To Margins, and Fit Height To Margins—are accessed by clicking on the Drawing menu in the Draw toolbar and choosing Distribute.

If Use Printer Paper Settings was checked as the Map Page Size in the Page and Print Setup dialog box, these commands will use the printer margins to orient elements. If this option was not checked in the Page and Print Setup dialog box, these commands will use the edge of the page.

