



## **Parcel Builder™ Data Models**

### **The MapEditor™ Tag Data Model & The Parcel Builder Administrator™ Data Model Components**



**Technical Document  
Revised June 2007**

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## **Introduction**

The following technical paper provides the details of the Parcel Builder Data Models. The MapEditor Tag Data Model was developed for cadastral map maintenance within ArcMap. It is an ESRI geodatabase that was designed to take full advantage of the structural features available in the ArcGIS 9 version of the geodatabase.

This paper also provides details of the Data Model components developed for use with Parcel Builder Administrator. Parcel Builder Administrator makes use of several feature classes and tables within an ESRI geodatabase, along with a number of components that reside outside of the geodatabase.

A sample database schema accompanying this document is also available for download from The Sidwell Company Web site. This download provides an ESRI personal geodatabase that shows the structure of all of the feature classes, tables, and other components discussed in this document. This database can be a very useful way to visualize the connections between the various feature classes and tables, as well as showing examples of cadastral mapping subtype codes and topology rules. Many of the feature classes and tables also include optional fields that are useful for cadastral map maintenance, but which are not discussed in this document.

A sample style file is also included with the database schema. This file can be used to symbolize the Cadastral Line and Cartographic feature classes within ArcMap. It also shows the basis for the annotation symbols created within the cadastral annotation feature class.

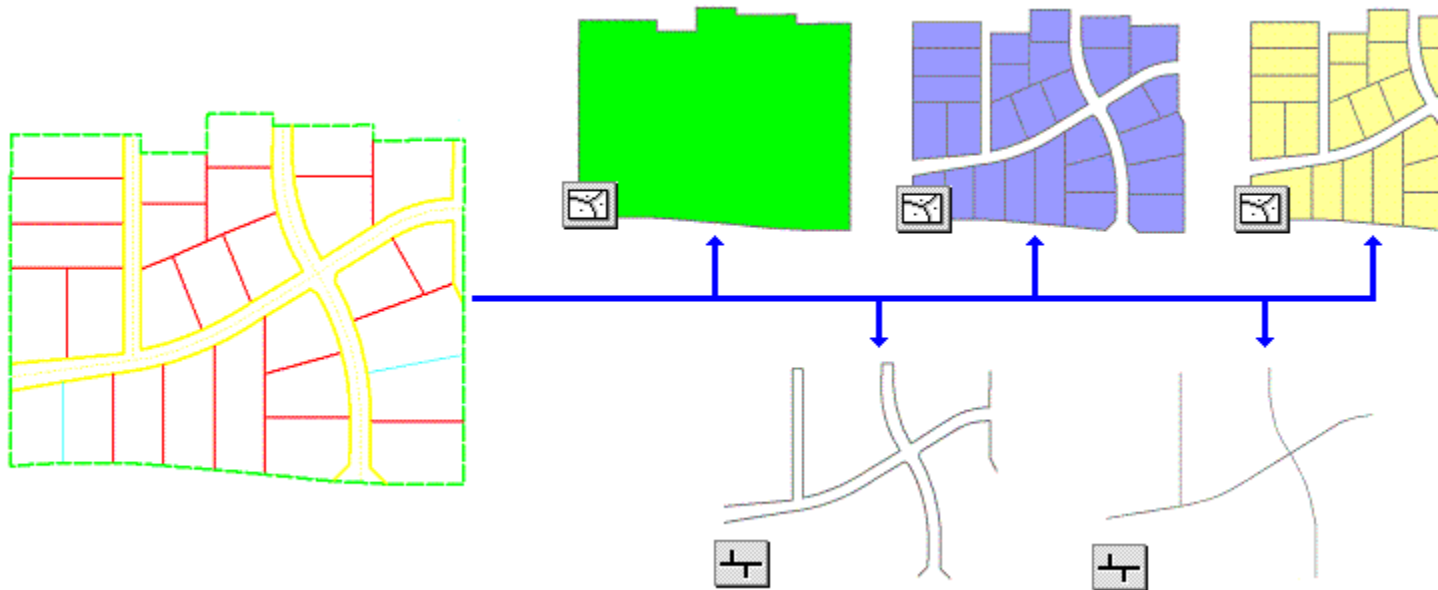


# Parcel Builder MapEditor

## MapEditor Tag Data Model

### Introduction

The MapEditor, or Tag Data Model offers a data environment in which one can efficiently perform cadastral maintenance within ArcMap. The model takes full advantage of the structural features available in the ArcGIS 9 version of the geodatabase. Using a process called multiple feature tagging, all linear and topological elements used to delineate features (i.e. parcel, lot, subdivision boundaries) in a cadastral GIS are maintained in one linear feature class. The uniqueness of each line, and what feature it represents in the real world, is driven through database attribution. After making changes, any polygonal and/or linear feature classes used for analysis can easily be updated by querying and extracting lines attributed with the appropriate features from the editable layer. It functions as a compact, easy-to-use maintenance alternative for completing your work flows in Parcel Builder.



The full Tag Data Model utilizes three feature classes: a cadastral line feature class (which utilizes the multiple feature tagging concept), a cadastral annotation feature class, and a cartographic line feature class (which stores ancillary features used for hard-copy output). The cadastral line feature class requires two additional tables and one relationship class definition. These feature classes are not designed to be used for spatial analysis, but they are used as a

means of updating intelligent linear and polygonal feature classes that support query and spatial analysis. The following sections discuss the model in detail.

**Multiple Feature Tagging**  
**About Annotation**  
**About Cartographic Lines**  
**Components**



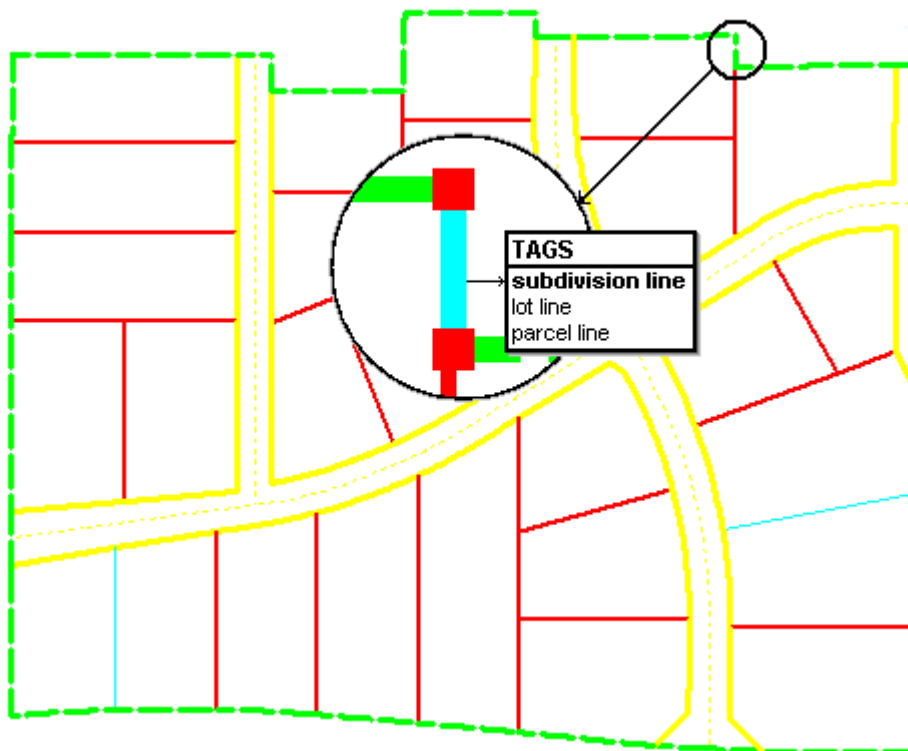
# Parcel Builder MapEditor

## Multiple Feature Tagging

This section explains the philosophy behind multiple feature tagging and how it applies to cadastral maintenance. The multiple feature tagging concept is implemented with the cadastral line feature class component of the MapEditor Tag Model.

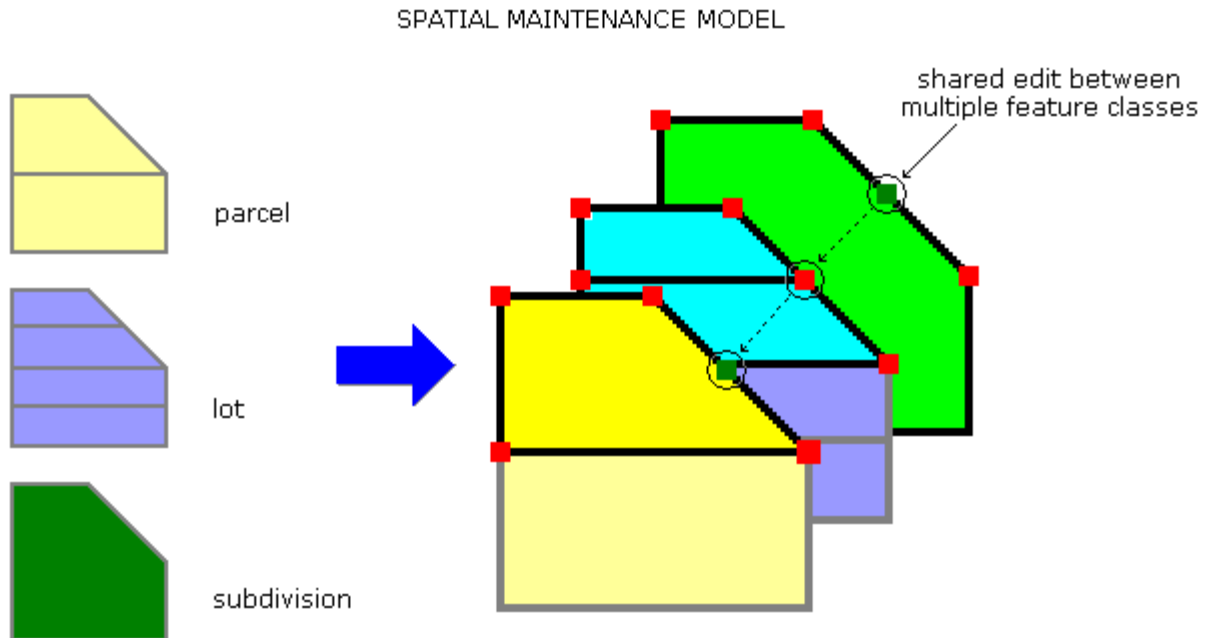
## Coincident Geographic Features

The management of coincident geographic features in a map maintenance environment has challenged cartographers for many years. In the real world, a single line can represent the boundary of several different entities. Take, for example, a subdivision boundary line. In the example below, this one line also functions as a lot and parcel boundary. In a paper map environment, the line is typically symbolized as a subdivision boundary (due to its level of importance). The reader can correctly assume, however, that the line also represents the boundaries of other entities. As a result of this common perception, cartographers need only draw the line once, and symbolize it with a feature representing its most important function.



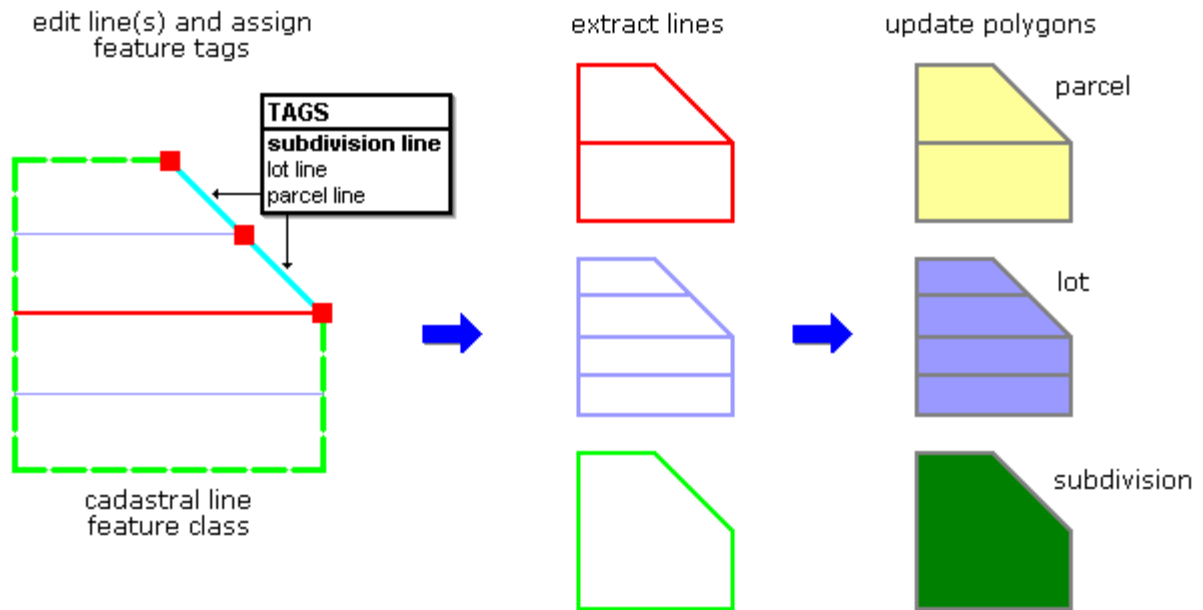
Computers and GIS, however, cannot make such assumptions. A line that is to represent three different features in the real world must be explicitly assigned these designations. One approach to account for this phenomena would be to maintain cadastral features separately

(one feature class for lot, one for parcels, etc.), which is typically how one would manage data layers for analysis. ArcMap includes several shared editing and topology tools that facilitate edge matching between features in separate feature classes. For simple splits and consolidations, this is a viable option.



Where the spatial-oriented model places the burden of real world feature accountability on the *geometry*, the multiple feature tag model places the burden on the *attribution* of coincident line features. This results in the storage and maintenance of all property boundary lines in one editable feature class. A common boundary can be drawn once, and the appropriate polygon feature classes are updated when new polygon features are derived from the edits.

## LINEAR TAG MAINTENANCE MODEL



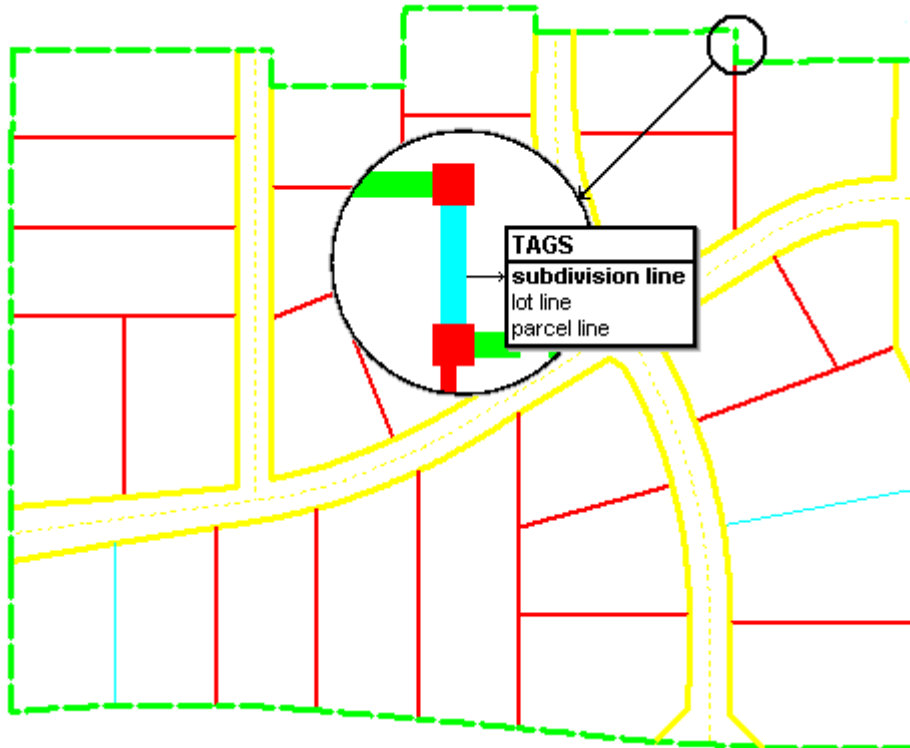
It is important to remember that the multiple feature tag model uses parcel, lot and subdivision lines solely for the purpose of map maintenance. Immediately after a parcel maintenance function is completed, the appropriate polygon feature classes are updated.

Most users of the geodatabase not directly involved with maintenance efforts do not need to be aware that the underlying linear layers exist.

## Symbology

If the tag model is designed to have one line represent several features in the real world, how does one symbolize the line? It is neither efficient nor common to symbolize a line in such a way to visually represent all of the feature tags on one line.

A cartographic standard that has existed for years is duplicated in the tag model: line priority. For example, the northern border of North Dakota. A one-mile stretch of that border functions as an international boundary line (between the U.S. and Canada), a state boundary line, a county boundary line, a township line, a section line, and even a parcel line. In a paper map environment, the northern border will typically be symbolized as an international boundary (due to its level of importance). The reader can correctly assume, however, that the line also represents the boundaries of other entities. As a result of this common perception, cartographers need only draw the line once, and symbolize it with a feature representing its most important function.



The priority of every linear feature tag is maintained and managed in a tag model geodatabase. Every time you draw a line with multiple feature tags, the highest priority feature is stored in the AlphaTag column of the cadastral line feature class. The unique values of this column can be assigned symbology schemes (using style files) that gives your cadastral GIS data a clean cartographic look.

## Benefits

The most significant benefit of multiple feature tagging is the ability to perform most cadastral editing within one linear feature class. This is especially advantageous for completing large maintenance tasks, such as drawing a new subdivision. The linear editing model for multi-featured labor-intensive workflows is easier and faster because you do not need to edit each feature class individually.

Placing a new subdivision, for example, requires you, at minimum, to account for subdivision boundaries, lot lines, parcel lines, road right-of-ways and centerlines. Editing each of these feature layers individually requires you to unnecessarily duplicate line work across different layers. Instead, you can draw all of the required lines once, and tag each of the lines with the appropriate features. If mistakes are made, there is no need to redo line work in other layers.

Another benefit to using the MapEditor Tag Model is the insurance that elements of different feature classes match each other. Because individual feature classes can be built using the same set of lines, features with coincidental boundaries always match each other. Therefore, polygons generated from these lines will also be coincident and free of slivers, gaps, and overlaps. Separate editing of individual feature layers with duplicate boundaries increases

the potential for errors. The linear editing model ensures that once a line is drawn, all feature classes built from that line will be consistent.

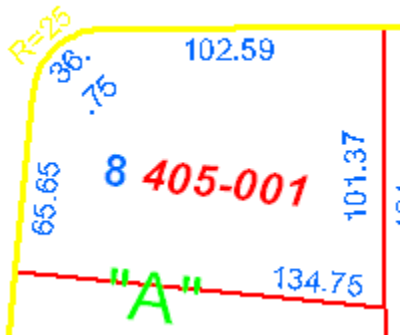


# Parcel Builder MapEditor

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## *Annotation in MapEditor*

### About Annotation



Annotation is an integral part of the MapEditor data model and the cadastral maintenance workflow. Parcel notations, road names, and dimensions are critical pieces of information required by a map to communicate the uniqueness and significance of the features they describe. As much as GIS users move toward a purely digital and paperless environment, there still remains a cartographic need for descriptive text on a map.

Parcel Builder utilizes the functionality of the geodatabase annotation architecture new to ArcGIS 9. Instead of using a data model similar to how multiple feature tagging is implemented, annotation classes are used within annotation feature classes to delineate different annotation features. Annotation classes are similar to feature class subtypes in that features within a single feature class can be classified and isolated from the others. Annotation is managed within these classes and edited using the tools on the ArcMap Annotation toolbar. There is enough functionality with these tools to perform the necessary tasks in maintaining a robust annotation schema within your GIS.

Consult the online ArcGIS help system for more information on annotation and annotation classes in ArcGIS 9.

### **Default MapEditor Annotation Classes**

You can configure existing annotation feature classes to contain a set of annotation classes and symbols that are defined in a style file. Consult the MapEditor Data Conversion section in the Parcel Builder online help system for more information on including annotation classes.

### **Parcel Number Annotation and Administrator**

If you are using Administrator with MapEditor, you are encouraged to maintain parcel number annotation through the use of labels. For an explanation of how parcel number labels can be used

in Administrator, consult the “Setting up ArcMap for Administrator” section in the Parcel Builder online help system.



# Parcel Builder MapEditor

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## *Cartographic Lines in MapEditor*

### About Cartographic Lines



Cartographic lines are ancillary linear features, like dimension tics, that serve a similar purpose to annotation. Dimensions, ownership hooks, and the like are critical pieces of information required by a map to communicate the uniqueness and significance of the features they describe. As much as GIS users move toward a purely digital and paperless environment, there still remains a cartographic need for descriptive features on a map in order to alleviate confusion. Cartographic lines are given their own category because they are linear in nature, but do not participate in map topology, nor are they used to generate polygons. Their purpose is for map clarity, like annotation.

Instead of using a data model similar to how multiple feature tagging is implemented, subtypes are used to delineate between different types of cartographic line features. MapEditor includes the PB Cartographic Tools toolbar, which contains several tools for placing different types of cartographic lines on the map. It is a robust solution for maintaining these types of features.

### **Default MapEditor Cartographic Line Subtypes**

You can configure new or converted cartographic line feature classes to include a set of default subtypes that are available upon installation of Parcel Builder. Consult the MapEditor Data Conversion section in the Parcel Builder online help system for more information on including these default subtypes.



# Parcel Builder MapEditor

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## ***MapEditor Tag Model Components***

### **About the Tag Model Components**

The following discusses the geodatabase components of the MapEditor Tag Model as well as explains their purpose in the cadastral maintenance environment. The model utilizes three features classes: a linear feature class, an annotation feature class, and a cartographic feature class (linear). Three additional table objects, a relationship class, and a topology are included to enhance the linear feature class and establish the architecture for multiple feature tagging.

The components of the Tag Model are designed to co-exist with the geodatabase components in the Administrator and MapPlotter data models.

The following sections discuss each geodatabase component of the MapEditor Tag Model.

### **Feature Classes**

**Cadastral Line Feature Class**

**Cartographic Line Feature Class**

**Annotation Feature Class**

### **Tables**

**Tag Table**

**TagInfo Table**

**Parcel Builder Table**

### **Other Objects**

**LineToTags Relationship Class**

**Cadastral Topology**



# Parcel Builder MapEditor

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## MapEditor Tag Model Components

### Cadastral Line Feature Class

The Cadastral Line\* feature class contains all of the linear geometry for every entity in your jurisdiction requiring a topological structure. This class has the minimal amount of fields acceptable for use within the geodatabase structure, with the only additional attribute fields being AlphaTag and HAS\_SELECTED\_TAG.

Fields	Description
<b>OBJECTID</b>	Unique record identifier (long integer)
<b>Shape</b>	Shape geometry (blob)
<b>Shape_Length</b>	Line length (double)
<b>AlphaTag</b>	Stores highest priority feature tag from the tags assigned to the line. Used as the active symbology attribute in ArcMap (string)
<b>HAS_SELECTED_TAG</b>	Subtype field used by cadastral_topology - see below (integer)

\* The feature class name Cadastral Line exists only for the purpose of standardizing this document. The class will be named after the default or user-determined name assigned to it after importing it into the land parcel geodatabase.

### Subtypes

#### HAS\_SELECTED\_TAG

Used by cadastral\_topology to differentiate features that have a parcel tag (or any other selected tag set using the Check Tag Topology tool) and those features that do not.

#### Values

- 0 - No Tag
- 1 - Has Tag

### Dependencies

Tag Table

TagInfo Table

LineToTags Relationship Class

Cadastral Topology



# Parcel Builder MapEditor

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## MapEditor Tag Model Components

### Cartographic Line Feature Class

The Cartographic Line\* (cartographic) feature class contains ancillary linear cartographic symbols that are not used for topology (i.e. parcel ownership hooks, from-to tics, etc.), and serve the same general purpose as annotation. Cartographic features are symbols used to clarify maps for the map reader. This class has the minimal amount of fields acceptable for use within the geodatabase structure, with the only additional attribute field being CartoTag.

Fields	Description
<b>OBJECTID</b>	Unique record identifier (long integer)
<b>Shape</b>	Shape geometry (blob)
<b>Shape_Length</b>	Line length (double)
<b>CartoTag</b>	Subtype field used to classify cartographic features (long integer)

\* The feature class name Cartographic Line (cartographic) exists only for the purpose of standardizing this document. The class will be named after the default or user-determined name assigned to it after importing it into the land parcel geodatabase.

### Subtypes

#### CartoTag

Means of subtyping different kinds of cartographic features within the editing environment.

#### Values

The following values are the default cartographic subtypes generated for a seed and/or converted Parcel Builder geodatabase. This list changes as new cartographic subtypes are introduced to the data model.

- 156 - Lot Num Carto
- 157 - Lot Dim Carto
- 159 - Min Rights Num Carto
- 160 - Min Rights Acreage Carto
- 161 - Min Rights Hook
- 164 - Min Rights Dim Carto
- 355 - Geo Twp Name Carto
- 356 - Indian Name Carto
- 369 - Pol Twp Name Carto
- 371 - Corp Name Carto
- 373 - Section Num Carto
- 379 - Water Name Carto

382 - Road Name Carto  
385 - Railroad Name Carto  
388 - Railroad Dim Carto  
392 - Parcel Num Carto  
393 - Parcel Acreage Carto  
394 - Parcel Dim Carto  
398 - Parcel Owner Hook  
400 - Misc Text Carto  
401 - Misc Dim Carto  
409 - Sub Name Carto  
410 - Sub Ref Letter Carto  
412 - Page Ref Detail Carto  
414 - Page Ref Adj Carto  
416 - Proof Notes Carto  
417 - Road Dim Carto  
418 - Sub Blk Num Carto  
421 - Parcel Blk Carto  
423 - Road Vac Name Carto  
425 - Easement Carto  
426 - Mon Carto  
429 - Road Vac Dim Carto  
431 - Town Name Carto  
432 - Condo Name Carto  
451 - Claim Num Carto  
452 - Claim Dim Carto  
475 - Parcel Num Point Carto  
478 - GIS Centroid Carto  
483 - Air Rights Num Carto  
485 - Leasehold Num Carto  
603 - 100 Plot Carto  
606 - 400 Plot Carto  
609 - 50 Plot Carto  
999 - Unknown Carto



# Parcel Builder MapEditor

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## *MapEditor Tag Model Components*

### **Cadastral Annotation Feature Class**

The Cadastral Annotation feature class (cadastral\_anno) does not include additional fields or structures relevant to Parcel Builder. Upon configuring a seed or converted Parcel Builder geodatabase, however, the feature class is created and subtyped into a default set of annotation classes. The feature class takes full advantage of the new ArcGIS 9 geodatabase architecture for annotation and requires no additional tool sets for editing purposes.

<b>Fields</b>	<b>Description</b>
<b>OBJECTID</b>	Unique record identifier (long integer)
<b>AnnotationClassID</b>	Subtype field used by cadastral_topology - see below (integer)

\* The feature class name Cadastral Annotation (cadastral\_anno) exists only for the purpose of standardizing this document. The class will be named after the default or user-determined name assigned to it after importing it into the land parcel geodatabase.

## **Subtypes**

### **AnnotationClassID**

Provides a means of subtyping an annotation feature class. Classes and symbols are added manually or through the use of the Parcel Builder Conversion utility. The utility matches existing annotation features to a style file that determines the annotation class name and default symbol.



# Parcel Builder MapEditor

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## MapEditor Tag Model Components

### Tag Table

The Tag table stores the feature tags attributed to every feature in the Cadastral Line\* feature class. The Tag table is designed to store every occurrence of a linear feature tag in Cadastral Line. This means that if a linear feature is attributed with four feature tags, four unique records are stored in the Tag table.

Fields	Description
<b>OBJECTID</b>	Unique record identifier (long integer)
<b>TagValue</b>	Numerical code representing a unique feature (long integer)
<b>TagCollLink</b>	Identifies the arc to which the tag refers. Contains the value from the OBJECTID field in the Cadastral Line feature class (long integer)

\* The feature class name Cadastral Line exists only for the purpose of standardizing this document. The class will be named after the default or user-determined name assigned to it after importing it into the land parcel geodatabase.

### Subtypes

#### TagValue

Numerical code representing a unique feature. Each code is associated with a descriptive name. For example, a TagValue code of 309 is associated with the name Parcel Line.

#### Values

The following values are the default subtypes generated for a seed and/or converted Parcel Builder geodatabase. This list changes as new tags are introduced to the data model.

- 158 - Min Rights Line
- 309 - Parcel Line
- 347 - Road Centerline
- 349 - State Line
- 351 - County Line
- 352 - Pol Twp Line
- 354 - Geo Twp Line
- 357 - Section Line
- 360 - Water Line
- 362 - Road ROW
- 363 - Railroad Centerline
- 364 - Railroad ROW
- 365 - Lot Line
- 366 - Sub Line 100
- 370 - Corp Line

372 - Indian Line  
399 - Misc Line  
411 - Page Match Line  
415 - Easement Line  
420 - Sub Line 400  
428 - Road Vac ROW  
436 - Parcel Line Hidden  
441 - Parcel Line Railroad  
446 - Parcel Line Shaded  
450 - Claim Line  
477 - Pavement  
479 - Sub Line Nonplot  
480 - Condo Line  
482 - Leasehold Line  
484 - Air Rights Line  
486 - Forest Line  
487 - Wildlife Line  
488 - Leased Imp Line  
489 - Zoning Line  
601 - 100 Plot Linear  
604 - 400 Plot Linear  
608 - 50 Plot Linear  
617 - Mon Linear  
999 - Unknown Linear

## **Dependencies**

**Cadastral Line Feature Class**

**LineToTags Relationship Class**



# Parcel Builder MapEditor

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## *MapEditor Tag Model Components*

### TagInfo Table

The TagInfo\* table is not used in direct relation with the Cadastral Line/Tag core of the data model. It is used as a programmatic source of data to establish feature tag priority. Its design mimics the GDB\_Subtypes table by storing the unique feature code and descriptive name. In addition, it houses the priority rank of each tag, used by MapEditor tools to determine the highest priority tag for the lines. The descriptive name (SubtypeName) is stored in the AlphaTag field of the Cadastral Line feature class, and is used within ArcMap for symbology.

Fields	Description
<b>ID</b>	Unique record identifier (long integer)
<b>SubtypeCode</b>	Numerical code representing a tag value (double)
<b>SubtypeName</b>	Descriptive name for tag (string)
<b>SubtypePriority</b>	Numerical priority rank (double)
<b>ActiveStatus</b>	Determines if tag is active as True or False (string)
<b>TagType</b>	Determines what type of tag it is (always Linear) - (string)

\* The TagInfo table is populated with the same values as GDB\_Subtypes for the Tag table when a seed or converted Parcel Builder geodatabase is created.

## Dependencies

### Cadastral Line Feature Class



# Parcel Builder MapEditor

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## *MapEditor Tag Model Components*

### Parcel Builder Feature Class Table

An additional table, PB\_FClass, is added to the geodatabase that Parcel Builder uses to determine if feature classes are properly configured for use in MapEditor, Administrator, and MapPlotter. Feature classes are considered compliant with Parcel Builder if they have been configured using the Configuration Property feature in ArcCatalog. If the feature class is compliant, it is listed in the table with a Type value designating it as the primary feature class for that type (cadastral line, annotation, cartographic line, or parcel number).

Fields	Description
<b>OBJECTID</b>	Unique record identifier (long integer)
<b>Name</b>	Feature class name (string)
<b>Type</b>	Feature class type - see values below (integer)

#### Type Values

These values are not part of a subtype or attribute domain. These values are used by Parcel Builder to determine the existence of compliant Parcel Builder feature classes.

- 1 - Compliant Cadastral Line Feature Class
- 2 - Compliant Cartographic Line Feature Class
- 3 - Compliant Annotation Feature Class
- 4 - Compliant Parcel Number (point or polygon) Feature Class

#### Dependencies

**Cadastral Line Feature Class**

**Cartographic Line Feature Class**

**Cadastral Annotation Feature Class**



# Parcel Builder MapEditor

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## *MapEditor Tag Model Components*

### **LineToTags Relationship Class**

LineToTags is a relationship class that acts as the bridge between the Cadastral Line feature class and the Tag table. The class is designed as a one-to-many relationship between Cadastral Line and Tag (one line to many feature tags). The foreign key that binds the two objects is the TagCollLink field in the Tag table.

<b>Fields</b>	<b>Description</b>
<b>Name</b>	LineToTags
<b>OriginClassID</b>	Cadastral Line ID (from GDB_ObjectClasses)
<b>DestClassID</b>	Tag ID
<b>ForwardLabel</b>	Tags
<b>BackwardLabel</b>	TaggedLines
<b>Cardinality</b>	2 (one-to-many)
<b>Notification</b>	2 (Forward; origin to destination)
<b>IsComposite</b>	1 (TRUE)
<b>OriginPrimaryKey</b>	OBJECTID
<b>DestPrimaryKey</b>	OBJECTID
<b>OriginForeignKey</b>	TagCollLink

\* Only applicable fields and values are listed

### **Dependencies**

**Cadastral Line Feature Class**

**Tag Table**



# Parcel Builder MapEditor

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## *MapEditor Tag Model Components*

### **Cadastral Topology**

The Cadastral Topology (cadastral\_topology) is created by the user. The topology contains three rules affecting only the Cadastral Line feature class. You are encouraged to include more rules in the topology as you see fit. One of the three rules affects a subtype of the Cadastral Line class (Has\_Selected\_Tag). The subtype values for the Has\_Selected\_Tag field can be changed to set any feature tag as the primary topology feature using the Check Tag Topology tool.

#### **Note**

Because geodatabase topologies only work within the confines of a feature dataset, you are encouraged to store your Parcel Builder feature classes within a feature dataset. The seed geodatabase already contains this structure.

<b>Property</b>	<b>Description</b>
<b>Name</b>	cadastral_topology
<b>Cluster Tolerance</b>	0.01
<b>Feature Classes</b>	Cadastral Line
<b>Rules</b>	Cadastral Line - Must Not Overlap
	Cadastral Line - Must Not Self-Overlap
	Cadastral Line:Has Tag - Must Not Have Dangles

#### **Note**

- Because geodatabase topologies only work within the confines of a feature dataset, you are encouraged to store your Parcel Builder feature classes within a feature dataset. The seed geodatabase already contains this structure, but converted geodatabases should be modified to support a feature dataset.

### **Dependencies**

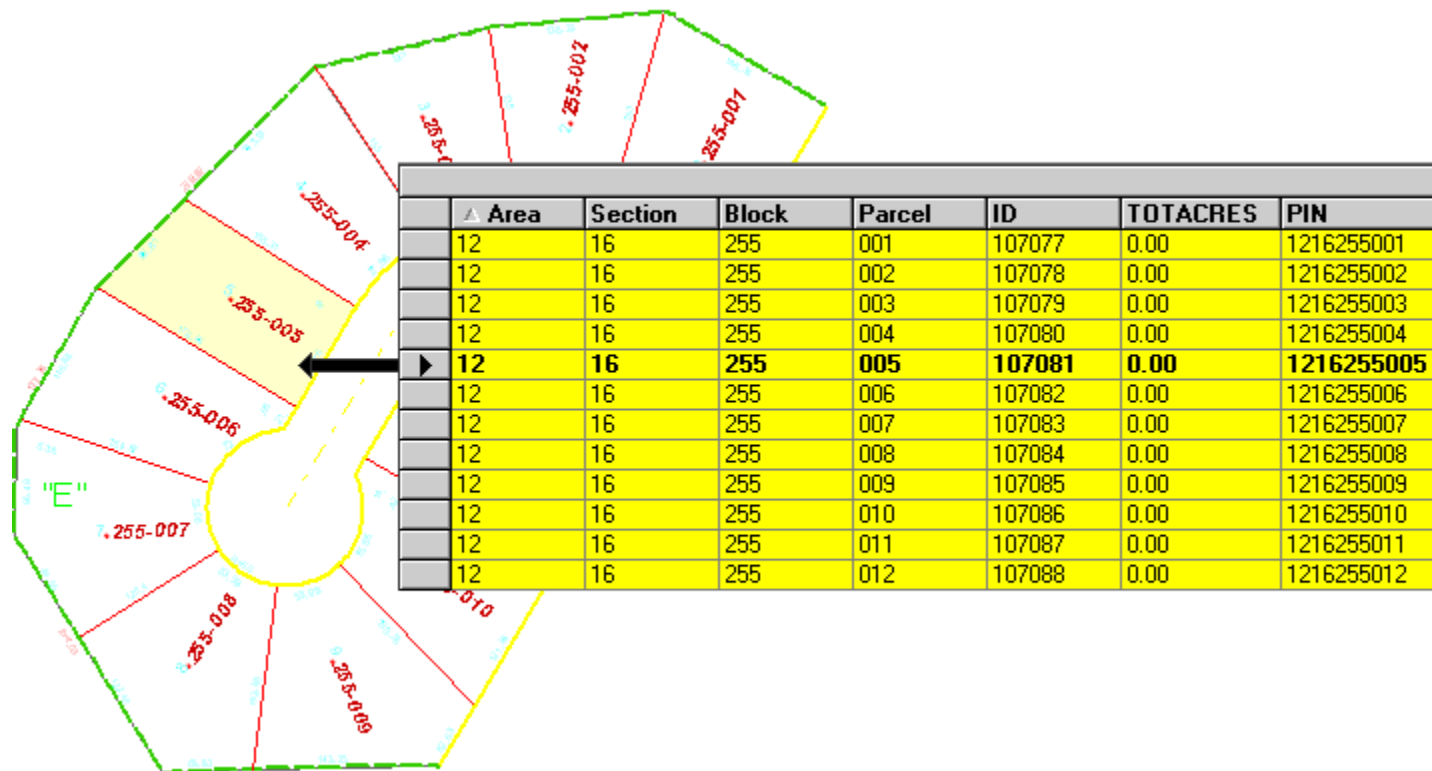
#### **Cadastral Line Feature Class**



# Parcel Builder Administrator

## Introduction to Administrator

The Administrator module provides a cross-platform parcel number management system that is fully integrated with ArcMap. Administrator provides a structurally sound and efficient front-end application to maintain the integrity of your cadastral-based GIS as well as your parcel number control system. The creation of a new parcel within the GIS should trigger actions across the appraisal and tax cycle enterprise if a true multi-platform data integration is achieved. Since Administrator stores data in any of several ODBC data sources, these tables are immediately visible to associated appraisal and tax cycle software packages. Administrator features drag and drop functionality to associate parcel numbers to a geodatabase feature class displayed in ArcMap, as well as live integration with CAMA software packages. With the management of these tasks being performed by a single application, the potential for data and effort duplication is eliminated.

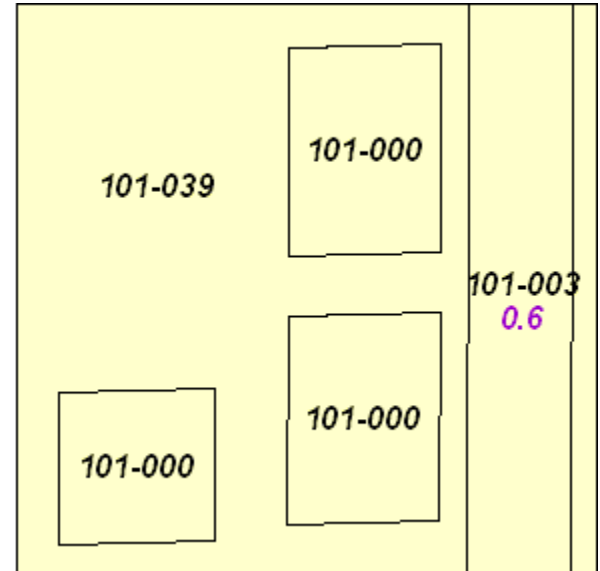


Browse to the following topics for getting started, and using Administrator.



# Parcel Builder Administrator

## Administrator Maintenance Models



Parcel Builder Administrator provides the flexibility to update parcel features in your cadastral GIS by supporting two separate data models: a point and polygon model, and a polygon-only model. Both models support condominiums and special property type parcels, but in slightly different ways. Both approaches have benefits and limitations which are described in the following detailed explanations of each model. If you decide against using a model after adopting it, you can easily shift back and forth between models.

Note that both models employ parcel polygons in one capacity or another. Parcels should ultimately be maintained as polygons due to the areal nature of property. The two models discussed here are for maintaining the numbering of the parcels using the Administrator module. You should employ the best methods necessary to maintain the geometry and integrity of your parcel polygons using the editing tools in ArcMap and Parcel Builder MapEditor.

The following sections provide more detailed information about each model. Both discussions address how features are linked to the map, how special property types are maintained, and how condominiums are handled.

### The Point and Polygon Model

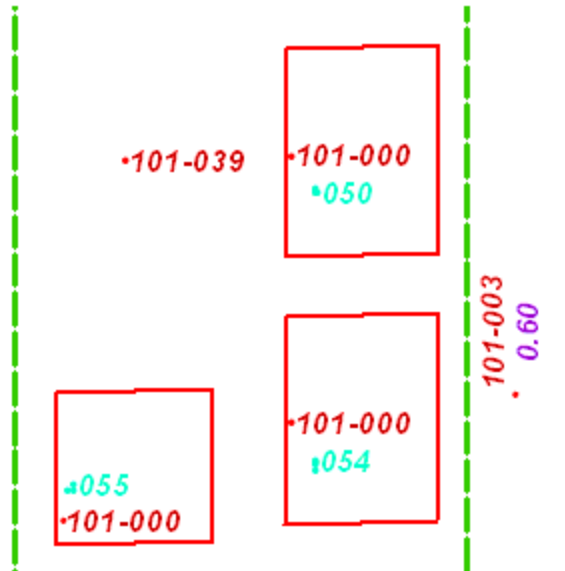
### The Polygon-Only Model



# Parcel Builder Administrator

## Administrator Maintenance Models

### The Point and Polygon Model



#### Overview

The point and polygon model uses two feature classes to fully account for the range of properties that are required for entry in your cadastral GIS. Administrator performs maintenance on the point feature class, which is designated as the 'parcel number' feature class. The parcel polygons are maintained using a separate tool in MapEditor. The Link PIN to Polygon tool transfers the parcel number from the point (which is further designated as the polygon 'centroid') to the polygon which contains it.

#### Linking Points

When the point feature class is updated, a point feature is placed on the map during a link operation, and removed from the map during an unlink operation. Therefore, the confirmation of a point linked on the map is the feature's presence or absence (aside from the record color in the Administrator Dialog).

#### Labeling

One benefit to using the point feature class is that labels can appear angled as specified by values in an attribute field. Angled labels have cleaner cartographic look when displaying parcel numbers on the map. The use of this property allows for placement at specified angles, which can also be easily changed at a later time.

### **Centroids vs. Non-Centroids**

In the point model, there are two kinds of points: centroid and non-centroid.

Centroid points are used to mark the location of a parcel that is also spatially represented in the polygon feature class. Centroid points are not actual centroids (the geographic center of the polygon), but serve the same functional purpose. A one-to-one relationship between centroids and polygons must always be maintained. Non-centroids are used to represent parcels that require a location, but do not have any significant spatial qualities (and therefore serve little purpose as polygons). These include, among others, mobile homes, buildings on leased land, and condominium units.

The points are classified as centroids or non-centroids in the point feature class through the use of a subtype column. In an editing environment, this allows you to have more control over manipulating one type or the other at a given time.

### **Condominiums**

Condominium units are non-centroid points that are linked to a parent parcel represented by a polygon. Because a one-to-one relationship between points and polygons must be maintained, a centroid point is also placed with a parcel number of 000 by the Administrator Dialog. Condominium records are also written to a specified condo table that resides in the cadastral geodatabase. The records are structured to allow a one-to-many relationship between the parent parcel polygon and/or the parent centroid point.

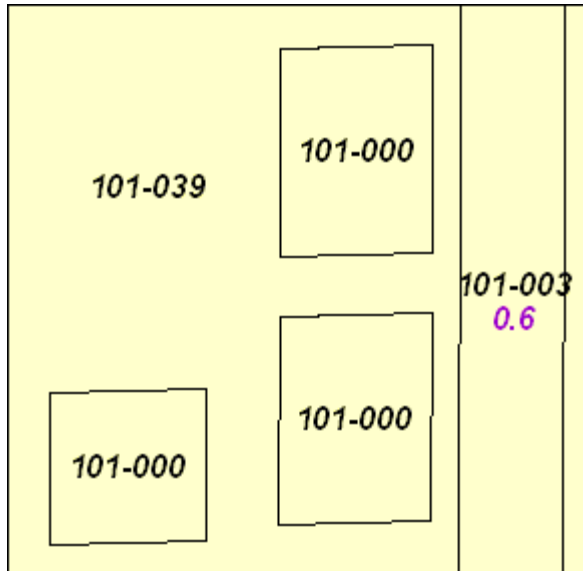


# Parcel Builder Administrator

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## *Administrator Maintenance Models*

### The Polygon-Only Model



#### **Overview**

The polygon-only model eliminates the need for including a point feature class while still accounting for the variety of property types required by your cadastral GIS. The parcel polygon layer becomes the designated 'parcel number' feature class.

#### **Linking Polygons**

Administrator does not create or remove polygon features on the map. Polygon features are maintained before using Administrator, and the module adds and removes parcel number attributes to polygon features. Confirmation of a polygon linked on the map can be visually displayed through a simple symbology scheme (aside from the record color in the Administrator Dialog).

#### **Labeling**

A limitation of polygon labels is that you cannot label at specified angles.

#### **Centroids vs. Non-Centroids**

Similar to the point feature class in the point and polygon model, you can separate polygons into centroid parcels and non-centroid parcels. In this case, the word 'centroid' is a bit of a misnomer. The term is required to assign the same subtype values to the parcel number feature class (point or polygon) when configured. The polygons are classified as centroids or non-centroids in the

polygon feature class through the use of a subtype column. In an editing environment, this allows you to have more control over manipulating one type or the other at a given time.

Administrator works with subtyped and non-subtyped polygons. Therefore, you do not have to subtype your polygon feature class. Subtyping is supported, however, and it can be useful for differentiating between types of parcels.

Centroid parcel polygons are traditional areal parcels. Non-centroid parcel polygons are parcels that only require a location. The spatial qualities they do maintain are insignificant. These include, among others, mobile homes and buildings on leased land. Condominiums are handled a bit differently (see below).

Non-centroid polygons should be drawn as small squares or circles on the map with minute dimensions; strictly to place a feature of insignificant size on the map. Non-centroid polygons can overlap centroid polygons without compromising the spatial integrity of the centroid polygon. Furthermore, Administrator recognizes the difference between overlapping centroid and non-centroid polygons during linking operations.

### **Condominiums**

Condominium units are not represented on the map as polygon features. The polygon linked as a condominium parcel is assigned a 000 parcel number. The other condominium records are written to a specified condo table residing in the cadastral geodatabase. The records are structured to allow a one-to-many relationship between the condo record and the parent parcel polygon. When a parcel is unlinked from the map, the related condo records are removed from the condo table.



# Parcel Builder Administrator

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## ***Administrator Data Model Components***

### **About the Administrator Components**

The following discusses the geodatabase and external database components of the Administrator Data Model, and also explains their purpose in the cadastral map and parcel maintenance environment. There are three additional objects in the geodatabase required for Administrator: a parcel number feature class, a condo table, and the Parcel Builder table (which is required by MapEditor and MapPlotter as well). There is also an external database that includes five required tables (although more can be added if necessary).

The components of the Administrator model are designed to co-exist with the geodatabase components in the MapEditor and MapPlotter data models.

The following sections describe each geodatabase and table component of the Administrator data model.

### **Feature Classes**

**Parcel Number Feature Class**

### **Tables**

**Parcel Builder Table**

**Condo Table**

### **Administrator Database Tables**

**DN Table**

**Master Table**

**Research Table**

**Pinacr Table**

**Setup Table**



# Parcel Builder Administrator

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## Administrator Data Model Components

### Parcel Number Feature Class

The Parcel Number\* feature class can either be a point or polygon feature class. It is the feature class that Administrator uses to link parcel numbers to the GIS. As a result of this, this should be your primary parcel feature class for your cadastral geodatabase. The parcel number feature class can also be connected to the Condo table through the use of a relationship class.

If you are using a point feature class, you should also have a polygon feature class. After editing the point parcel number feature class, you can transfer the attributes from the points to the underlying polygons (which should also have a PIN field) using the Link PIN to Polygon tool in MapEditor.

Fields	Description
<b>OBJECTID</b>	Unique record identifier (long integer)
<b>Shape</b>	Shape geometry (blob)
<b>Shape_Length<sup>1</sup></b>	Perimeter of polygon (double)
<b>Shape_Area<sup>1</sup></b>	Area of polygon (double)
<b>PIN</b>	Permanent parcel number - link field for Administrator (string)
<b>PINTEXT</b>	Extra label field for cartographic purposes - does <i>not</i> get updated by Administrator (string)
<b>TXT_ANGLE</b>	Label rotation angle (double)
<b>POINT_TYPE</b>	Subtype field to determine if centroid or not - see below (integer)
<b>LABELCLASS</b>	Used to group features into label classes; assigned attribute domain based upon POINT_TYPE subtype - see below (integer)
<b>ACRES</b>	Stores the official acreage of the parcel; it is not a reflection of the value in the Shape_Area field for polygon feature classes (double)

<sup>1</sup> Polygon feature class only.

\* The feature class name Parcel Number exists only for the purpose of standardizing this document. The class will be named after the default or user-determined name assigned to it after importing it into the land parcel geodatabase.

## Subtypes

### POINT\_TYPE

Used to differentiate between those parcel numbers that represent an actual parcel (centroid) and those parcel numbers that are special property types and/or condominiums (non-centroid). If you are using a point feature class, you use the centroids to transfer parcel numbers from the points to underlying polygons.

**Values**

0 - Non Centroid  
1 - Centroid

**Attribute Domains**

The following attribute domains are assigned to the LABELCLASS field contingent upon the subtype value in POINT\_TYPE. The values are used to establish groups for label classes using the parcel number feature class. The following values are the default parcel number attribute domain values generated for a seed and/or converted Parcel Builder geodatabase.

**NON CENTROID**

*POINT\_TYPE = 0 (Non Centroid)*

**Values**

570 - Parcel Num Point 50  
571 - Parcel Num Point 100  
572 - Parcel Num Point 400  
578 - Parcel Num Condo 50  
579 - Parcel Num Condo 100  
580 - Parcel Num Condo 400

**CENTROID**

*POINT\_TYPE = 1 (Centroid)*

**Values**

528 - Parcel Num 50  
529 - Parcel Num 100  
530 - Parcel Num 400  
573 - GIS Centroid 50  
574 - GIS Centroid 100  
575 - GIS Centroid 400

**Dependencies**

None



# Parcel Builder Administrator

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## *Administrator Data Model Components*

### Parcel Builder Feature Class Table

An additional table, PB\_FClass, is added to the geodatabase that Parcel Builder uses to determine if feature classes are properly configured for use in MapEditor, Administrator, and MapPlotter. Feature classes are considered compliant with Parcel Builder if they have been configured using the Configuration Property feature in ArcCatalog. If the feature class is compliant, it is listed in the table with a Type value designating it as the primary feature class for that type (cadastral line, annotation, cartographic line, or parcel number).

Fields	Description
<b>OBJECTID</b>	Unique record identifier (long integer)
<b>Name</b>	Feature class name (string)
<b>Type</b>	Feature class type - see values below (integer)

### Type Values

These values are not part of a subtype or attribute domain. These values are used by Parcel Builder to determine the existence of compliant Parcel Builder feature classes

- 1 - Compliant Cadastral Line Feature Class
- 2 - Compliant Cartographic Line Feature Class
- 3 - Compliant Annotation Feature Class
- 4 - Compliant Parcel Number (point or polygon) Feature Class

### Dependencies

**Parcel Number Feature Class**



# Parcel Builder Administrator

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## Administrator Data Model Components

### Condo Table

The Condo\* maintains records for condominium units that can be traced back to a parent parcel. The table is independent of the parcel number feature class, but can be included in a user-defined relationship class between itself and the parcel number feature class.

Fields	Description
<b>OBJECTID</b>	Unique record identifier (long integer)
<b>Name</b>	Condominium Name (string)
<b>Unit</b>	Unit number (string)
<b>Building</b>	Building number (string)
<b>Page</b>	Map Page (string)
<b>PIN</b>	Condo parcel number (string)
<b>Parent_PIN</b>	Parent parcel number (string)
<b>Condo_ID</b>	ID number that is traced back to the master table (integer)
<b>PIN_TEXT</b>	Additional label field - not updated by Administrator (string)

\* The table name Condo exists only for the purpose of standardizing this document. The class will be named after the default or user-determined name assigned to it. By default, the table is called PB\_Condos when created by the Configuration Utility in ArcCatalog.

### Dependencies

None



# Parcel Builder Administrator

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## **Administrator Data Model Components**

### **DN Table**

The DN Table is a Sidwell internal use only table that stores discrepancy notes when there are mapping issues. Although this table is not updated by Parcel Builder Administrator, it must be in the Administrator database for Administrator to work correctly.

#### **Note**

The DN table and its dependencies must not be registered to the geodatabase, but they can reside within it. It is recommended that the Administrator tables (besides the parcel number feature class and condo table) reside in a separate database to avoid potential problems.

You may choose to place your Parcel Builder Administrator tables into the same Microsoft SQL server database as your ArcSDE geodatabase. If you do so, it is important that none of the Administrator tables be registered with the geodatabase. This includes the Master, Pinacr, Setup, DN, and Research tables. We recommend, however, that you store the Parcel Builder Administrator tables in a separate database than the ArcSDE geodatabase.

<b>Fields</b>	<b>Description</b>
<b>ID</b>	Unique identification number (integer)
<b>CODE</b>	Standard numerical code for discrepancy note (string)
<b>NOTES</b>	Discrepancy note (string)

### **Dependencies**

**Master Table**

**Pinacr Table**

**Research Table**

**Setup Table**



# Parcel Builder Administrator

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## Administrator Data Model Components

### Master Table

The Master table stores the parcel records Administrator uses to create the folder tree, populate the parcel control grid, and check for numbers that are linked or unlinked to the map. Also, any updates you make to the parcel record using the Maintenance tab are stored in the Master table.

#### Note

The Master table and its dependencies must not be registered to the geodatabase, but they can reside within it. It is recommended that the Administrator tables (besides the parcel number feature class and condo table) reside in a separate database to avoid potential problems.

You may choose to place your Parcel Builder Administrator tables into the same Microsoft SQL server database as your ArcSDE geodatabase. If you do so, it is important that none of the Administrator tables be registered with the geodatabase. This includes the Master, Pinacr, Setup, Dn, and Research tables. We recommend, however, that you store the Parcel Builder Administrator tables in a separate database than the ArcSDE geodatabase.

The following fields are the minimum fields required for a valid Master table. You may have additional fields in the Master table, but they are not updated by Administrator.

Fields*	Description
<b>PIN</b>	Primary (permanent) parcel number (string)
<b>ID</b>	Unique identification number (integer)
<b>ACRES</b>	Official recorded acreage for the parcel (string)
<b>ACTIVE</b>	Whether parcel is active or retired (string)
<b>CANTLOCATE</b>	Can't locate note - Sidwell (string)
<b>DELIVERED</b>	Delivery status - Sidwell (string)
<b>LEGAL</b>	Legal description of parcel (string)
<b>OLD</b>	Alternative (old) parcel number (string)
<b>RESEARCH</b>	Research note - Sidwell (string)
<b>STATUS</b>	Whether parcel is linked or unlinked to the map (string)
<b>SUBNAME</b>	Subdivision name for the parcel (string)

\* The field names listed above are for the purpose of standardizing this document. Each field should be viewed as a field type. The field names for each type are specified in the Administrator Configuration Utility at the outset of an Administrator project.

## **Dependencies**

**DN Table**

**Pinacr Table**

**Research Table**

**Setup Table**



# Parcel Builder Administrator

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## **Administrator Data Model Components**

### **Research Table**

The Research Table is a Sidwell internal use only table that indicates if a research question has been issued for a parcel. Although this table is not updated by Parcel Builder Administrator, it must be in the Administrator database for Administrator to work correctly.

#### **Note**

The Research table and its dependencies must not be registered to the geodatabase, but they can reside within it. It is recommended that the Administrator tables (besides the parcel number feature class and condo table) reside in a separate database to avoid potential problems.

You may choose to place your Parcel Builder Administrator tables into the same Microsoft SQL server database as your ArcSDE geodatabase. If you do so, it is important that none of the Administrator tables be registered with the geodatabase. This includes the Master, Pinacr, Setup, Dn, and Research tables. We recommend, however, that you store the Parcel Builder Administrator tables in a separate database than the ArcSDE geodatabase.

<b>Fields</b>	<b>Description</b>
<b>ID</b>	Unique identification number (integer)
<b>RESEARCH</b>	Research note (string)
<b>DATEPRINTED</b>	Date research was printed (date/time)
<b>DATERECEIVED</b>	Date research was received (date/time)

### **Dependencies**

**Master Table**

**DN Table**

**Pinacr Table**

**Setup Table**



# Parcel Builder Administrator

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## Administrator Data Model Components

### Pinacr Table

The Pinacr table works in tandem with the Master table storing most of the information added to a parcel using the Maintenance tab in the Administrator dialog. The table is also maintained for use with Sidwell's Farmland Assessment and Report Management System (FARMS) program.

#### Note

The Pinacr table and its dependencies must not be registered to the geodatabase, but they can reside within it. It is recommended that the Administrator tables (besides the parcel number feature class and condo table) reside in a separate database to avoid potential problems.

You may choose to place your Parcel Builder Administrator tables into the same Microsoft SQL server database as your ArcSDE geodatabase. If you do so, it is important that none of the Administrator tables be registered with the geodatabase. This includes the Master, Pinacr, Setup, Dn, and Research tables. We recommend, however, that you store the Parcel Builder Administrator tables in a separate database than the ArcSDE geodatabase.

The following fields are the minimum fields required for a valid Master table. You may have additional fields in the Master table, but they are not updated by Administrator.

Fields*	Description
<b>ID</b>	Unique identification number (integer)
<b>AG</b>	Flags whether parcel is agricultural or not (string)
<b>DATE1</b>	Date parcel was created (string)
<b>DOCUMENT</b>	Document number (string)
<b>REMARKS</b>	Remarks about the parcel (string)
<b>DEBASE1</b>	Assessment debasement field (double)
<b>DEBASE2</b>	Assessment debasement field (double)
<b>DEBASE3</b>	Assessment debasement field (double)
<b>DEBASE4</b>	Assessment debasement field (double)
<b>DEBASE5</b>	Assessment debasement field (double)
<b>DEBASE6</b>	Assessment debasement field (double)
<b>IMPROVED</b>	Records improvement (string)
<b>NOTES</b>	Notes about the parcel (string)
<b>FORCEADJ</b>	Whether GIS acreage is forced to official acreage (string)
<b>FORCEDATE</b>	Date parcel was forced (string)

<b>ACTDATE</b>	Date parcel becomes active (double)
<b>MODDATE</b>	Date parcel is modified (string)

\* The field names listed above are for the purpose of standardizing this document. Each field should be viewed as a field type. The field names for each type are specified in the Administrator Configuration Utility at the outset of an Administrator project.

## **Dependencies**

**DN Table**

**Master Table**

**Research Table**

**Setup Table**



# Parcel Builder Administrator

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## ***Administrator Data Model Components***

### **Setup Table**

The Setup table stores all of the configuration settings for the Administrator database. The variables are defined using the Administrator Configuration Utility. The Setup table must never be removed from the database, or Administrator will not function at all.

### **Note**

The Setup table and its dependencies must not be registered to the geodatabase, but they can reside within it. It is recommended that the Administrator tables (besides the parcel number feature class and condo table) reside in a separate database to avoid potential problems.

You may choose to place your Parcel Builder Administrator tables into the same Microsoft SQL server database as your ArcSDE geodatabase. If you do so, it is important that none of the Administrator tables be registered with the geodatabase. This includes the Master, Pinacr, Setup, Dn, and Research tables. We recommend, however, that you store the Parcel Builder Administrator tables in a separate database than the ArcSDE geodatabase.

### **Dependencies**

**DN Table**

**Master Table**

**Pinacr Table**

**Research Table**