



Esri International User Conference | San Diego, CA
Technical Workshops | Wed, July 13, 2011

Editing Parcels With ArcGIS

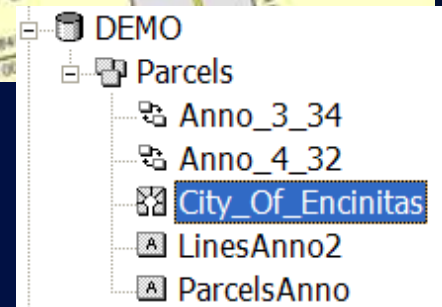
Christine Leslie, Jason Camerano

Editing parcels with ArcGIS

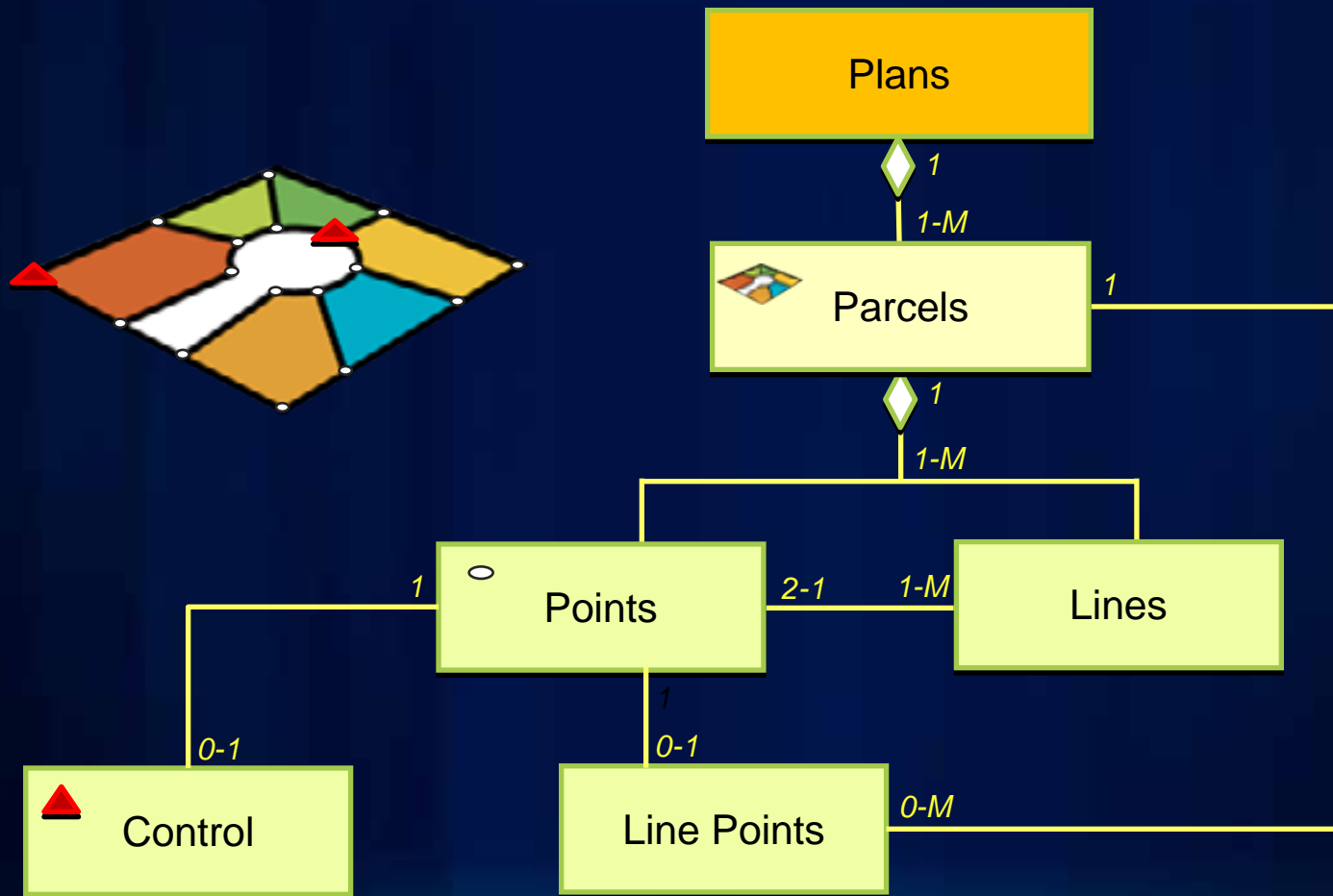
- **Based on an optimized model for parcel storage**
 - Parcel fabric
- **Parcel Editor toolbar**
 - Tools for streamlined parcel editing workflows
- **Maintain and improve**
 - Topological integrity
 - Positional accuracy of parcels

What is a parcel fabric?

- Set of related tables and feature classes stored in a geodatabase
- Connected parcel groups
 - Forms a parcel boundary network
- Explicit topology
 - defined by common parcel corners, no overlaps and gaps between neighboring parcels

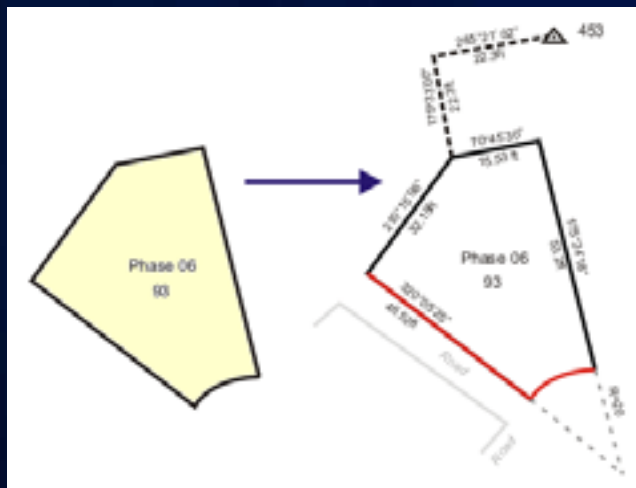


Parcel fabric data model

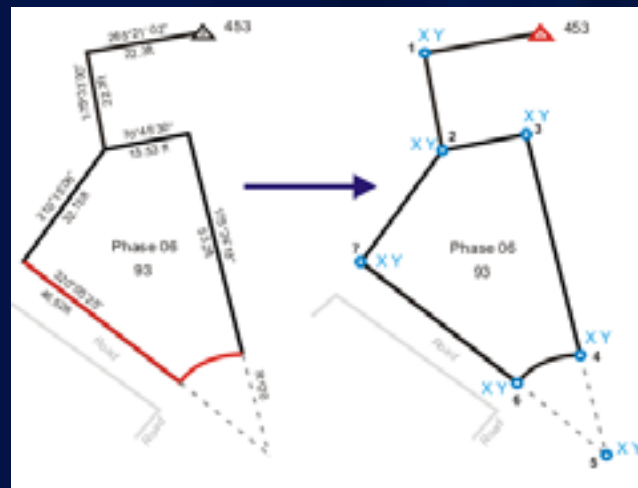


Parcel fabric data model

- Parcels



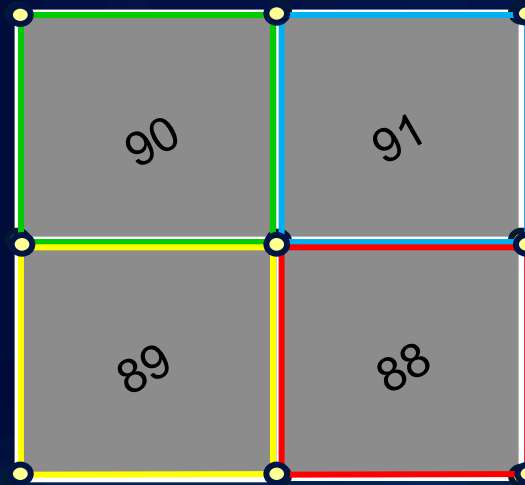
Parcel polygon has related lines



Lines have related From and To points

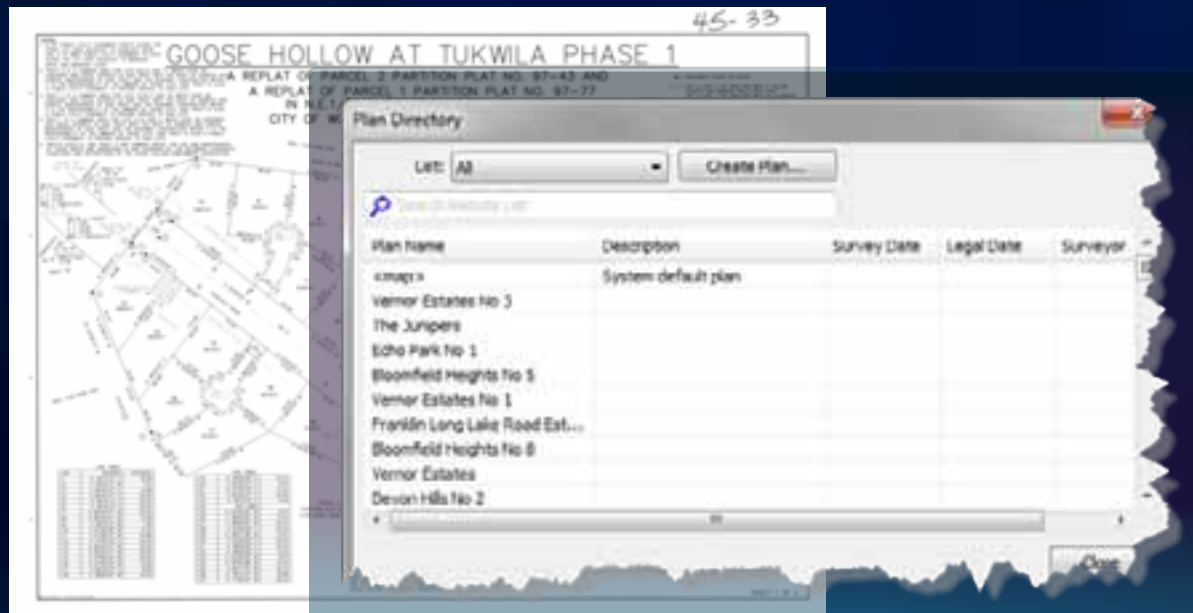
Parcel fabric data model

- **Parcel lines store (COGO) dimensions**
 - Each parcel has its own set of related lines
- **End points are common**
 - Topological integrity



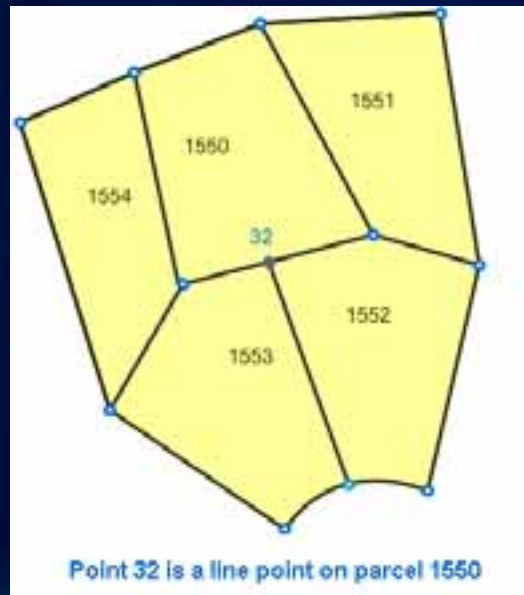
Parcel fabric data model

- Plans
 - Store manage plans, plats, legal records...
 - Parcels created in and grouped by their associated legal record



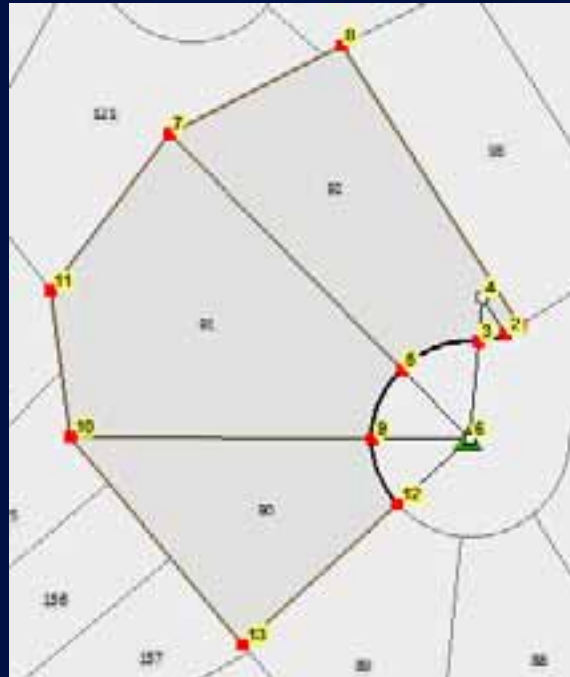
Parcel fabric data model

- **Line points preserve data integrity**
 - A line point is a parcel corner point that sits on an adjacent boundary line but does not split it



Parcel fabric data model

- Curves
 - True, parametric curves
 - Radial lines

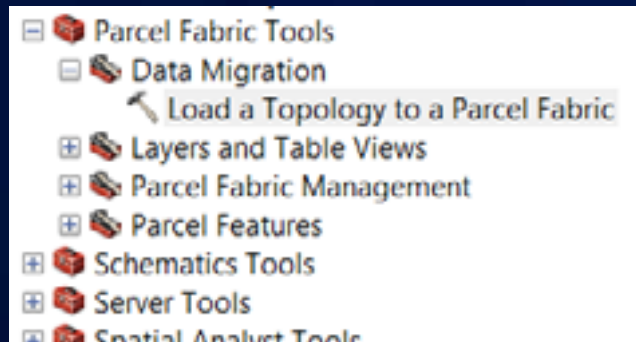


Parcel fabric data model

- **Supports:**
 - **Overlapping parcels**
 - **Natural boundaries**
 - **Donut/island and multipart parcels**
 - **Historic parcels**

Data migration

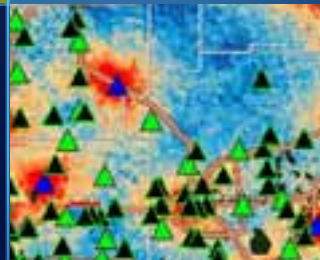
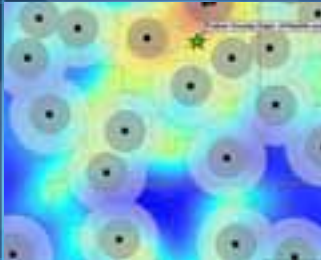
- **Load topology geoprocessing tool**
 - Loads a clean, validated topology into a parcel fabric
 - Line feature class, polygon feature class
 - Topology is validated against a required set of rules



DeKalb County Board

Fulton County Dept. of Health and Wellness/District 3, Unit 2, 04/10/10

Demo: Data Model



Parcel Editing

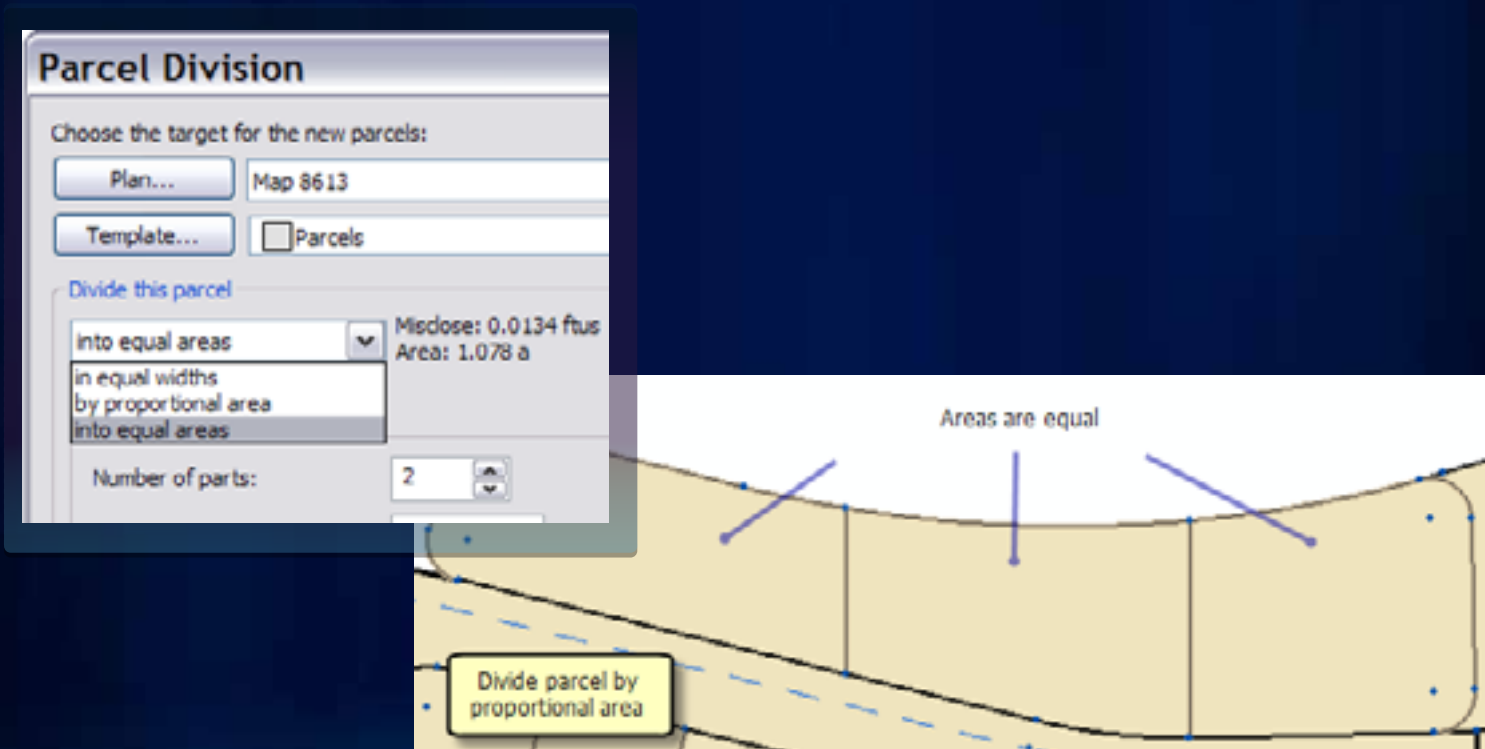


Parcel editing

- **Parcel traverse**
- **Parcel division**
 - Split by area
 - Split using construction lines
- **Parcel merge**
- **Parcel remainder**
- **COGO tools**
 - Bearing, distance, tangent curve, intersection, parallel, perpendicular, etc
- **Snake tool for parcel naming/numbering**
- **Parcel joining**

Streamlined workflows – parcel division

- Divide by area



Streamlined workflows – parcel merge

- **Maintain interior, historic lot lines**



Merge [?] [X]

Plan... Map 8607

Parcel name: 96

Attributes for the new parcel

☐ Copy values from:

Parcel Name

96

95

☒ Choose a template:

Template... ☐ Parcels

☒ Update overlay lines on parent parcels:

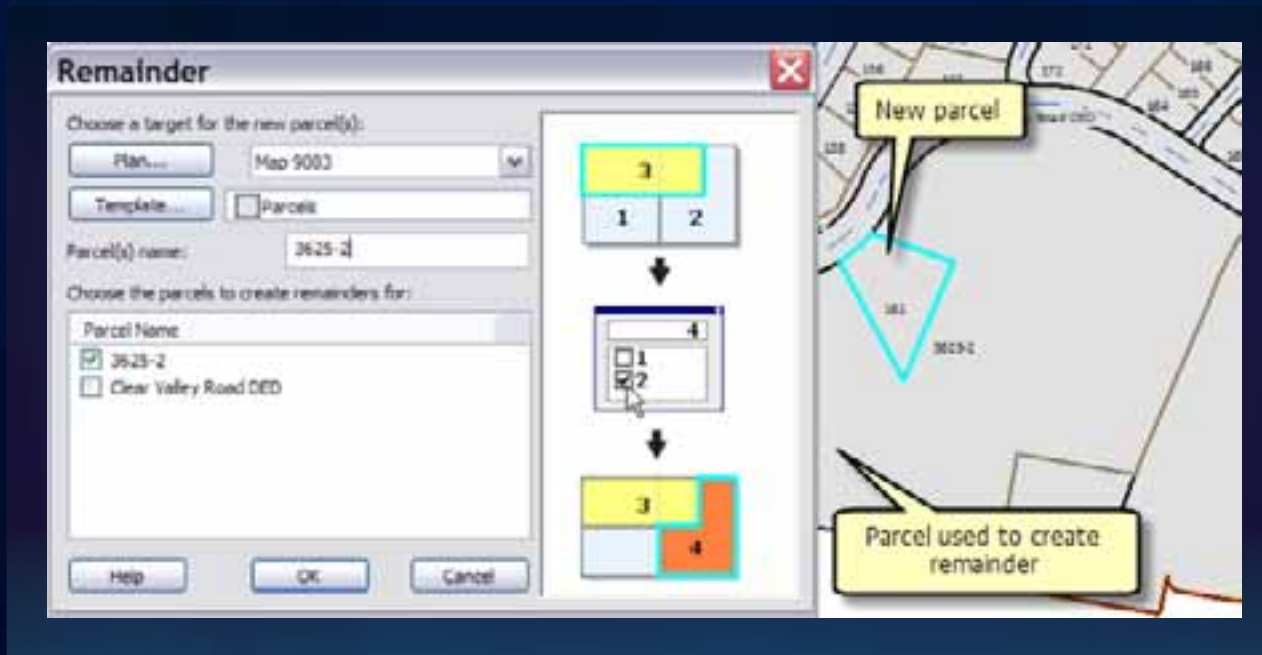
Template... Historic Lot Line

OK Cancel



Streamlined workflows – parcel remainder

- Create remainder parcels from overlapping parcels



Streamlined workflows – parcel remainder

- “Snake” tool



Parcel sequence naming ✕

Starting parcel number:

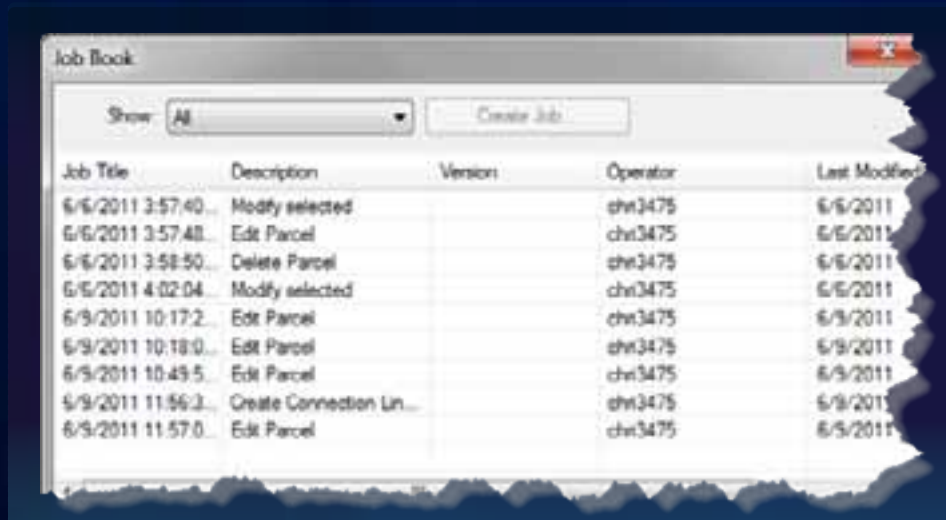
Increment:

Prefix:

Suffix:

Tracking parcel edits

- **Jobs keep track of edits**
 - Date/time of edit, type of edit and user
 - Optionally create and manage your own jobs



The screenshot shows a window titled 'Job Book' with a close button in the top right corner. Below the title bar, there is a 'Show' dropdown menu set to 'All' and a 'Create Job' button. The main area contains a table with five columns: 'Job Title', 'Description', 'Version', 'Operator', and 'Last Modified'. The table lists several jobs performed by 'chr3475' on 6/6/2011 and 6/9/2011.

Job Title	Description	Version	Operator	Last Modified
6/6/2011 3:57:40...	Modify selected		chr3475	6/6/2011
6/6/2011 3:57:48...	Edit Parcel		chr3475	6/6/2011
6/6/2011 3:58:50...	Delete Parcel		chr3475	6/6/2011
6/6/2011 4:02:04...	Modify selected		chr3475	6/6/2011
6/9/2011 10:17:2...	Edit Parcel		chr3475	6/9/2011
6/9/2011 10:18:0...	Edit Parcel		chr3475	6/9/2011
6/9/2011 10:49:5...	Edit Parcel		chr3475	6/9/2011
6/9/2011 11:56:3...	Create Connection Lin...		chr3475	6/9/2011
6/9/2011 11:57:0...	Edit Parcel		chr3475	6/9/2011

DeKalb County Board

Fulton County Dept. of Health and Wellness/District 3, Unit 2, 04/04/2014

Demo: Parcel Editing

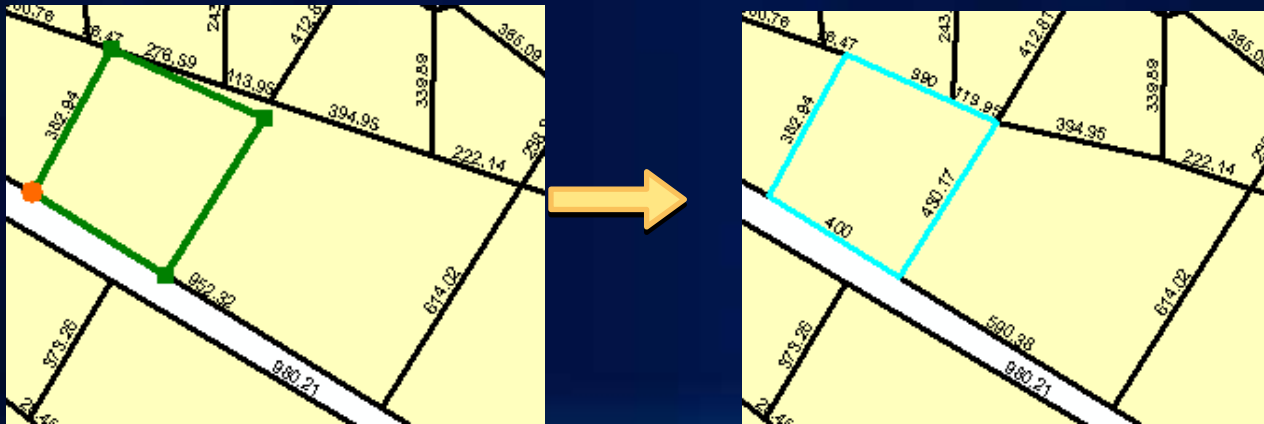


Data Integrity and Accuracy



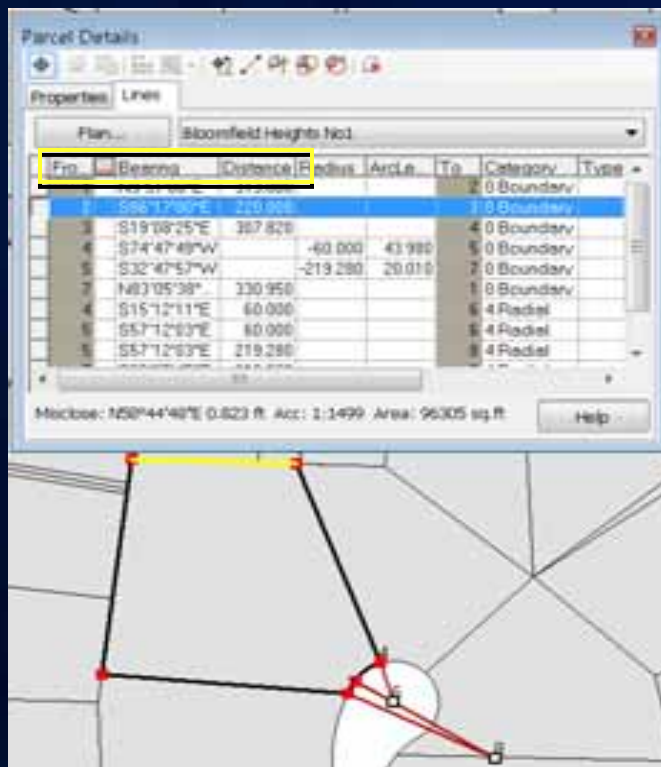
Data Integrity

- Parcel layer is topologically correct
 - Parcel joining enforces connectivity during incorporation
 - Land records from plans/deeds are integrated into a continuous, topologically correct parcel layer
- No slivers and gaps



Data integrity

- Parcel dimensions are correct



Data Integrity - spatial accuracy

- **Fabric least-squares adjustment** uses control points and COGO dimensions to recalculate/update parcel coordinates
- **Fabric feature adjustment** aligns layers from other sources to adjusted parcel boundaries



Least-squares adjustment



Feature adjustment

Fabric least-squares adjustment

- Parcel network is adjusted to control network
- COGO dimensions used to recalculate coordinates
- Parcel point coordinates are updated, dimensions are not changed
- Finds mistakes/blunders in parcel data
- Parcel data should be correct
 - Topologically clean
 - Correct dimensions

Fabric least-squares adjustment

- Accuracy categories on parcels and lines affect the outcome of the adjustment
 - Parcels/lines with high accuracy category adjust less than parcels/lines with low accuracy category
 - Accuracy categories act as weights in adjustment

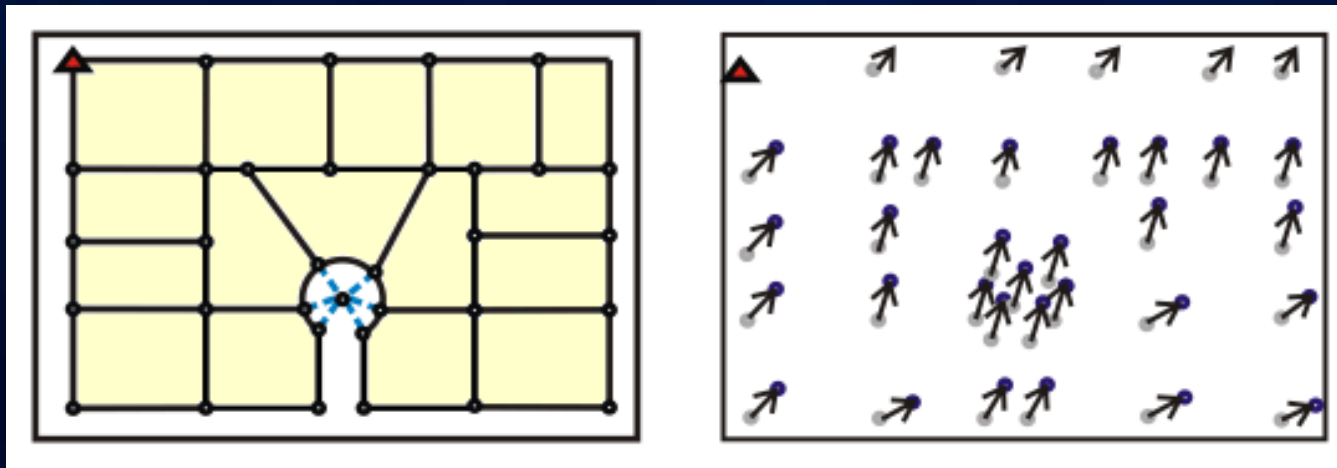


Fabric least-squares adjustment

- **Least –squares adjustment will be successful if:**
 - Parcel network fits/transforms well to control network
 - Good connectivity in parcel network
 - No blunders in COGO dimensions

Fabric feature adjustment

- Coordinates changes from fabric adjustment are stored as vectors
- Vectors are used in a feature adjustment to adjust and align overlaying layers



Other sessions

- **ArcGIS for Land Records - Parcel Maintenance Solution**
 - Tue, Jul 12, 3:15PM - 4:30PM
- **ArcGIS for Land Records Implementation Examples**
 - Wed, Jul 13, 8:30AM - 9:45AM
- **ArcGIS for Land Records: Migrating your Data**
 - Wed, Jul 13, 10:15AM - 11:30AM
- **Migrating Coverages to the Parcel Fabric**
 - Wed, Jul 13, 3:15PM - 3:35PM

Other sessions

- **Integrating CAD Data with the Parcel Fabric**
 - Thu, Jul 14, 11:05AM - 11:25AM
- **ArcGIS for Land Records - Improving Data Quality**
 - Thu, Jul 14, 4:05PM - 4:25PM



esri