Editing and Maintaining Parcels with ArcMap

Amy Andis

Tim Hodson

SEE WHAT OTHERS CAN'T

Topics

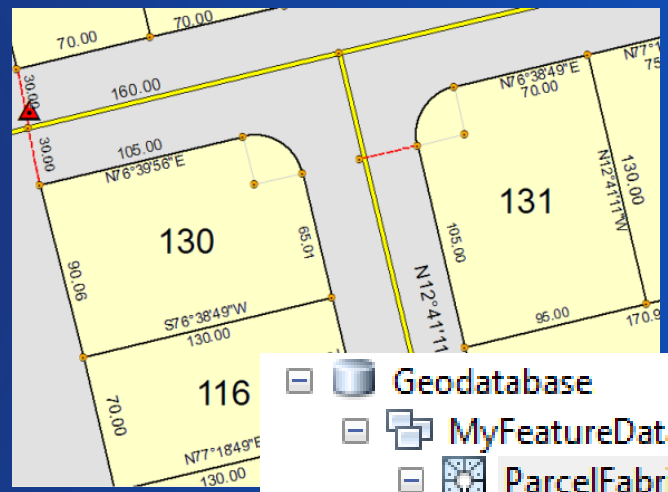
- An introduction to the parcel fabric for ArcGIS Desktop
- A detailed explanation of the parcel fabric data model
- DEMONSTRATION: General editing techniques using parcel editing tools
- What’s new for Parcel Fabrics and ArcGIS Pro?

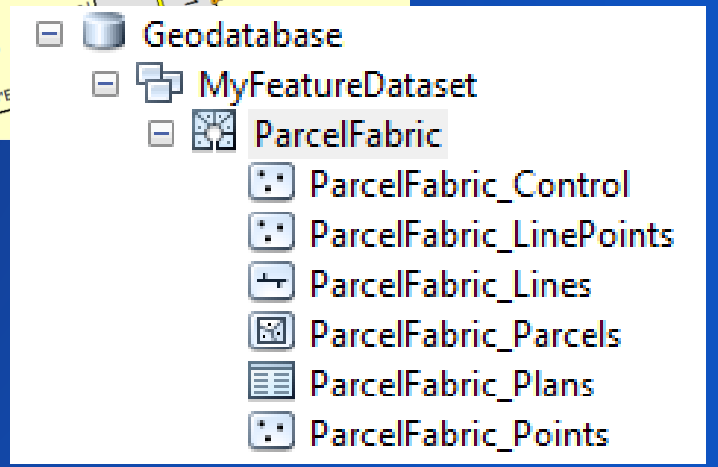
Audience Feedback

- Who is familiar with the Parcel Fabric?
- Who has successfully migrated and deployed parcel data to the Parcel Fabric?
- Who is currently migrating or planning on migrating to the Parcel Fabric?

What is a parcel fabric?

- Dataset that models Parcels
  - Feature classes: Polygon, line, points,
  - Table: Plans
  - Predefined system attributes
- Parcels
  - Each have their own lines
  - Share common corner points
  - Explicit topology
  - Form a parcel boundary network



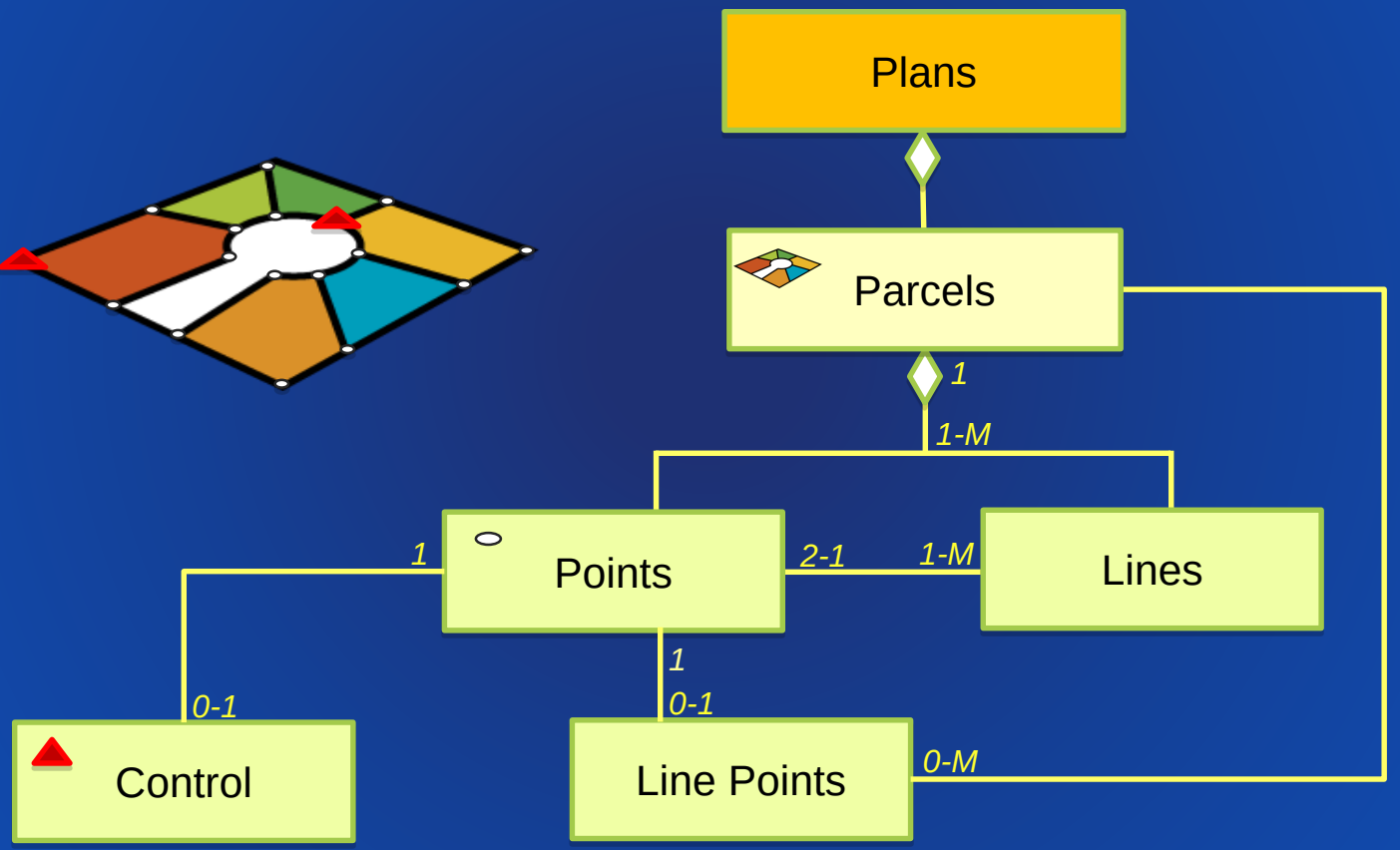


Why use the parcel fabric?

- Preserves land record information
- Data model optimized for parcel editing
  - Parcel Topology
- Models overlapping parcels (Lots, Tax, etc.)
- Maintains parcel history
- Uses/stores control points
- Maintains and Improves spatial accuracy

Parcel Fabric Data Model

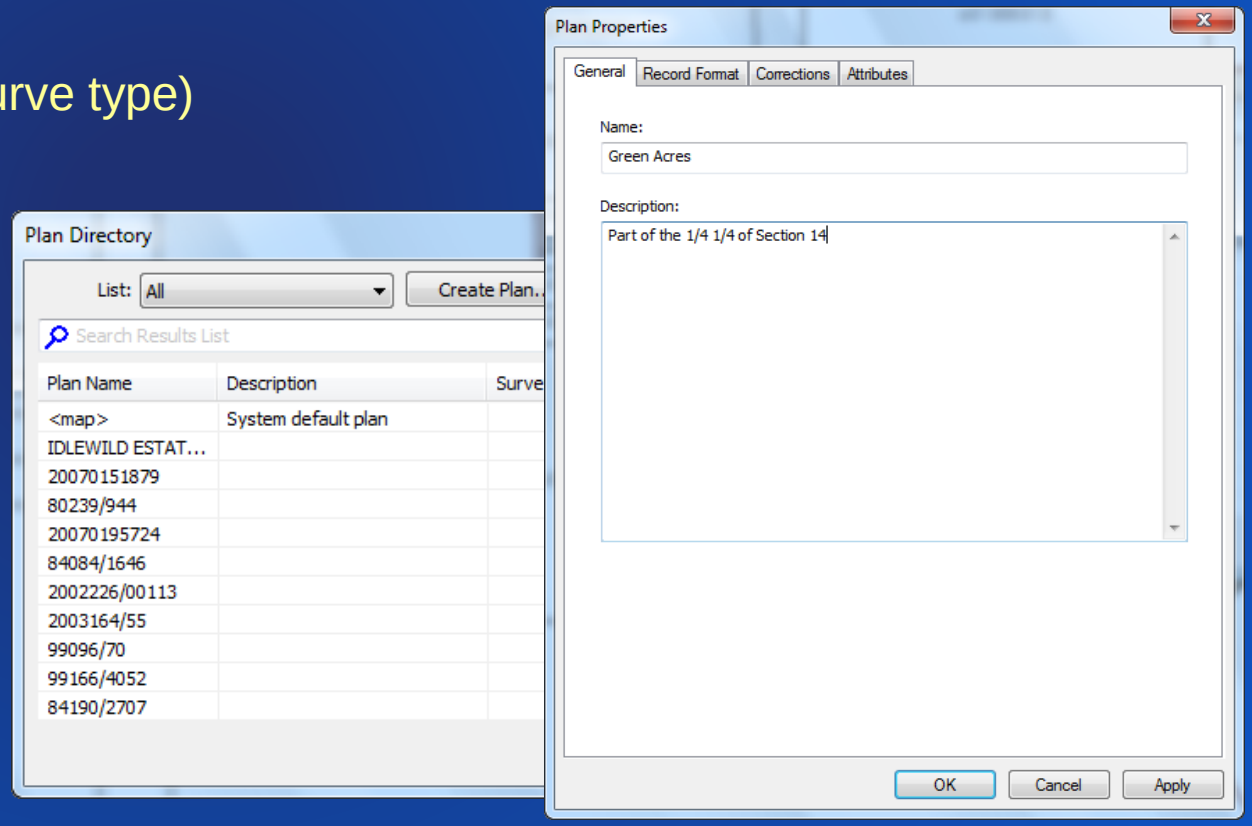
Parcel fabric data model



Plans

Parcel Fabric Data Model

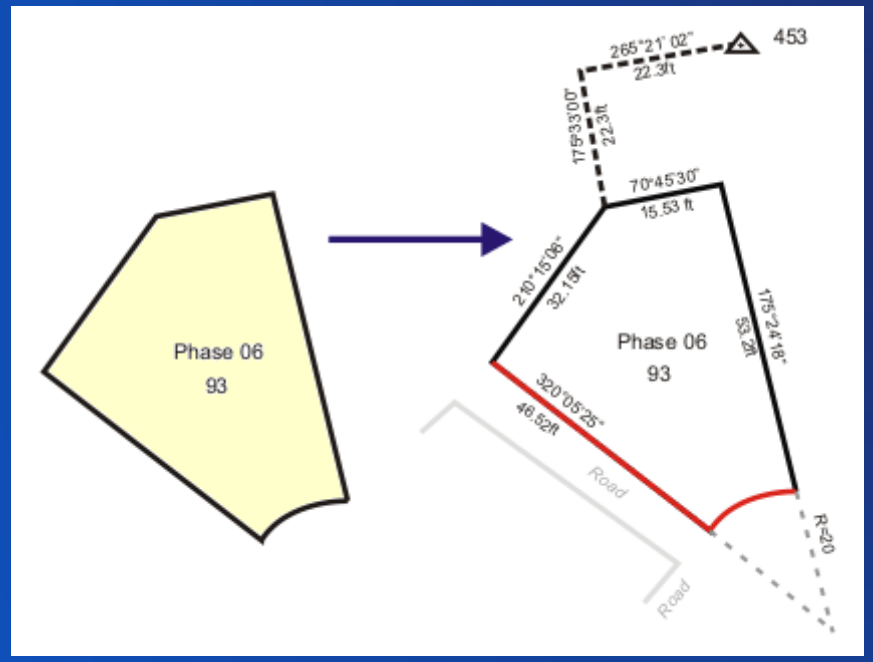
- Represents the legal document and land record
- Stores information
  - Record unit format (direction, angle, curve type)
  - Plan metadata
  - Legal recording date
- Plans contain one or many parcels



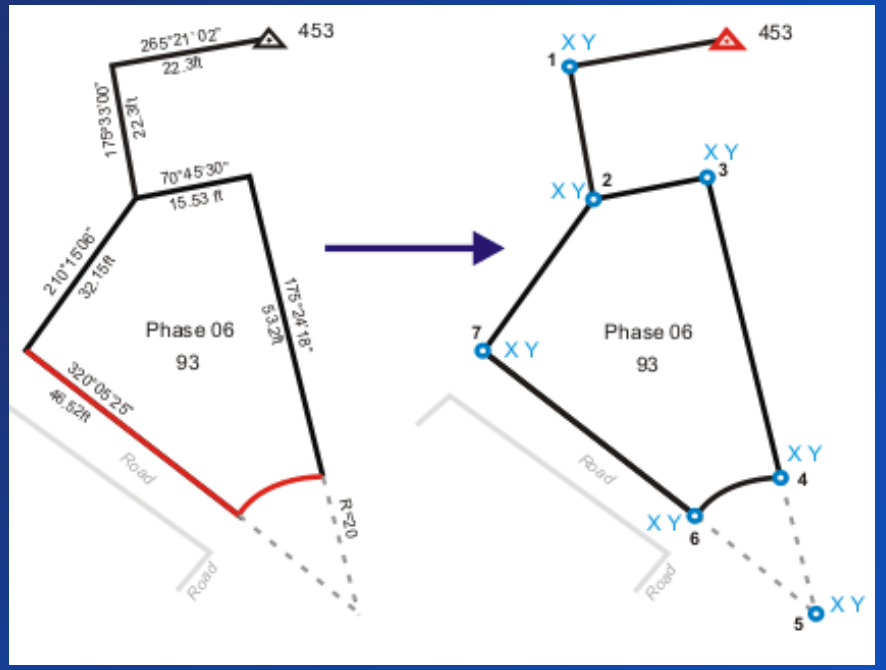
Parcels

Parcel fabric data model

- Parcel polygon is defined by a traverse



Parcel polygon has related lines

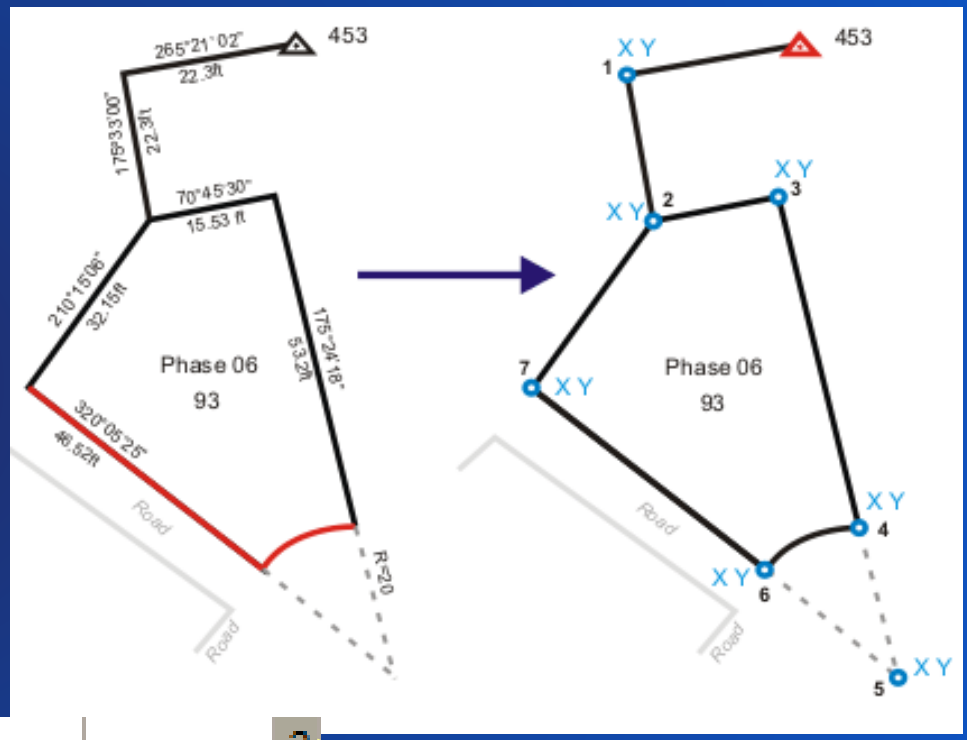


Lines have related points

Lines and Points

Parcel fabric data model

- Lines have From and To points
- Lines store recorded, COGO dimensions
- Lines have categories
  - Boundary, Radial, Connection,
- Points have X Y Z coordinates
- Points can have a control point



From Point

1		N89°17'14"E	107.150			2
2		S0°42'46"E	111.860			3
3		S89°17'14"W	107.150			4
4		N0°42'47"W	111.860			1

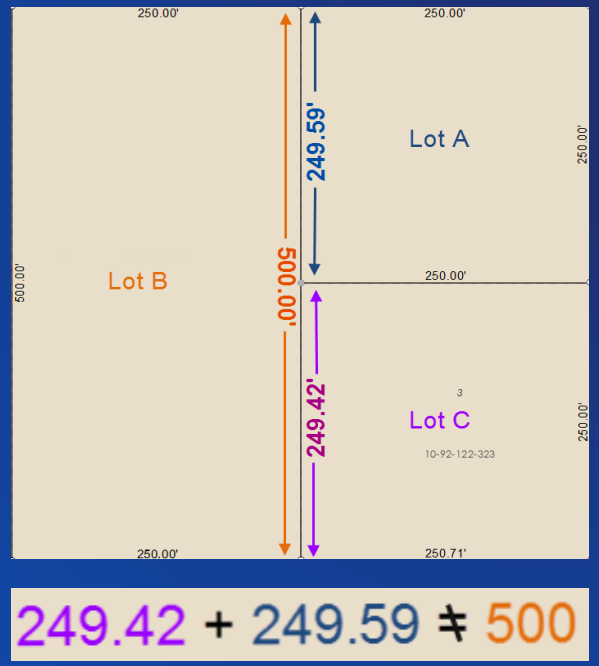
To Point

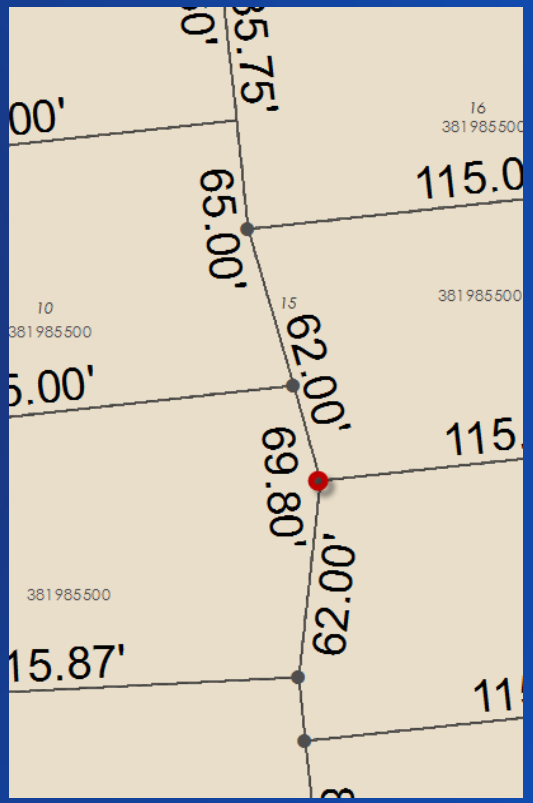
Parcel Traverse

Line points

Parcel fabric data model

- Ensure topology between parcels
- Preserve recorded dimensions





Line points

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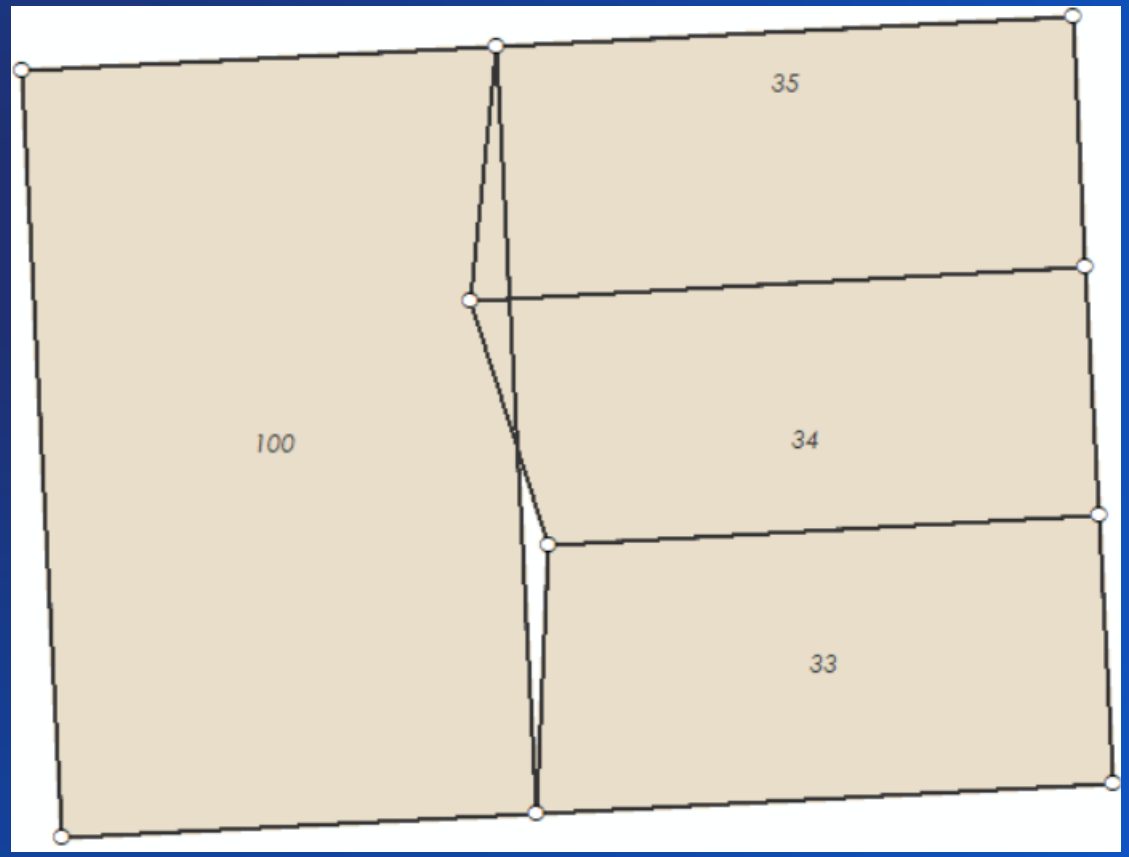

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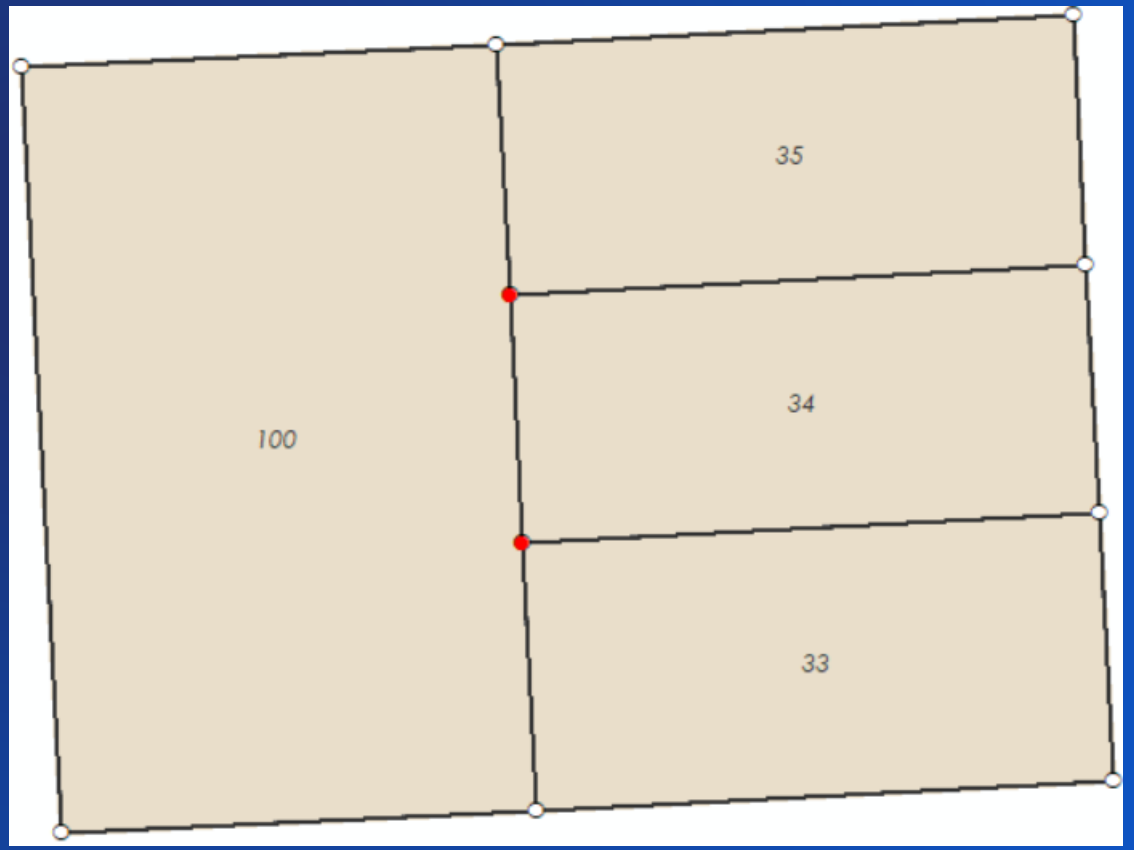

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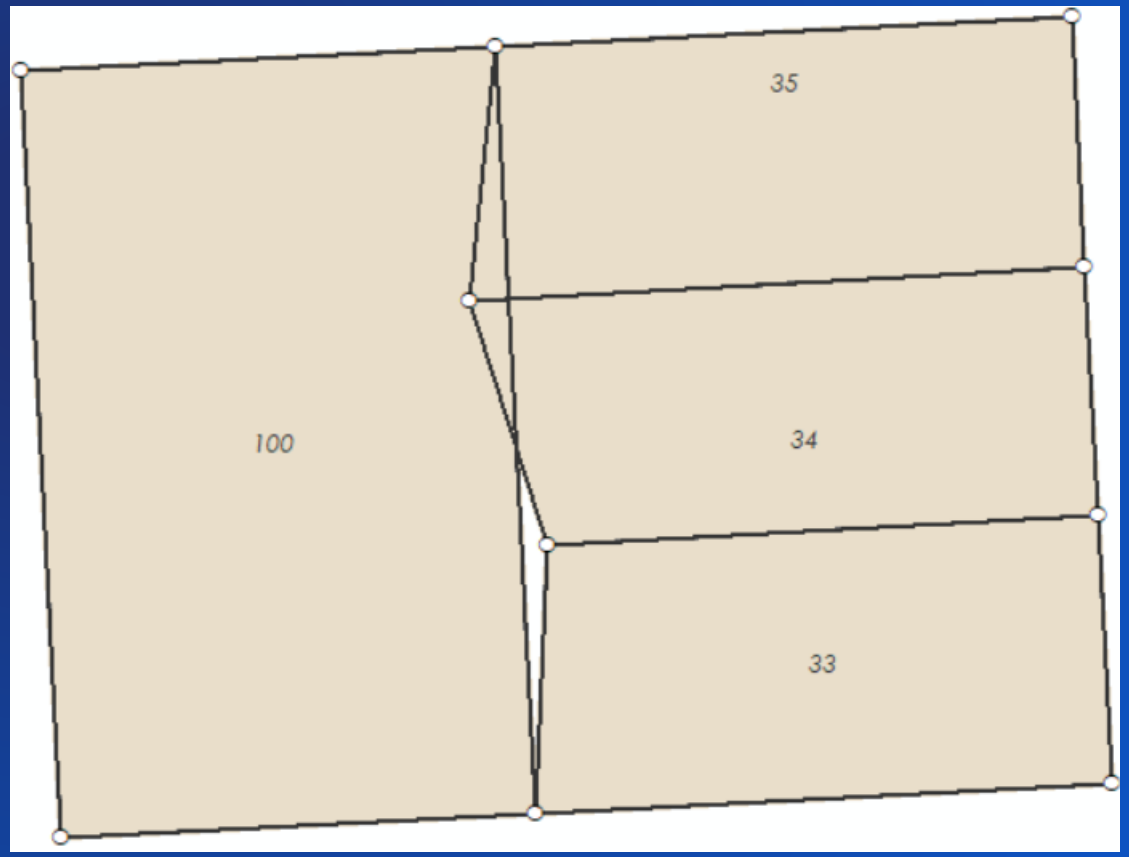

Line points

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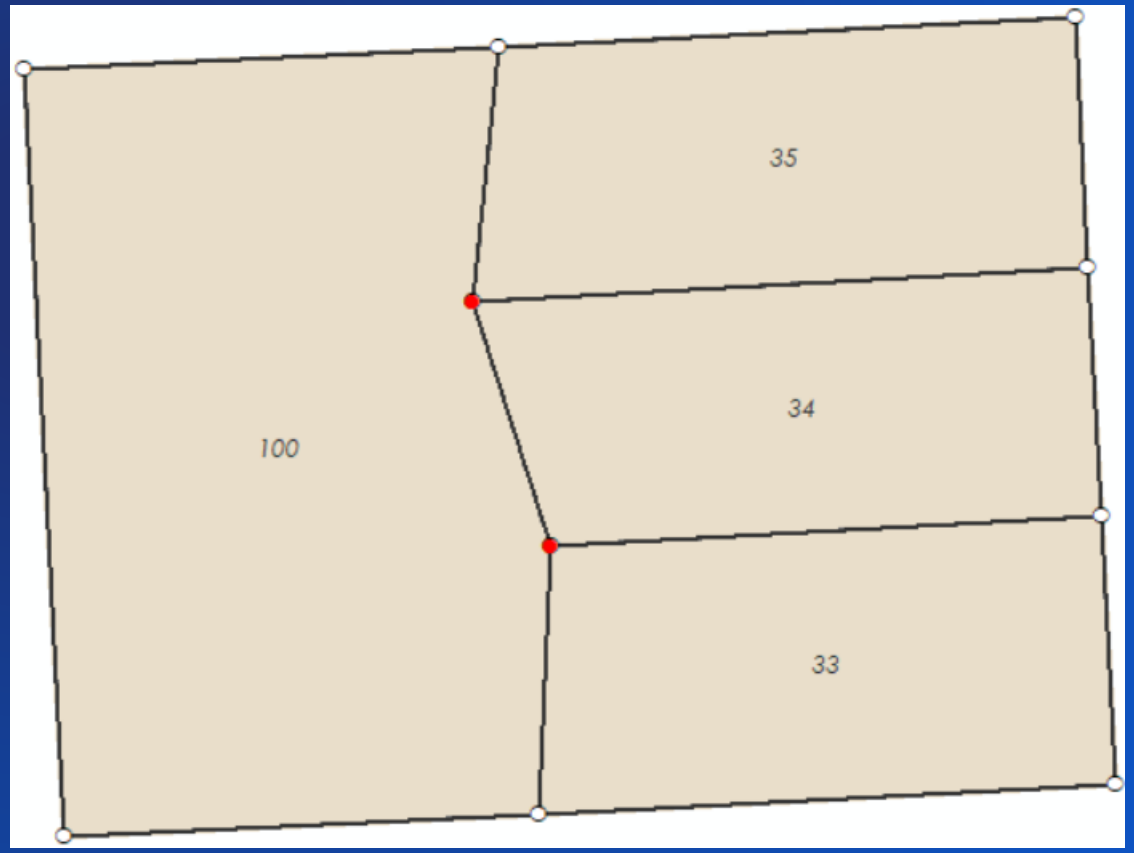
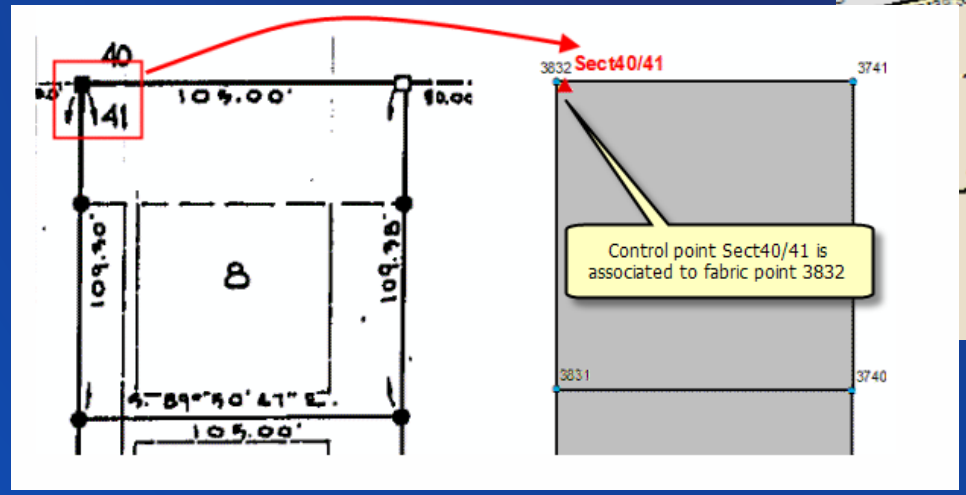
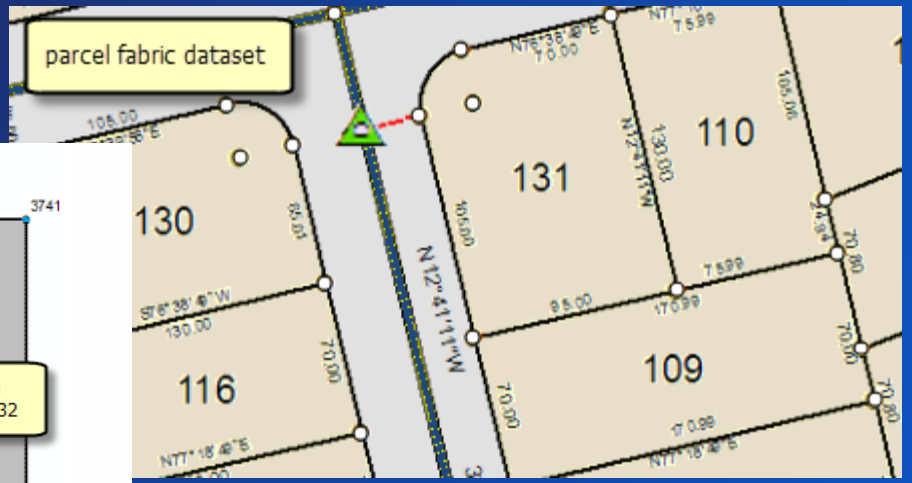


Control points

Parcel fabric data model

- Related (linked) to parcel points
- Can be imported or manually added
- Parcel points can be adjusted to control points in a parcel fabric least-squares adjustment

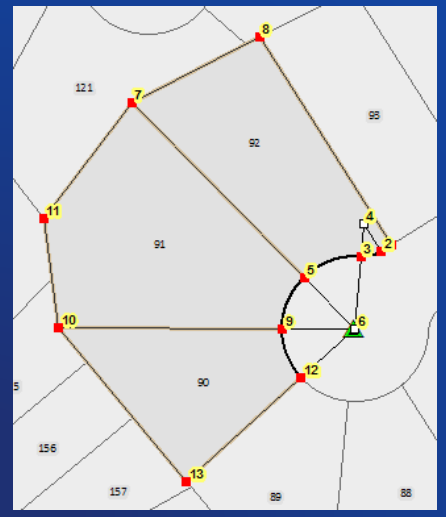


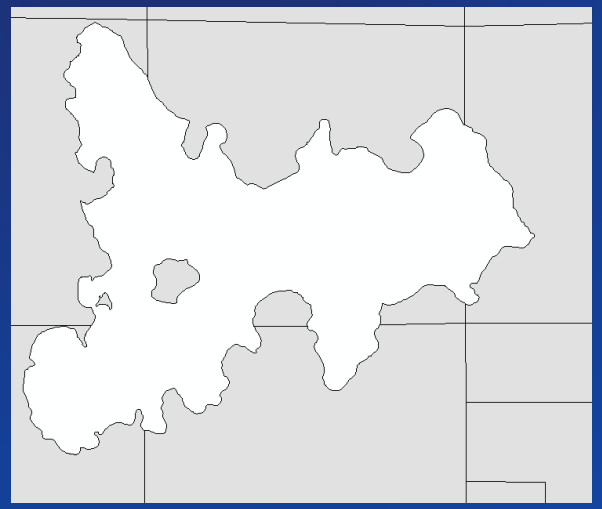


Parcel Fabric Data Model

Supports:

- True parametric curves and radial lines
- Natural boundaries
- Donut/island and multipart parcels
- Historic parcels
- Stacked parcels (Condos)
- Overlapping parcels

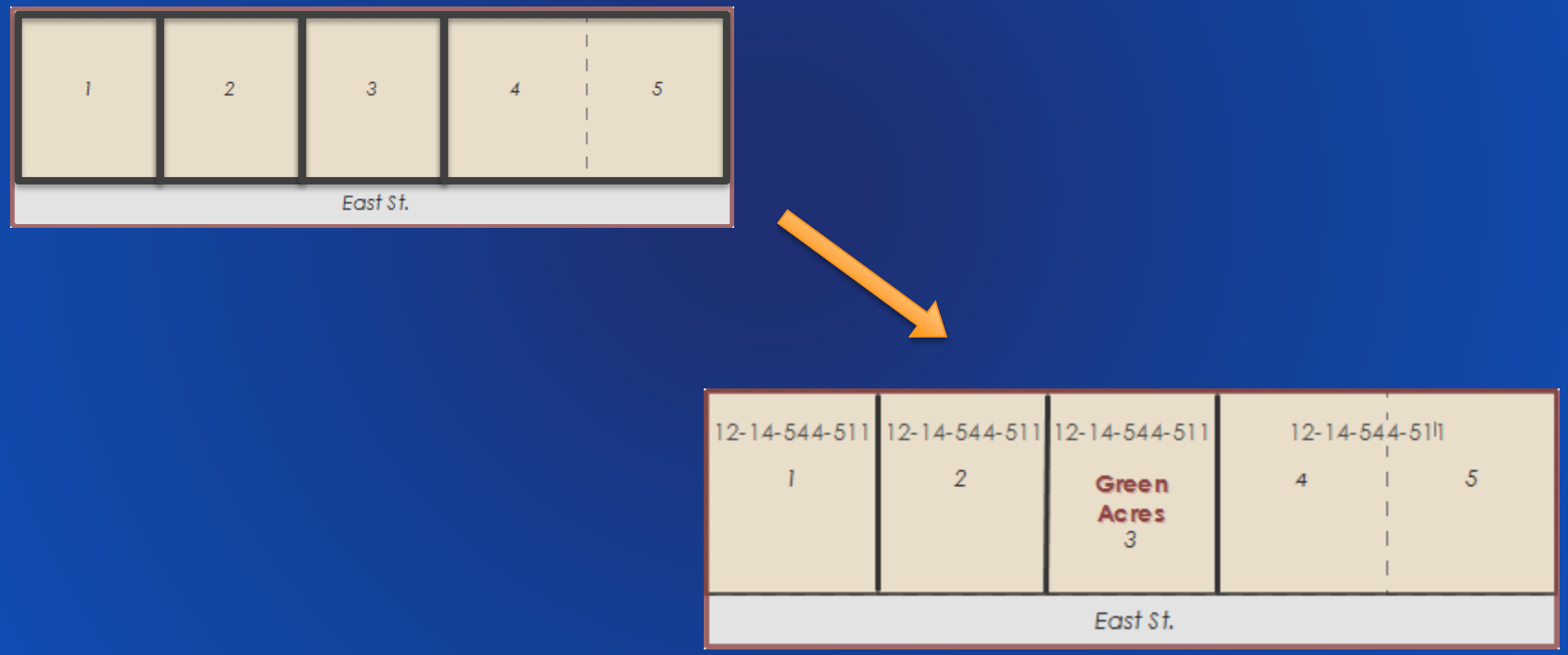




Overlapping parcels

Parcel fabric data model

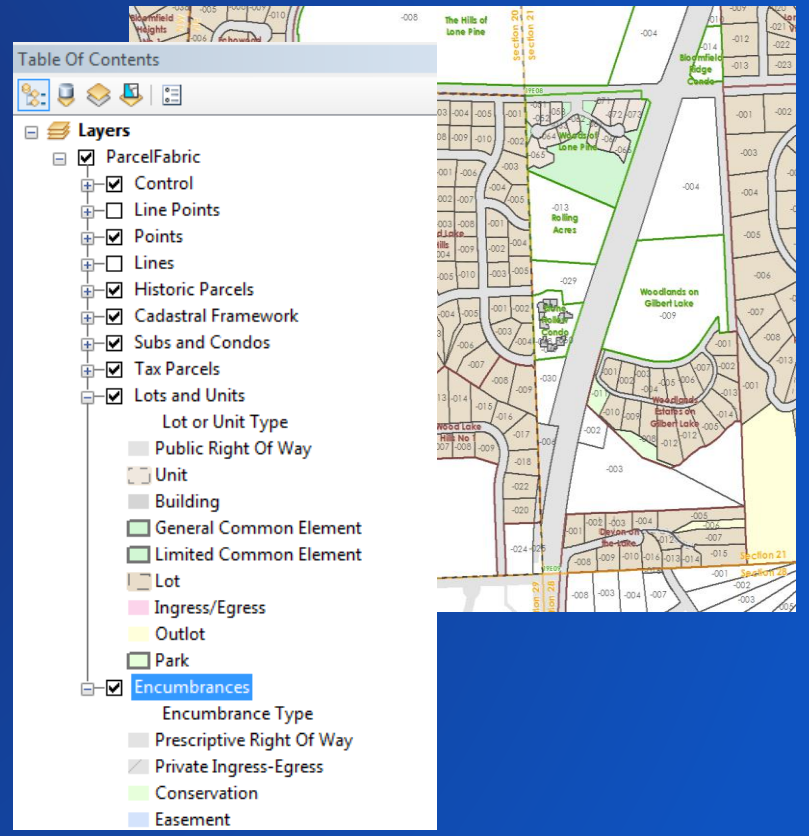
- Subdivisions, Lots, Easements,Tax Parcels, Historic parcels share common points



Local Government Information Model (LGIM)

Parcel fabric data model

- Parcel fabric data model can be configured for your organization
  - Add attributes, tables, relationship classes, etc.
- In the USA, an “out-of-the-box” LGIM is available:
  - Parcel fabric can be enabled with the LGIM
- Provides configured layers for parcel types
  - streamlined editing
  - definition queries
- Provides automated parcel editing workflows

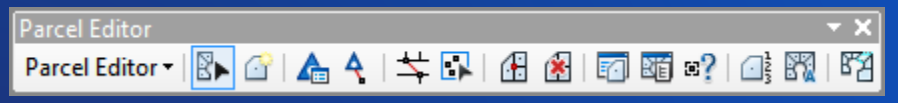


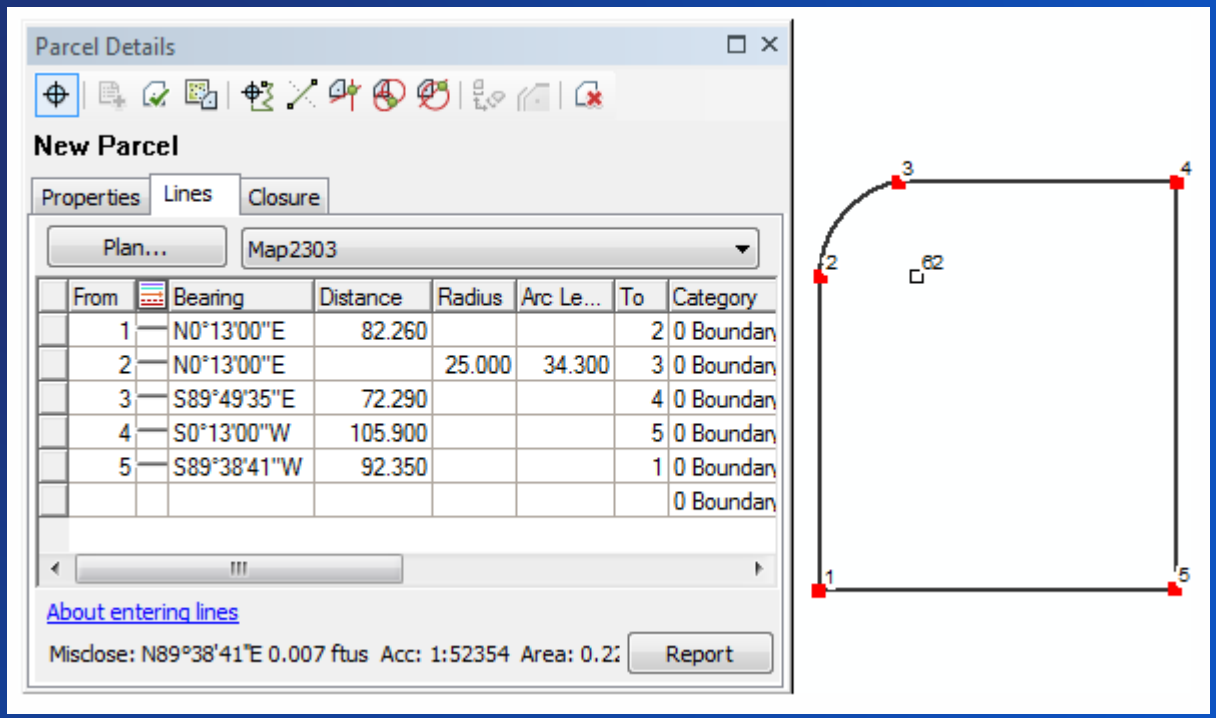
Parcel Editing

Parcel Editing

Create new parcels

- Parcel Editor toolbar
- Parcel traverse
  - Primary method of creating parcels
- Construct from parent parcel
- Parcel division, merge, remainder
- COGO tools
- Parcel joining
  - Add new parcels to the parcel fabric layer

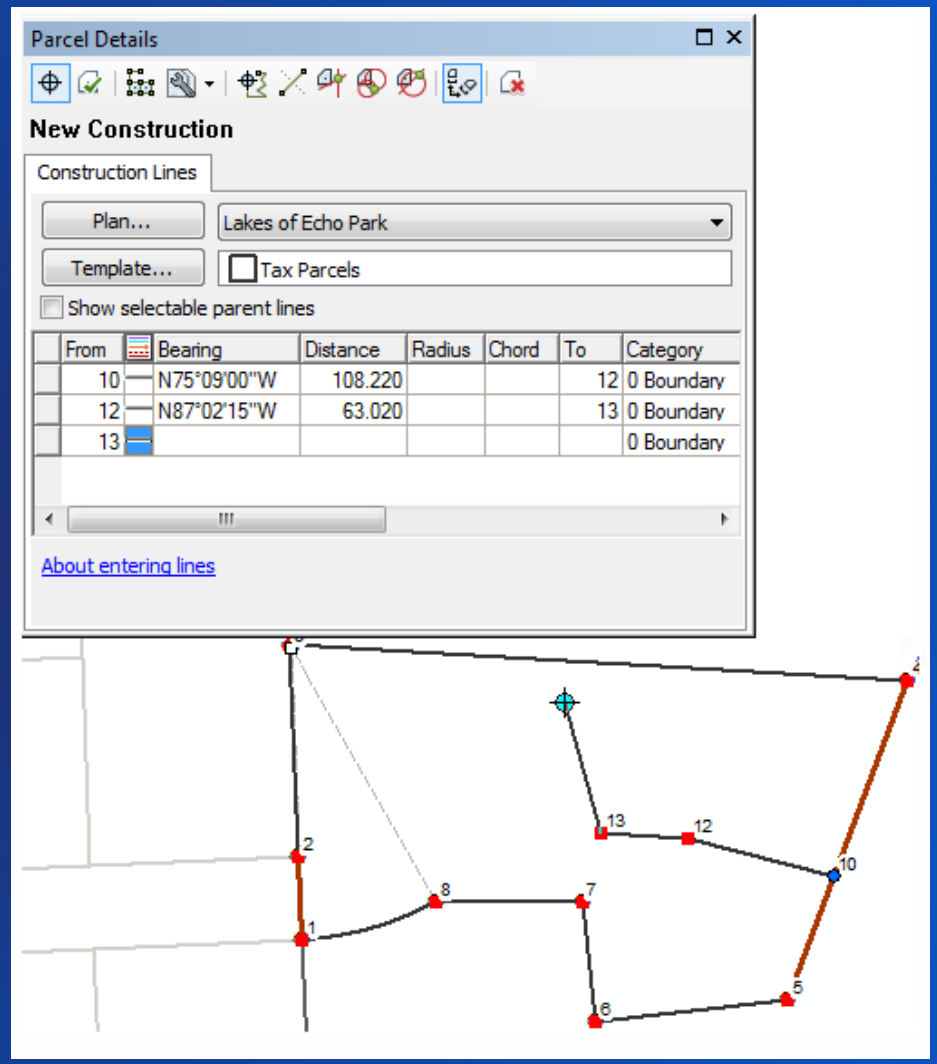




Parcel Editing

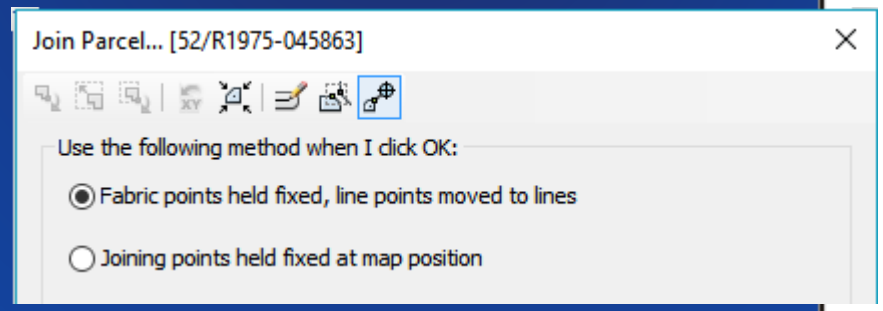
Construct new parcels

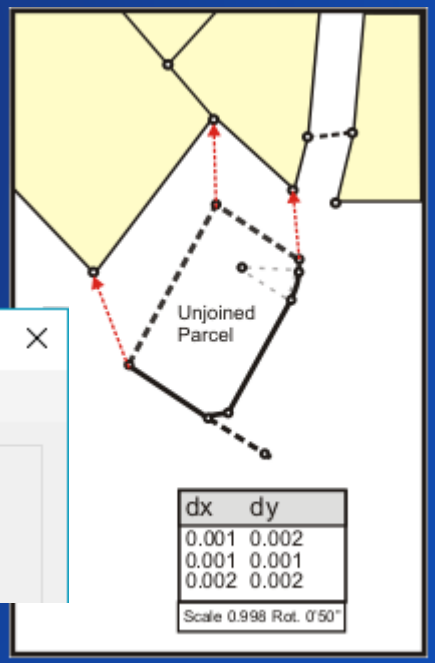
- Split parent parcels
  - Construct from parent
- Build parcels from construction lines
- Add or paste construction lines



Parcel joining

- New parcels are interactively joined to the parcel fabric layer
  - Parcels are cartographically matched to existing parcels
  - Minimizes slivers, gaps, overlaps
- Two join methods
  - Fit new parcel to surrounding parcels
  - Hold new parcel fixed and move surrounding parcels

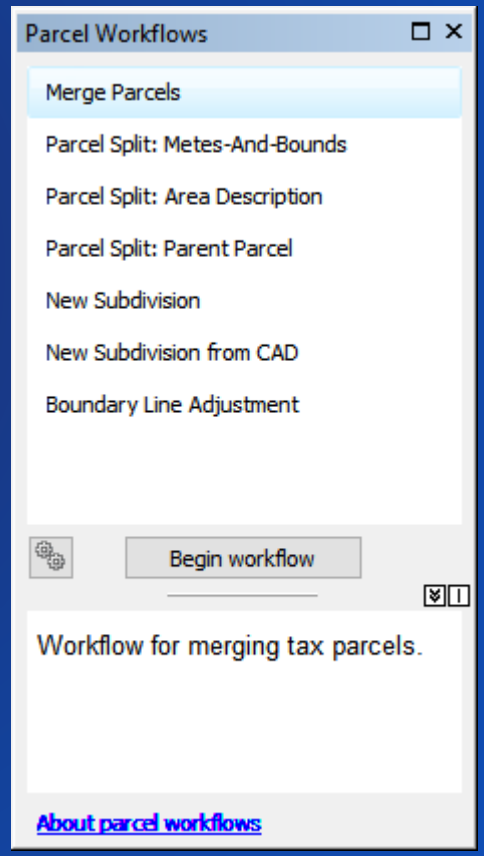




Automated parcel editing workflows

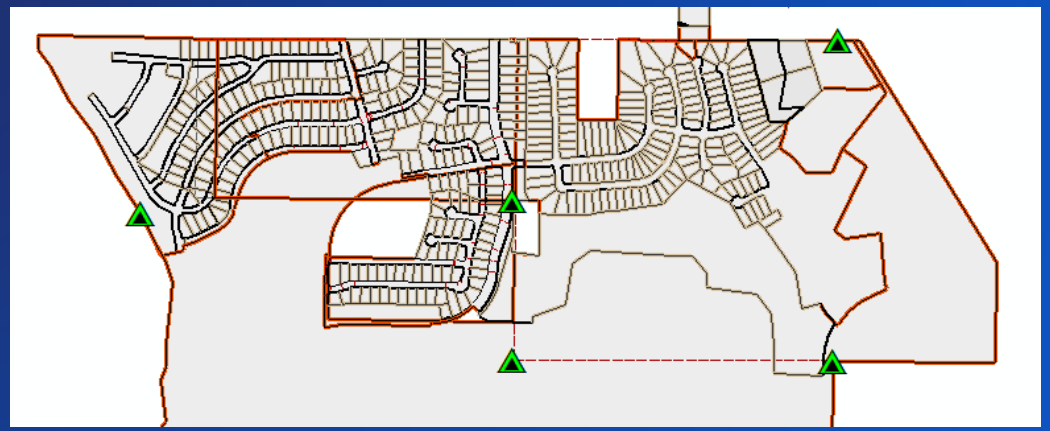
Local Government Information Model

- Common parcel editing workflows in local government
  - Parcel fabric must be enabled with the LGIM
- Workflows can be treated as guides/tutorials



Adjustments in the parcel fabric

- Least-squares adjustment
  - Adjust parcels to two or more control points
  - Parcel dimensions must match record dimensions
  - High degree of spatial accuracy
- Manual transform
  - Move/shift a selection parcels
- Feature adjustment
  - Align features to adjusted parcel fabric boundaries



Parcel Editing Demo

Amy Andis

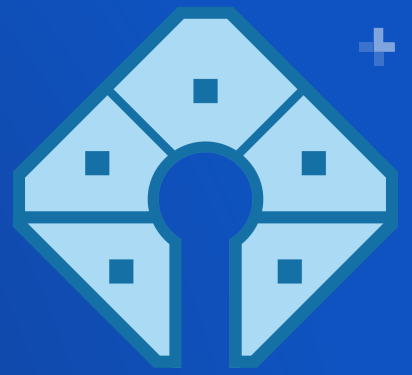
Parcel fabric summary

- Preserves land record information
- Data model optimized for parcel editing
  - Parcel Topology
- Models overlapping parcels (Lots, Tax, etc.)
- Maintains parcel history
- Uses/stores control points
- Maintains and Improves spatial accuracy

The Parcel Fabric in Pro

The Next Generation

Overview



- Parcel editing is available in 2019 with ArcGIS Pro 2.4 and ArcGIS Enterprise 10.7.1 (available now)
  - Supports *parcel editing* workflows

- Future releases
  - Least squares adjustment
  - 3D cadastre
  - Digital submission
  - Integration to business systems (CAMA)
  - Coordinate based cadastre,
  - Parcel lineage, and more.

Want To Learn More?

Visit the UC 2019 Q & A and search for Parcel Fabric:

https://www.esri.com/en-us/about/events/uc/get-involved/q-a#id=3937

OR

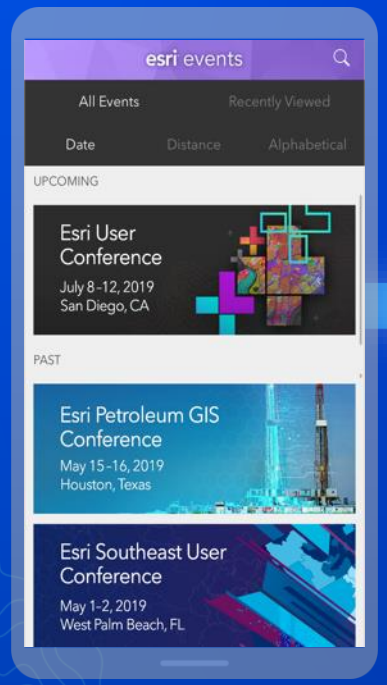
https://bit.ly/2NpwEx2

Want To Learn More? See Us Here – Thursday 11th July

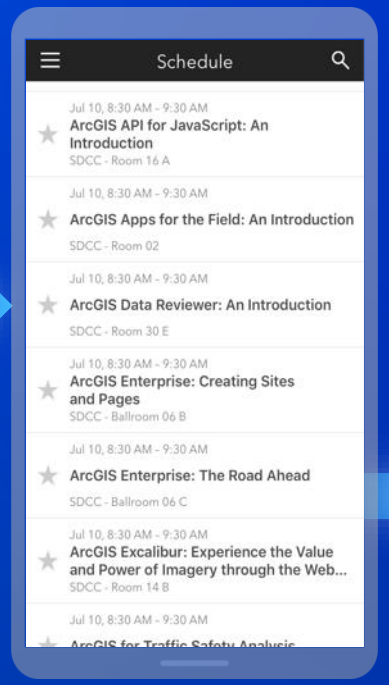
WORKSHOP	LOCATION	TIME FRAME
• Land records Meet Up (SIG)	• SDCC - Room 05 B	• 11:30 AM – 12:30 PM

Please Share Your Feedback in the App

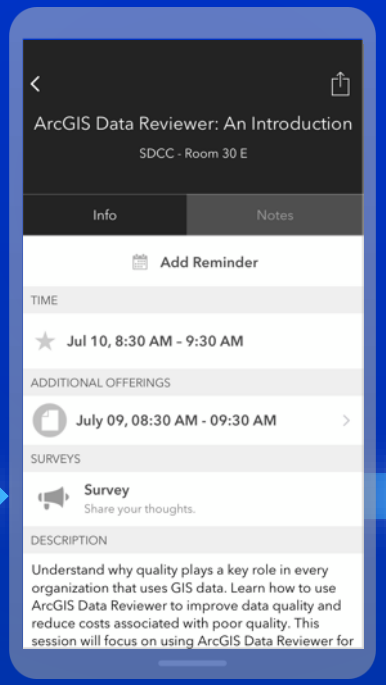
Download the Esri Events app and find your event



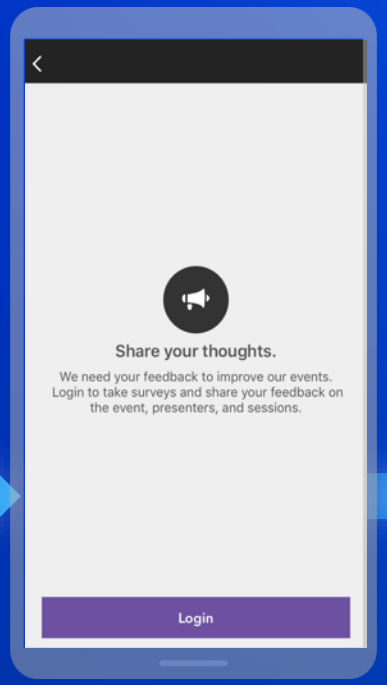
Select the session you attended



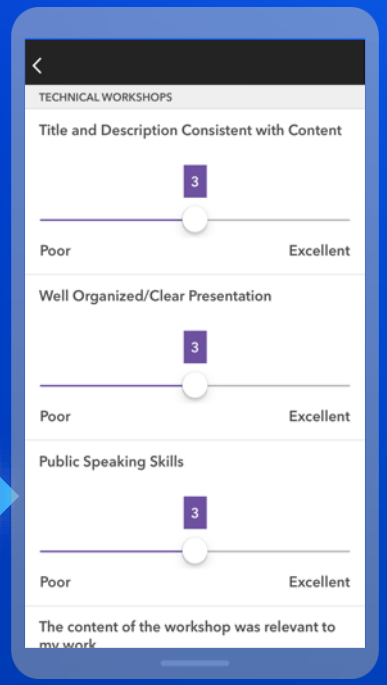
Scroll down to "Survey"



Log in to access the survey



Complete the survey and select "Submit"



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