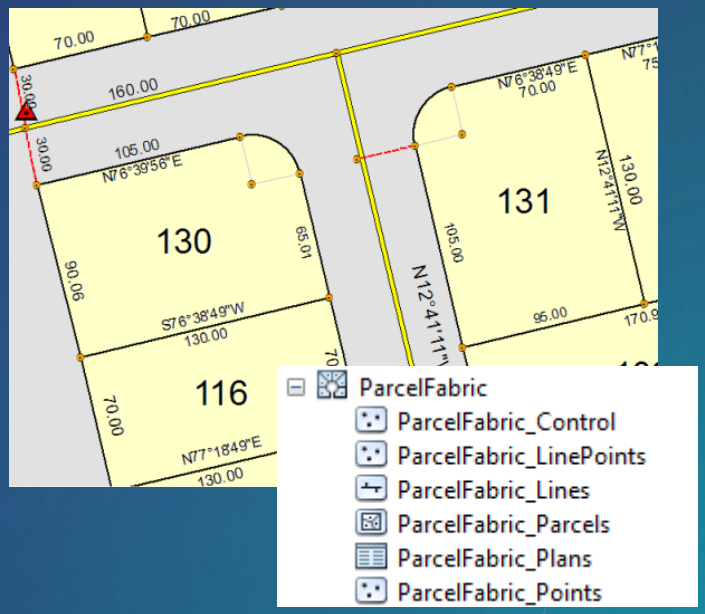
Parcel Editing in ArcGIS: Migrating Data

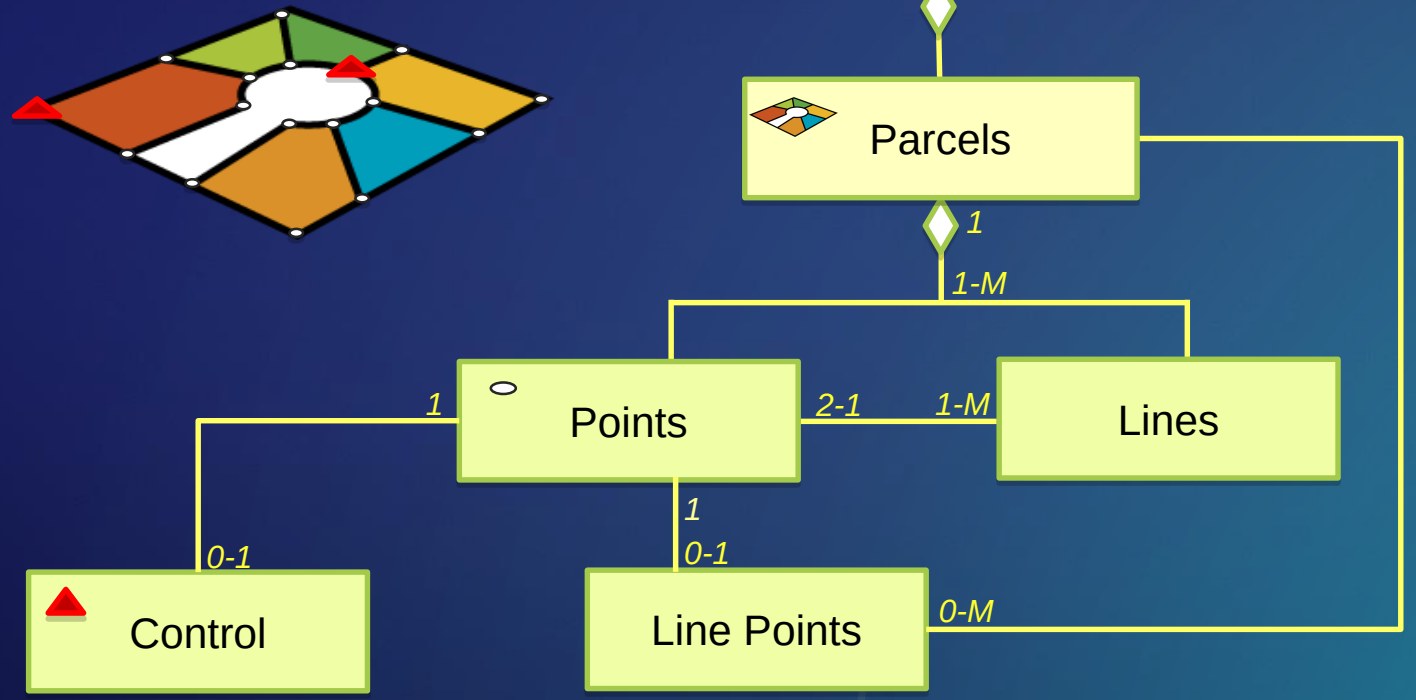
Christine Leslie, Amir Bar-Maor

What is a parcel fabric?

- **Dataset of related feature classes and tables**
  - Polygons, lines, points, plans, etc.
  - Predefined system attributes
- **Connected parcel groups**
  - Forms a parcel boundary network
- **Explicit topology**
  - Defined by common parcel corner points
- **Parcel Editor toolbar**

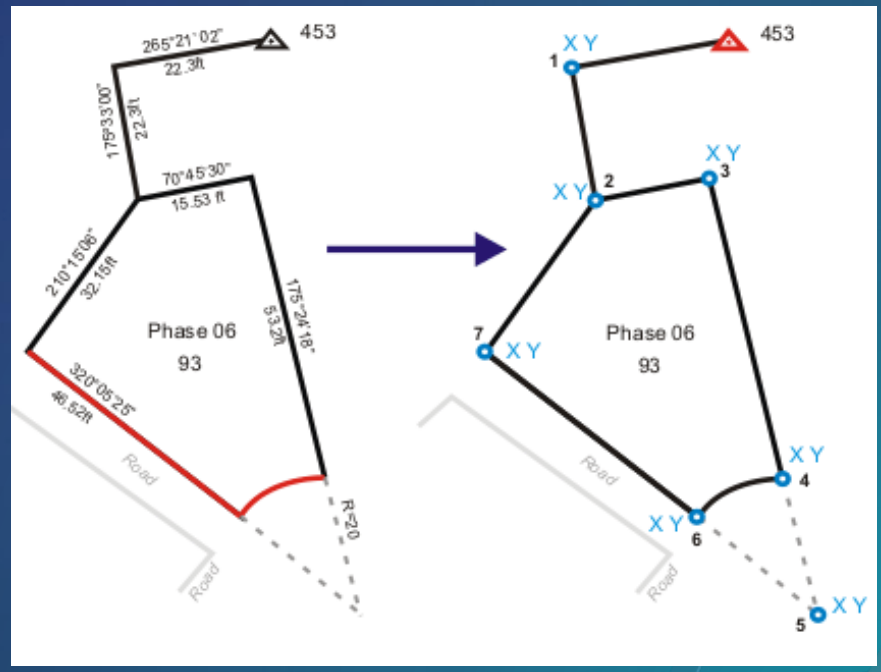


Parcel fabric data model



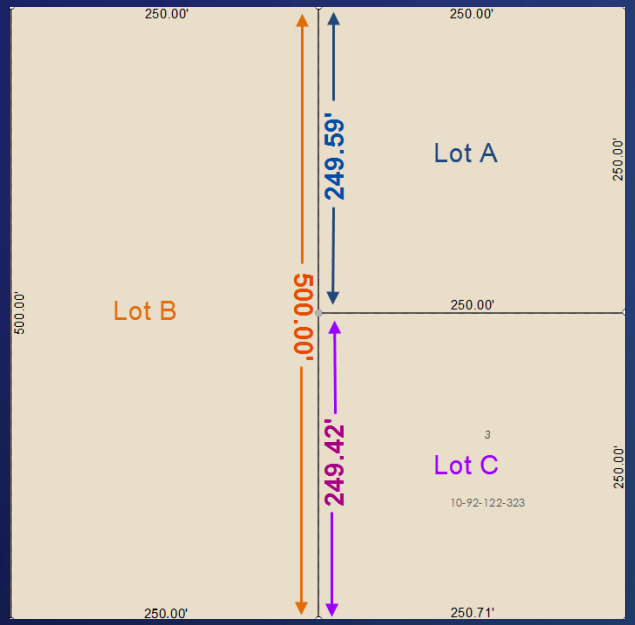
Parcel fabric data model

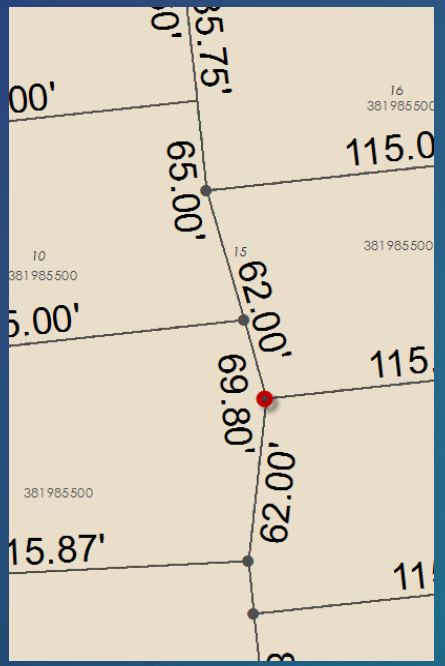
- **Plans**
  - Represent the legal document
  - Plans table stores record information
- **Parcels**
  - Polygon defined by a sequence of lines (traverse)
- **Lines**
  - Store recorded dimensions
  - Have a To and a From point
- **Points**
  - Have X Y Z coordinates
  - Can have a control point



Line points

- Ensure topology between parcels
- Preserve recorded dimensions



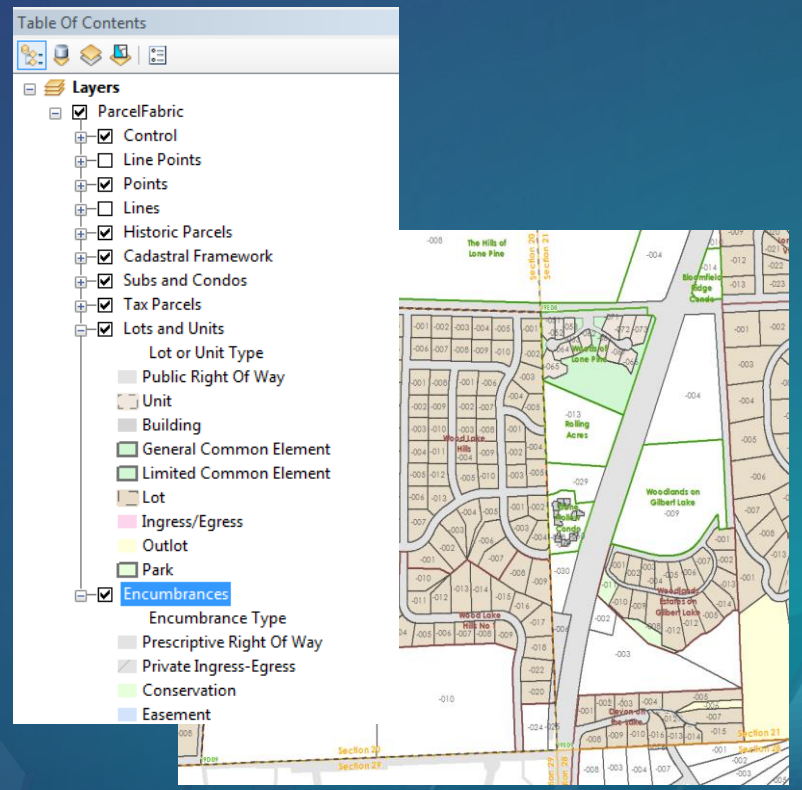


Demo

Amir Bar-Maor

Local Government Information Model (LGIM)

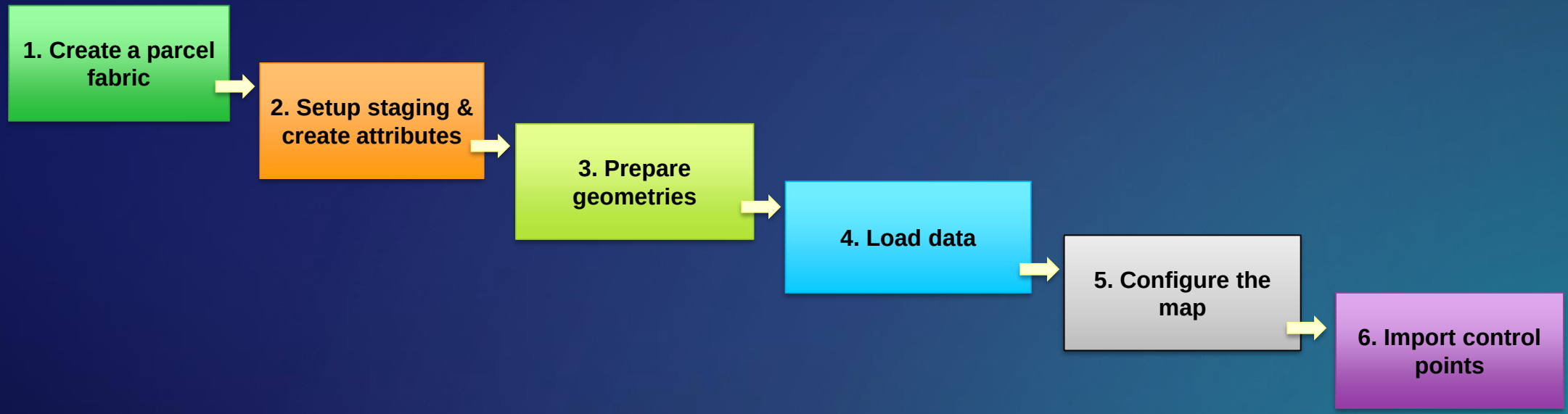
- Data model can be extended for your organization
- In the USA, the Local Government Information Model is used (LGIM)
- Parcel fabric can be enabled with the LGIM
- LGIM provides a configured parcel fabric layer
- LGIM provides automated parcel editing workflows



Migrating data to the parcel fabric

- **Setup the data model**
  - Extend your parcel fabric model
  - Or use the Local Government Information Model
- **Setup a staging environment**
- **Format and prepare data**
- **Use the Load a Topology to a Parcel Fabric geoprocessing tool**
- **Import control points**

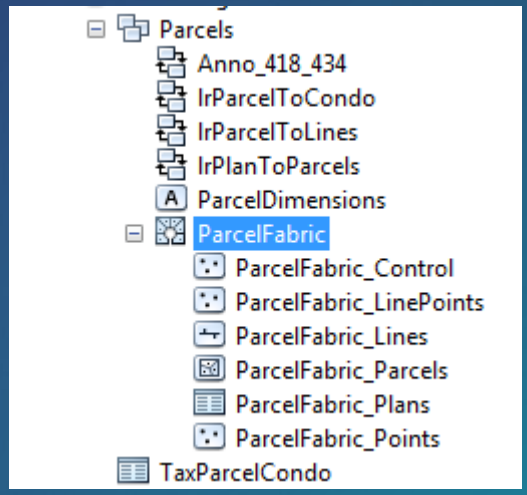
Data migration steps



- **Recommendation: Test the workflow against a small pilot area of parcels**

Step1: Create a parcel fabric

- **Create a parcel fabric in a feature dataset**
- **Extend the data model**
  - Add your own attributes, tables
  - Or enable the Local Government Information Model (USA)

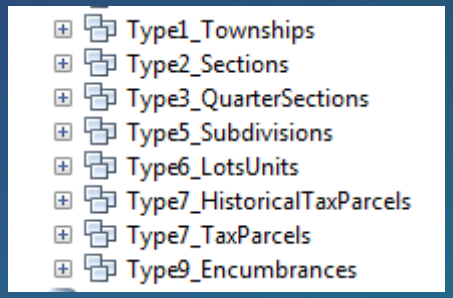


Demo: Step 1

Amir Bar-Maor

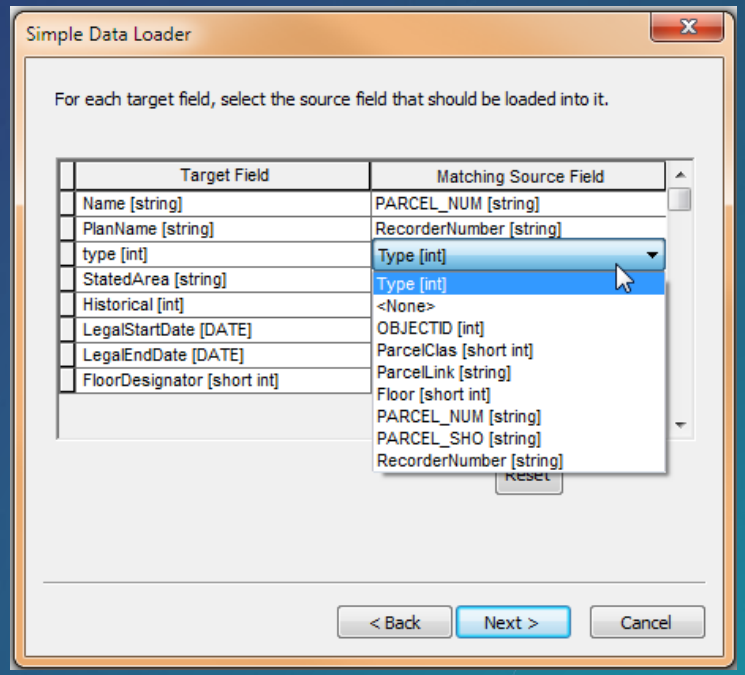
Step 2: Setup staging and create attributes

- **Review source data**
  - Inventory/count of polygons
- **Create an empty polygon feature class for each parcel type**
  - In a separate feature dataset
- **Add attribute fields**
  - Fields must match fields in parcel fabric tables (both system and additional)
- **Calculate/format attributes in source polygons**
  - Prepare source attributes for loading into staging feature classes
  - For example, Types, Historic parcels
- **Check alignments between overlapping polygon types**
  - Use the Integrate geoprocessing tool



Step 2 continued - Staging

- **Load source polygons into staging feature classes**
  - Use the Simple Data Loader
- **If using the LGIM**
  - Staging feature classes are setup for you
  - Download and unpack the staging layer package
  - Use the Simple Data Loader

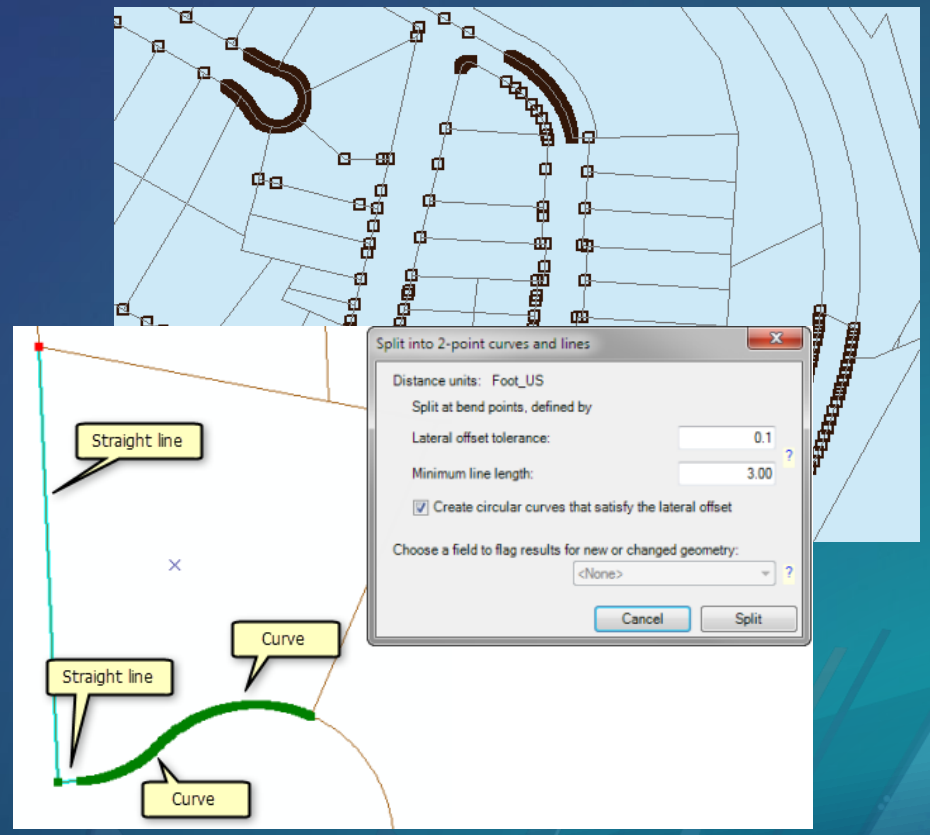


Demo: Step 2

Amir Bar-Maor

Step 3: Prepare geometries

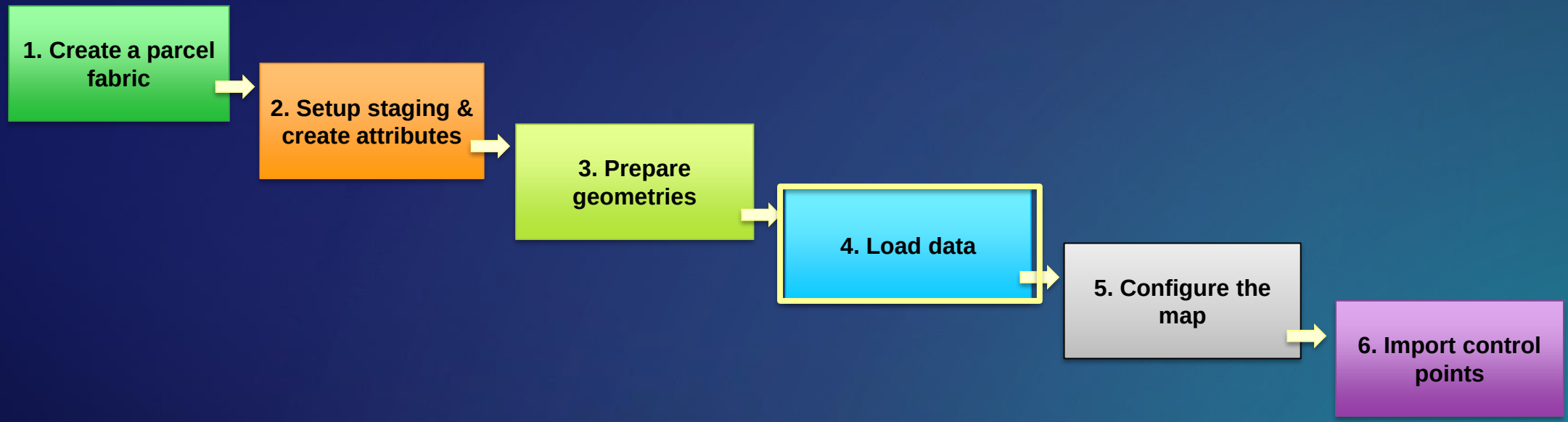
- For each parcel type:
  - Check and repair polygon geometries (GP Tool)
  - Convert polygons to lines (GP Tool)
  - Clean curves (GP Tool in ArcGIS Pro)
  - Rebuild polygons from lines (GP Tool)
  - Check polygon inventories/counts



Demo: Step 3

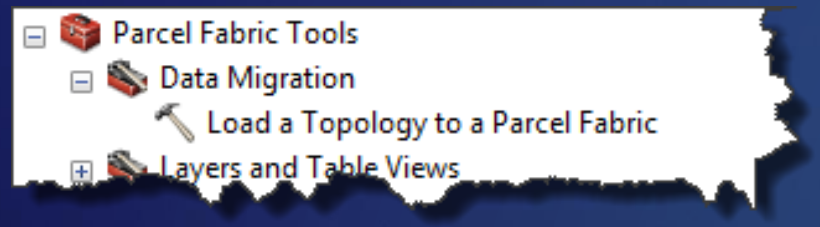
Amir Bar-Maor

Data migration steps - recap



Step 4: Load data

- Use the Load a Topology To A Parcel Fabric geoprocessing tool
- Individual topologies for each parcel type
- Topology validated against a required set of rules



Load a Topology to a Parcel Fabric

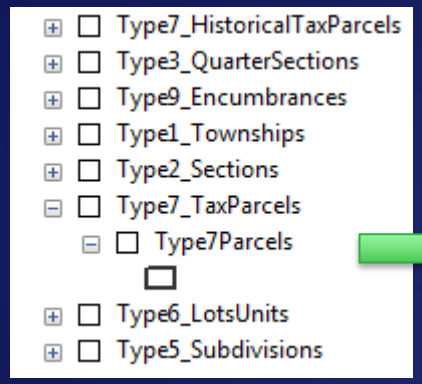
Loads polygon and line features that participate in a topology into a target parcel fabric. The topology requires a predefined set of topology rules:

- Line—Must be Covered by Boundary Of (polygon)
- Line—Must Not Self-Overlap
- Line—Must Not Self-Intersect
- Line—Must be Single Part
- Line—Must Not Intersect Or Touch Interior
- Polygon—Boundary Must be Covered By (Line)

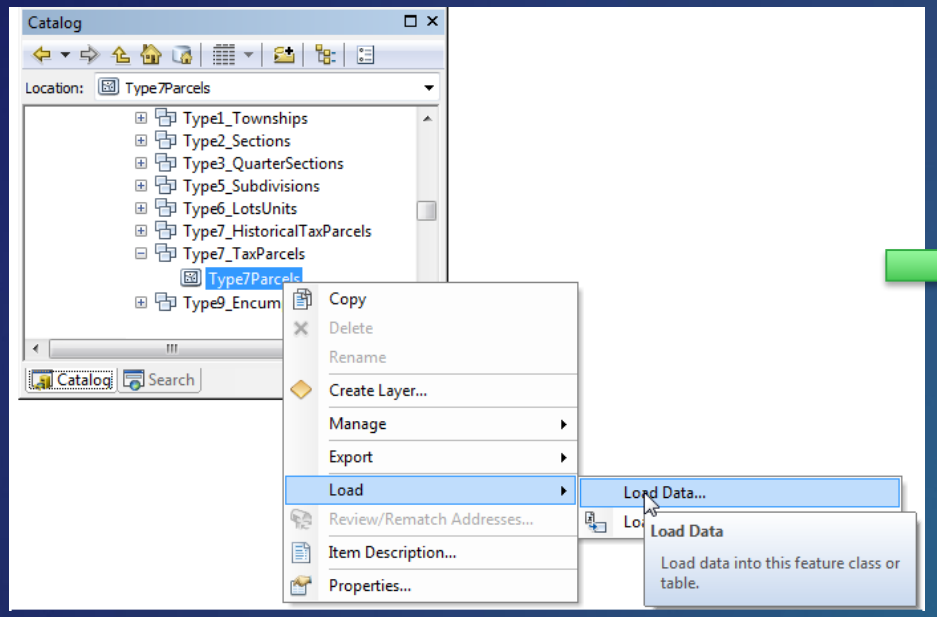
Demo: Step 4

Amir Bar-Maor

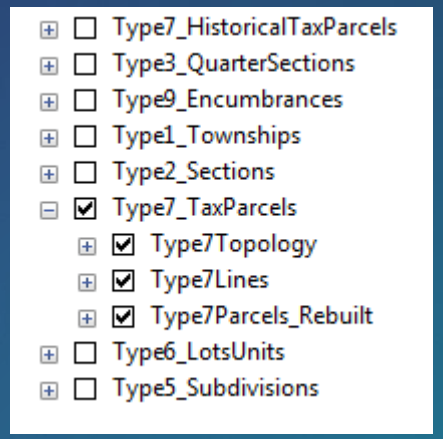
Steps 1 to 4: Summary of staging



- Polygon feature class for each type
- Separate feature datasets
- Add/map fields that match fabric fields



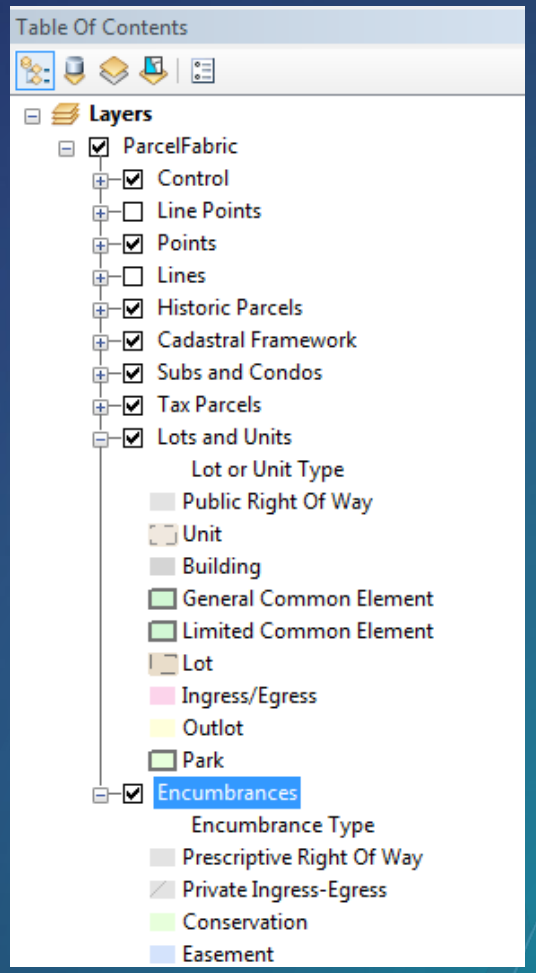
- Load source polygons into staging using Simple Data Loader



- Create lines
- Format lines
- Rebuild polygons from lines
- Create/validate topologies
- Load topologies

Step 5: Configure your map

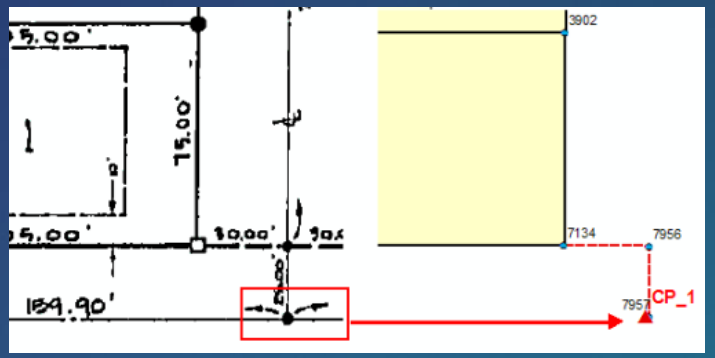
- **If using the LGIM:**
  - Add LGIM-enabled parcel fabric to the map
- **If using your own model:**
  - Query parcels and save layer files



Demo: Step 5

Amir Bar-Maor

Step 6: Import control points



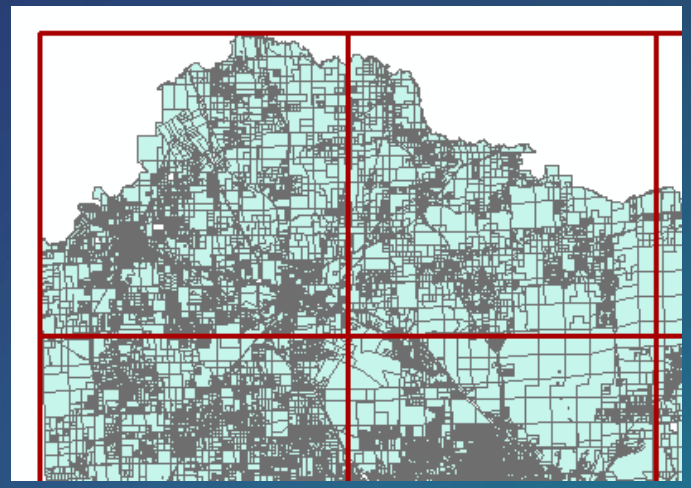
- **Why have control?**
  - Accuracy for new parcels
  - Deed references control points
  - Least-Squares adjustment
- **Use Import Control Points wizard**
- **Use XYZ coordinates**
- **Can be loaded multiple times for new updates to coordinates**

Demo: Step 6

Amir Bar-Maor

Additional considerations

- Iterate tool for large datasets
  - Divide into fishnet zones
- Overlapping parcels of the same type
  - Planarize your lines
  - Merge courses after loading
- Starting with lines instead of polygons
  - Format lines, type lines, build polygons



Resources

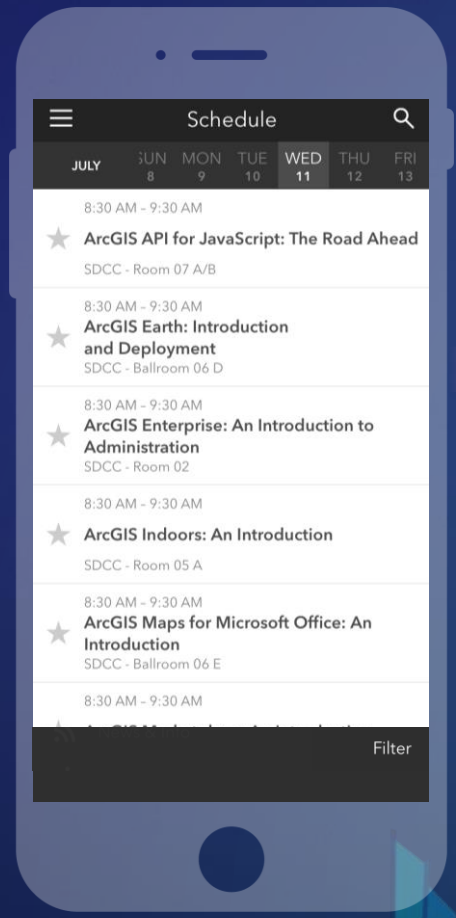
- Documentation
  - http://desktop.arcgis.com/en/arcmap/latest/manage-data/editing-parcels/dm-setupdatamodel.htm
- LGIM
  - Download the Maintain Tax Parcel Inventory app to get staging layer package

  http://solutions.arcgis.com/local-government/land-records/manage-property/
  - Enable parcel fabric with the LGIM in Catalog
- Land Records Meetup
- http://www.meetup.com/Esri-Land-Records-Meet-Up/
- Esri supported parcel fabric Add ins
  - http://www.arcgis.com/home/item.html?id=7f35ed8034a942b98bf3290f7adcbf13

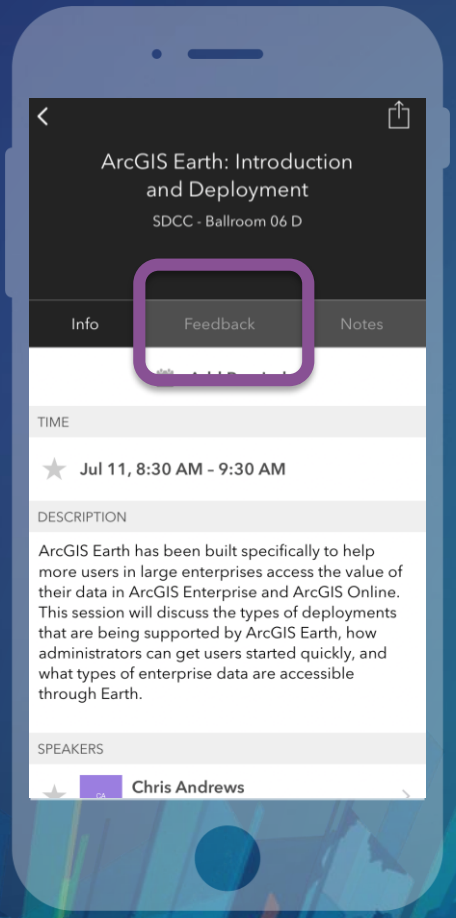
Please Take Our Survey on the App

Download the Esri Events app and find your event

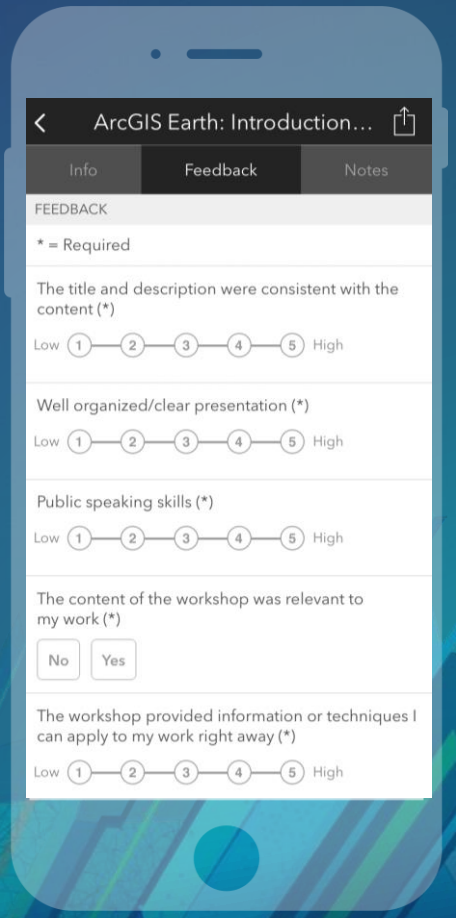
Select the session you attended



Scroll down to find the feedback section



Complete answers and select “Submit”



See Us Here – Wednesday 11th July

WORKSHOP	LOCATION	TIME FRAME
• Parcel Editing in ArcGIS: Migrating Data	• SDCC Room 04	• Wednesday 8:30am – 9:30am
• Land Records and the Parcel Fabric (Paper Presentations)	• SDCC – Room 24 B	• Wednesday 8:30am – 9:30am
• Parcel Editing in ArcGIS: Advanced Topics	• SDCC Room 03	• Wednesday 2:00pm – 3:30pm

See Us Here – Thursday 12th July, AM

WORKSHOP	LOCATION	TIME FRAME
• Parcel Editing in ArcGIS: Advanced Topics	• SDCC Room 32 A/B	• Thursday 10:00am – 11:00am
• Parcel Editing in ArcGIS: Migrating Data	• SDCC Room 33 A/B	• Thursday 10:00am – 11:00am
• ArcGIS For Land Records: A System of Engagement for the Assessor's Office	• Esri Showcase – Envisioning Center 2 - Hall B1	• Thursday 10:00 am – 10:45 am
• UC Land Records Meetup	• SDCC - Room 24 B	• Thursday 11:30 am – 12:30 am

See Us Here – Thursday 12th July, PM

WORKSHOP	LOCATION	TIME FRAME
• Assessment and Tax Maps and Apps for Local Government	• SDCC – Room 30 B	• Thursday 1:00pm – 2:00 pm
• Editing and Maintaining Parcels: An Introduction	• SDCC Room 33 A/B	• Thursday 4:00pm – 5:00 pm

esri
THE
SCIENCE
OF
WHERE