City and County of Denver
Parcel Fabric Deployment

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GIS at the City and County of Denver

- Over 10,000 City Employees
- 353 ArcGIS Installs
- Over 1000 GIS Layers
- 34 Departments Actively Using GIS
Centralized/Decentralized GIS

- Creates a culture of cooperation
- Encourages sharing of common information
- Agencies ensure a successful implementation of GIS
Centralized/Decentralized GIS

- Improved customer service
- Standards, policies and procedures
- Streamlined business operation
Denver Cadastral History

Linen Quarter Section Maps
• Maintained by PW Survey
• Assessment maintained their own Mylar copies
• Migrated to ArcInfo Region Coverage in 2000
Parcel Fabric Conversion

Why?

- Lots and parcels maintained in Workstation ArcInfo Coverage
- Lack of communication between Agencies
- Duplication of effort
- Coincident geometry maintained
- Method of improving data quality over time
- Manatron conversion
- Lighthouse project
Conversion Process

Data Model

- Met with Esri, Public Works Survey, and Assessment to determine user needs
- Esri Parcel Fabric data model extended to meet requirements
- Converted Survey Control, Tax Parcels, Lots, Vacations, Dedications, Easements
- Subdivisions and Right-of-way are maintained day forward in the fabric
- Annotation converted to geodatabase anno
Conversion Process

Survey Control

- Public Works Survey maintained survey control in various files in various locations and data formats (MS Excel, Shape File, .gdb)

- Data was scrubbed and formatted to meet FGDC survey attribute standards and domains created

- A control point type was added to distinguish range points, bench marks, land corners, and National Geodetic Survey (NGS) High-Accuracy Reference Network (HARN) points
Conversion Process

Parcels, Lots, Vacations, Dedications, Ordinances

- Data was broken into 12 areas for editing in Workstation ArcInfo
- Feature dataset with the exact same coordinate system and tolerances created for each area
Conversion Process

Parcels, Lots, Dedications, Vacations, Ordinances

- Lines and polygons exported into the areas feature data set
- ArcMap select by location tool used to select only the lines that made up the polygons for the area
Conversion Process

Topology

- New topology created between lines and polygons
- Topology cluster tolerance settings very important
Conversion Process

Topology Validation & Clean Up

- Created model to bulk validate

- Topology errors easy to clean up in ArcMap

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Conversion Process

Lines and Curves Tool

- Add-in used to create true curves from line segments

- Easier to create curves in conversion than in fabric

![Conversion Process Interface](image-url)
Conversion Process

Attributes
• Parcel Fabric data model fields were added to each polygon layer and calculated from existing fields

• Parcel Fabric fields also pre-populated with necessary info based on type of parcel (lot, tax parcel, ROW, vacation, etc.)
Conversion Process

Data Load

• After processing data was loaded by area and “ParcelType” into an empty parcel fabric schema file .gdb feature data set

• Initially used the “Load Topology to a Parcel Fabric” tool
Conversion Process

Data Load

- After procedures tested a model was created to load all features at night.
Conversion Process

Data Load

- Control Points Loaded via Arc Catalog
- Can create a log file to ensure all data loaded
Conversion Process

Quality Control

- Compared the counts for each parcel type and control point feature

- "Select by Location" tool used to identify specific parcels that may not have loaded

- Checked attribute table for features with "Shape_Length" or "Shape_Area" = 0. This will indicate a feature that the attributes loaded but not the geometry.

- Joined PF to CAMA data to check referential integrity
Conversion Process

Quality Control

- Checked that the domains correctly attached to the attribute items
Workflow Manager

- Manages “jobs” and versions
- Provides stats and reports on editors
- Tracks edit/editor history
Editing Environment

Assessment Editing Map
- Optimized for Parcel editing
Publication Maps

- Data Driven Pages
- "Map Book" style document
- One .mxd controls all cartography
Benefits/Lessons Learned

- Conversion revealed issues with data
- Better workflows/communication between Agencies
- Modern data format
- All survey control points in one place/layer
- Day forward all survey record data in one location

- Model data, test, revise
- FGDC Compliant vs. City of Denver compliant
- Leading edge vs. bleeding edge
Contact Information

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