Migration of Harris County Appraisal District to the Parcel Fabric

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Why Move to the Fabric?
Legacy Systems

- Mylar and Paper in the late 1980's and early 1990's
- Moved to System 9 in 1989 - 1995
- Moved to ESRI in 1996 (UNIX) (ArcLibrarian, ArcStorm, Coverages)
- Moved to SDE with ArcGIS Version 8.x release around 2004
- Moved to 10.4.1 SDE in September of 2016
- Moved to 10.5 SDE in March of 2017
- Planned move to 10.6 or 10.6.1 depending on if it launches by May 2018
Legacy Systems

Having multiple era’s of GIS data means you have multiple ways it was converted and stored…

- Paper/Mylar
- Early systems
  - No storing parabolic arcs (true curves), instead stored as short multi-node lines. (100s of nodes in some cases)
- Imagery Ortho-Rectification
  - Rubber-sheeting to make everything “match” what was on the ground from the ortho photo.
Annotation

- Huge value in switching to a label model from annotation
- HCAD has about 8 million annotation records, which cause a huge problem on map load times, staff working time, and database performance.
- On average, half of all time spent working on the day-to-day map changes was spent on annotation.
- With labelling the fabric, dimensions and anno can be built directly into the workflow.
- Not spending time on Topology rules, HCAD had 50 at one point, has also saved enormous amounts of time.
Migration Process
Conversion Project

1.4 Million Parcels

- Pilot Project (analysis and training)
- 14 conversion ‘zones’ of ~100,000 parcels each
  - Includes parcels, subdivisions, and abstracts
  - Nastiest areas were first
  - 15-18 months to complete

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Areas split to have populations generally similar per area

Divided along landmarks that would simplify merging multiple fabrics together
Conversion Project

Workflow

• Pre-Processing (S)
• Topology and Curve/Line Cleanup (S)
• Polygon Rebuilding (S)
• Road Frontage / Plan Creation / Data Staging (S)
• Automated annotation transfer to parcel lines (H)
Dimension Transfer Model
Conversion Project

Workflow

• Load into parcel fabric (S)
• Manual transfer of annotation (S)
• QC (H)
• Fix Issues (S)
• Merge into master database at HCAD (H)
• All 14 Zones completed and loaded by June
Conversion Project

Workflow

• CONTROL POINTS
  - Interpreted from scanned documents
  - Entered coordinates for loading into fabric
  - Some were City of Houston coordinates (not SP)
  - Will happen last
Implementation
Implementation

Performance
- SQL Server 2014
  - Moving to 2016
- Data Management
  - Line Types / Geometry type queries (bug)
  - Non LGIM Types / NULL values (Sidwell)
- Database Management
- Intensive work with Esri support

Management
- Working in Parallel – both the original parcel based GIS and the fabric as zones were phased in
- The current GIS will cease to be updated after the fabric completed
Training

- Conducted on-site by Esri Professional Services
- Dan Stone – Has great fabric and subject matter expertise
- Unlearning is always tougher than learning new
- Was not immediate, required a lot of supervision at the beginning
- Currently in full production with loaded zones (14)
- Seems to be going well

Acts of God

- Harvey did not delay production; Sidwell was very much ahead
- Delayed getting some QC back, but it was not a major hinderance
- Workflows and procedures were invincible
Lessons Learned
Lessons Learned

• More time spent thinking about downstream process impact (hearings)
• More training – can't have enough to be successful
• Cleaner data (subdivisions) prior to starting
• Better hardware – have decent equipment before starting
• Never assume your data is as good as you think it is – the fabric will expose everything wrong with your data (curves!!)
Questions