Production Mapping and Parcel Fabric
Shaping Rights-of-Way at the New Mexico State Land Office

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Institutional Setting

- New Mexico State Land Office (NMSLO)
  - Stewards of New Mexico's trust lands
  - Revenue for public institutions

- Surface lease management
  - Leasing: agricultural, commercial, rights-of-way
  - Surface Tract Books: current status and history
  - Oil and Natural Gas Administration and Revenue Database (ONGARD)
Spatial Data Management Framework

- Automated data management
  - Geometry from PLSS
  - Attribution from ONGARD
  - Land Use Map Automation System (LUMAS)
- Problem of non-PLSS lease legal descriptions
  - Commercial, rights-of-way
Nature of NMSLO Rights-of-Way

- Complex source materials
  - 17,000 existing rights-of-way
  - Several hundred new rights-of-way per year
  - Surveys / plats / legal descriptions
  - Contracts / applications
  - Unique structures
  - Right-of-way modifications
    - Attribution
    - Geometry
Business Case / Need – Limitations

1. Limitations of Data to Meet Business Needs
2. Limitations of Data in Meeting Business Needs
3. Restrictiveness of Current Data / system

- **ONGARD ROW data**
  - Data is only quasi-spatial (PLSS description) and limited to the nominal second division.
  - Data is incomplete
  - Cannot support schema changes

- Limitations (could be Business and GIS Limitations)
  - Analysis
  - History
Considering Solutions

Polygons vs Parcel Fabric

- ESRI based solution
- Must capture critical information about ROWs
- Versatile for any ROW situation

Ease of use
Many relational tables

Captures ROW complexities
Survey information
Legal description & spatial accuracy
Parcel history
Modeling in Parcel Fabric

✓ Control points
  - Data sources
  - Subtypes
  - Active vs. non-active

✓ Plans
  - Data sources
  - Framework for all subsequent parcels

<table>
<thead>
<tr>
<th>Control</th>
<th>Value</th>
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<tbody>
<tr>
<td>Not Active</td>
<td>R23462</td>
</tr>
<tr>
<td>Type, Active</td>
<td>345 KV Transmission Line and Access roads</td>
</tr>
<tr>
<td>PLSS Point, Active</td>
<td>Elf Paso Electric Company</td>
</tr>
<tr>
<td>Survey Point, Active</td>
<td>12/6/1988</td>
</tr>
<tr>
<td>Other, Active</td>
<td>Degrees Minutes Seconds</td>
</tr>
<tr>
<td>Missing Subtype, Active</td>
<td>Radius and Arc Length Chord</td>
</tr>
<tr>
<td></td>
<td>CombinedEndFactor</td>
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<tr>
<td></td>
<td>TrueHdng</td>
</tr>
<tr>
<td></td>
<td>Accuracy</td>
</tr>
</tbody>
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Modeling in Parcel Fabric

- **Lines**
  - Line types
  - Line categories

- **Parcels**
  - Subtypes

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**Lines**

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<thead>
<tr>
<th>Type</th>
<th>Subtype Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>Boundary Line</td>
<td>0</td>
<td>Category 0, Accuracy 3</td>
</tr>
<tr>
<td>Centerline</td>
<td>1</td>
<td>Category 3, Accuracy 3</td>
</tr>
<tr>
<td>Precise Connection</td>
<td>2</td>
<td>Category 2, Accuracy 3</td>
</tr>
<tr>
<td>End Connection</td>
<td>3</td>
<td>Category 3, Accuracy 3</td>
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<tr>
<td>Centerline Radial</td>
<td>4</td>
<td>Category 4, Accuracy 3</td>
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<tr>
<td>Part Connection</td>
<td>5</td>
<td>Category 3, Accuracy 3</td>
</tr>
<tr>
<td>Point of Beginning</td>
<td>6</td>
<td>Category 6, Accuracy 3</td>
</tr>
<tr>
<td>Mid Centerline Connection</td>
<td>7</td>
<td>Category 7, Accuracy 3</td>
</tr>
<tr>
<td>Intermediate POB/POE Connection</td>
<td>8</td>
<td>Category 8, Accuracy 3</td>
</tr>
</tbody>
</table>

**Parcels**

- Electric Line
- Facility
- Miscellaneous
- Pipeline/NOS
- Pipeline/Water
- Road
- Saltwater Disposal
- Telecommunication
Management of Work Lifecycle

- Over 10 unique business workflows
  - New ROW
  - Amendment
  - Interest Only Partial Assignment
  - Conveyance
- Multiple editing variations based on source data
- Management of Parcel Fabric editing

- Visio to provide both high level and detailed workflows
  - WMX & TAM created from Visio
- WMX jobs model business workflows
- TAM workflows model GIS editing scenarios
- Data Reviewer to QC geometry / attributes
Workflow Manager for ArcGIS Server

✓ Benefits / situation
✓ Usage
An anchor easement located at the above referenced point of deflection 35° 13’ 59” left consisting of the area within a radius of 160 feet from said point of deflection, excluding the area of the transmission line right-of-way 135 feet in width described above.
System Architecture

• Desktop
  • ArcGIS Desktop 10 sp3
  • ESRI Production Mapping 10 sp3
  • ESRI Workflow Manager 10 sp3
  • ESRI Task Assistant Manager 10 (no sp)
  • ESRI Data Reviewer 10 sp3

• Server
  • ArcGIS Server .Net 10 sp3
  • ArcSDE 10 sp3
    • SQL Server 2008 R2
  • Workflow Manager for AGS 10 sp3
    • Free Flex Application
About the Authors

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