



GIS
Survey / LiDAR
CM / Materials Testing
Transportation Design
Land Development
Structures
Power
MEP

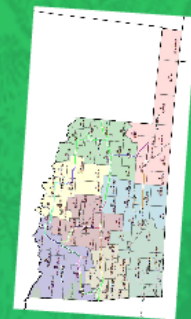


Project Overview

- ODOT installing optical fiber cable throughout Oklahoma
- High speed internet for dozens of institutions
- Consulting design firms use CAD
- ODOT uses GIS to manage network

Challenges

- Many different design firms
- Crazy CAD data
- Scope, Schedule, Budget

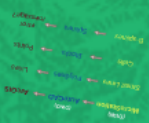


Solutions

- Provided extremely detailed CAD standards for design firms
- Standard layers based on ODOT standards
- Schedule with deadlines

Different Worlds

- CAD should be used for design
- Geometry is stored in the drawing
- Layers are not "layers"
- Conclusions?



Conversion Part 1: CAD Management

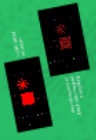
- Responsibility placed with CAD
- Design manual provided
- Connectivity is everything

Conversion Part 2: ESRI gdb

- Simple ArcMap tools
- No georeferencing needed
- No annotation needed
- One master symbology (.style)
- COB Schema

Lessons Learned

- Assign one PM
- Communicate
- Better scope, schedule, budget
- Simplify expectations



CAD → GIS

A Complete
Conversion in the
Real World



CEC

infrastructure solutions

GIS

Survey / LiDAR

CM / Materials Testing

Transportation Design

Land Development

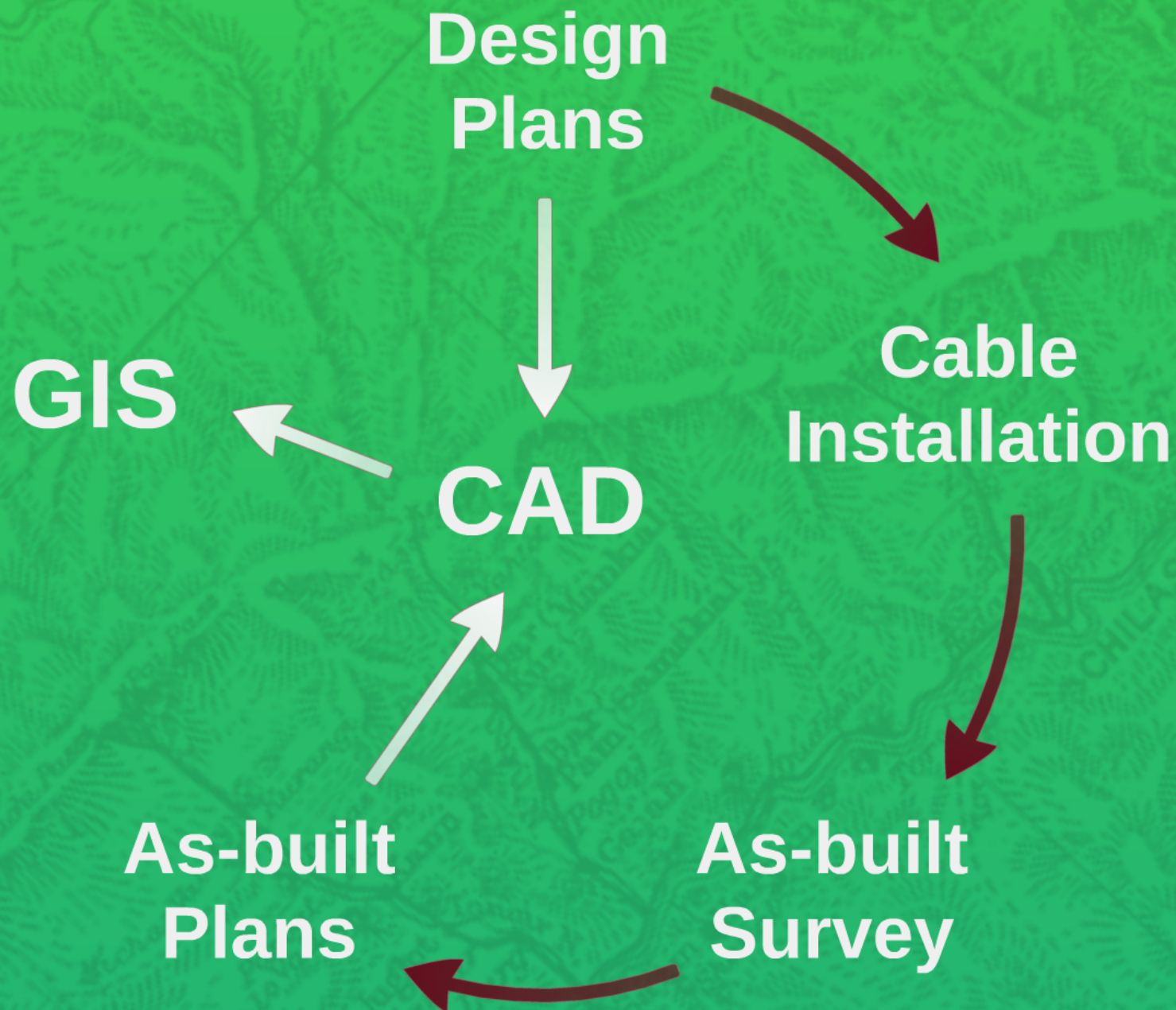
Structures

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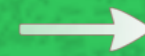
(DGN)

MicroStation



(DWG)

AutoCAD



ArcGIS

Smart Lines



Polylines



Lines

Cells

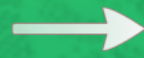


Blocks

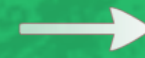


Points

B-splines



Splines



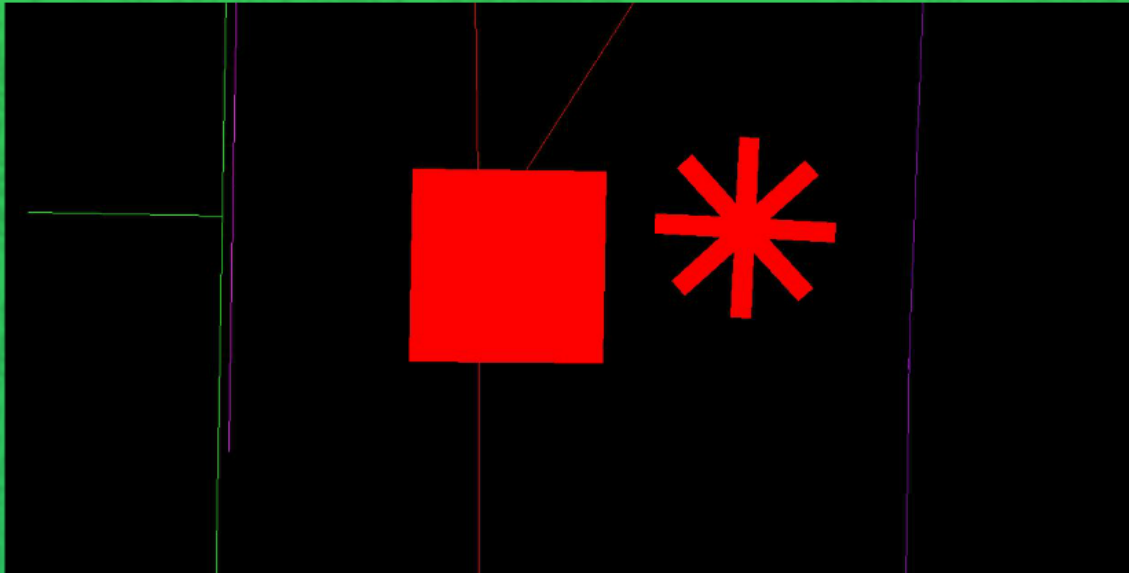
**error
message?**

Conversion Part 1: CAD Management

- Responsibility placed with CAD
- Design manual provided
- CAD Layer Management
- Connectivity is everything

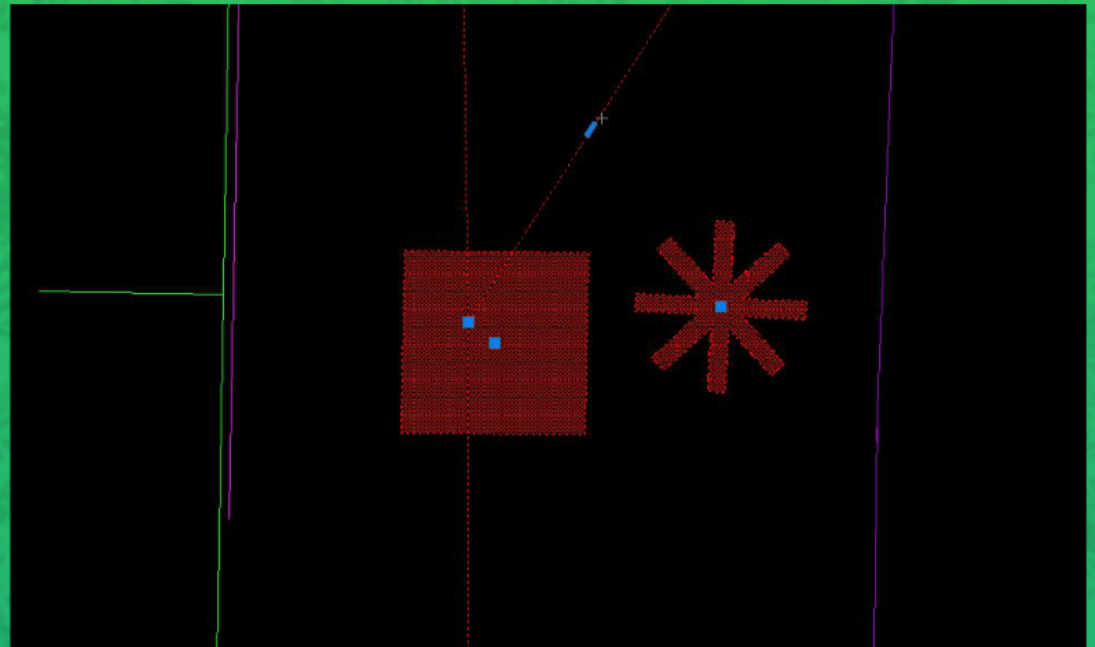
Essential Connectivity

- Standardized only layer name
- Block insertion point snapped to polyline end points
- Fiber polylines joined between certain splice locations



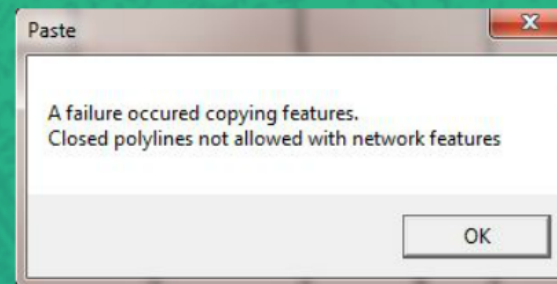
*Looks great
on paper*

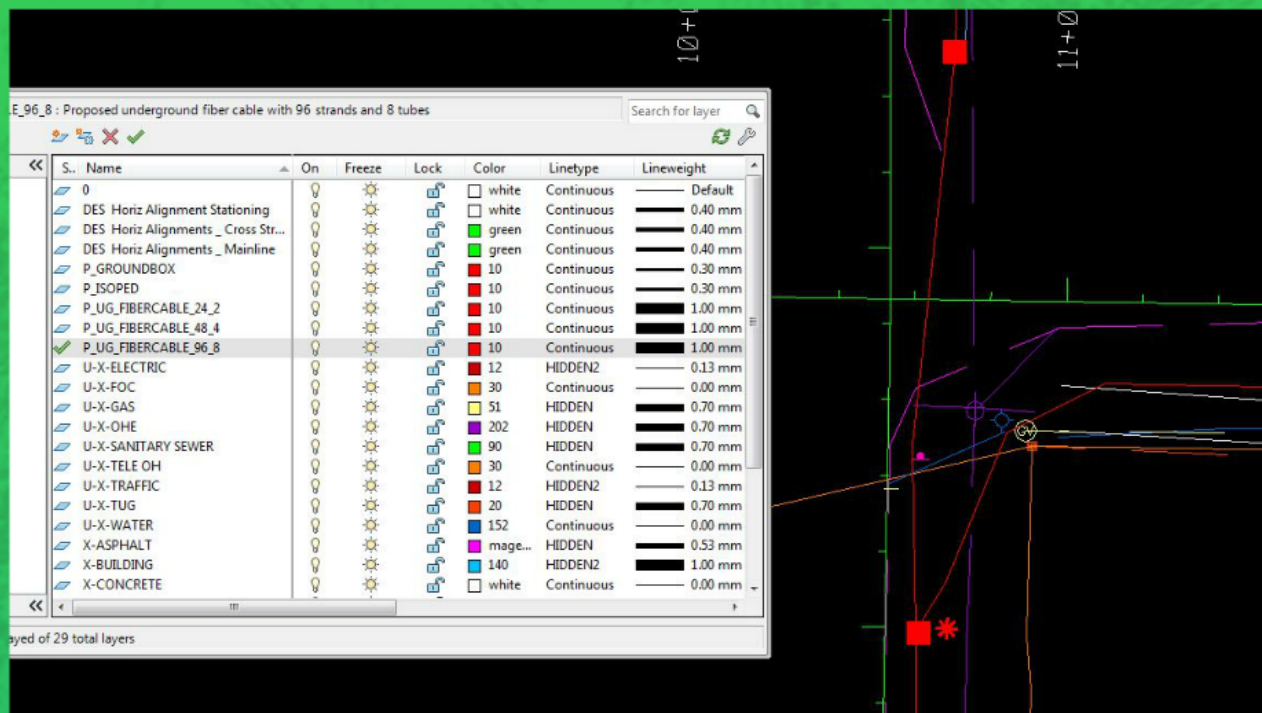
*Insertion point of
block not snapped
to anything*



Conversion Part 2: ESRI gdb

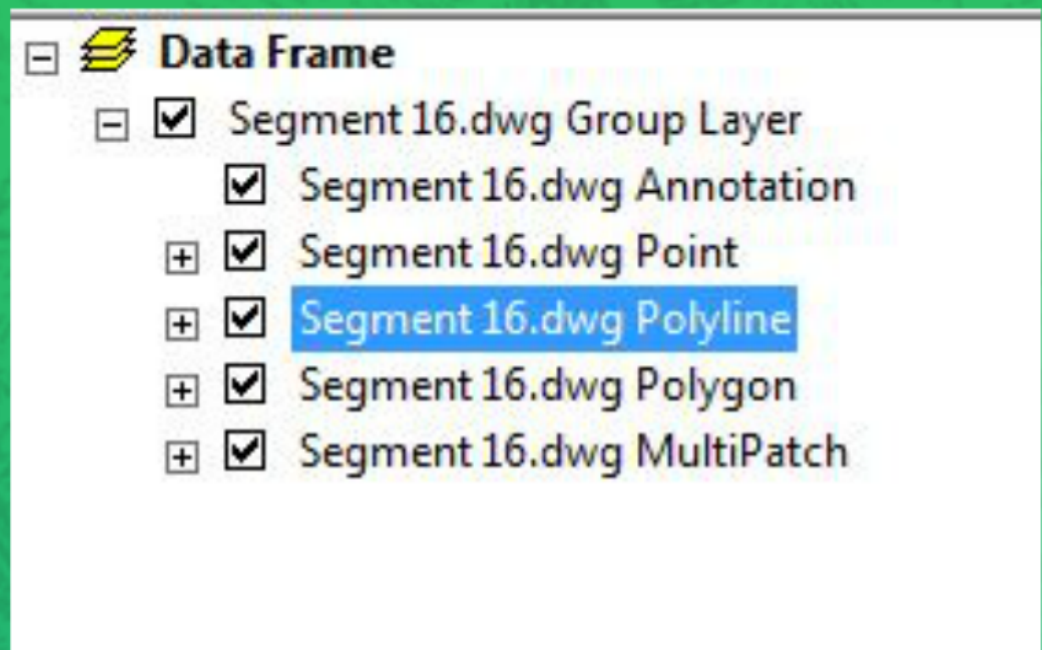
- Simple ArcMap tools
 - No georeferencing needed
 - No annotation needed
- One master symbology (.style)
- GDB Schema





Layers in AutoCad

*AutoCAD layers grouped
by geometry type in
ArcMap*



ESRI File GDB

*Custom batch
conversion*

*Connected
Fiber Optic
Cable Network*

ODOT GIS EVOLUTION

Lessons Learned

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- Communicate
- Better scope, schedule, budget
- Simplify expectations

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