

# CONSTRUCTION DESIGN USING CORE ESRI

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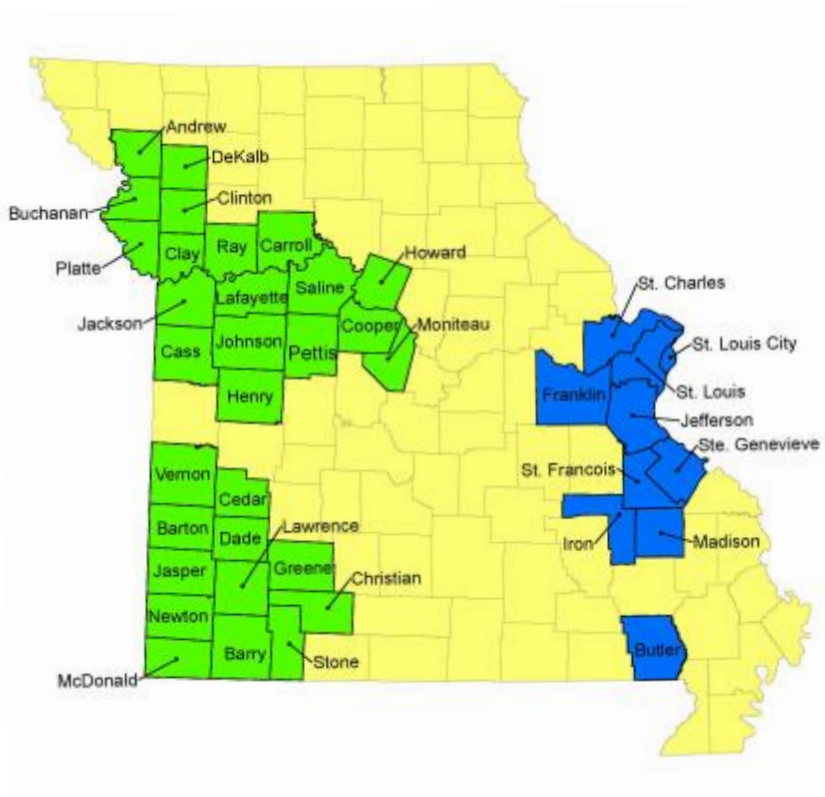
# OVERVIEW

- Company Profile
- Designer
- Drivers for Change
- Future State Solution
  - Project Management
    - Folder Structure
    - Design Feature Classes
    - Custom Tool
  - Core ESRI
    - Page Template
    - Data Driven Page
    - Custom Tool
    - CU Summary
  - Maximo
    - CU Estimating Application
- Q & A



# THE LACLEDE GROUP

*Largest Missouri natural gas local distribution company*



## Laclede Gas Company

- St. Louis
- 640,000 customers
- 11 counties

## Missouri Gas Energy

- Kansas City & Joplin
- 510,000 customers
- 30 counties

# CURRENT STATE

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## Telvent Designer

- Work Flow Manager
- Construction Drawing
- Cost Estimate CU's
- Bill of Material
- Complete Life Cycle Not Used

## Custom Tools

- Capital Work Order Cost Report
- Work Order Package

# DRIVERS FOR CHANGE

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## NewBLUE Project

- **Maximo, Oracle CC&B, Supply Chain and Financials, PowerPlant**

## Implement Maximo Spatial

- **Leverage Maximo Where Possible**
  - **Manage Work Order Life Cycle**
  - **Utilize CU Engine**
  - **Bill of Material**
  - **Work Order Cost Report**
- **Leverage Core Esri Where Possible**
  - **Reduce Versions**
  - **Eliminate use of Telvent Designer**

# IDENTIFYING THE GAPS

Work Process	Current State	Future State
<b>PROCESS GAPS</b>		
Project Management	Workflow Manager	FGDB, Custom Tool
Construction Drawing	Designer	Esri Core
Cost Estimate	Designer	Maximo
Work Order Package	Custom Tool	Modify Custom Tool
<b>NO GAPS</b>		
Bill of Materials	Designer	Maximo
Cost Report	Custom Tool	Maximo

# FUTURE STATE SOLUTION

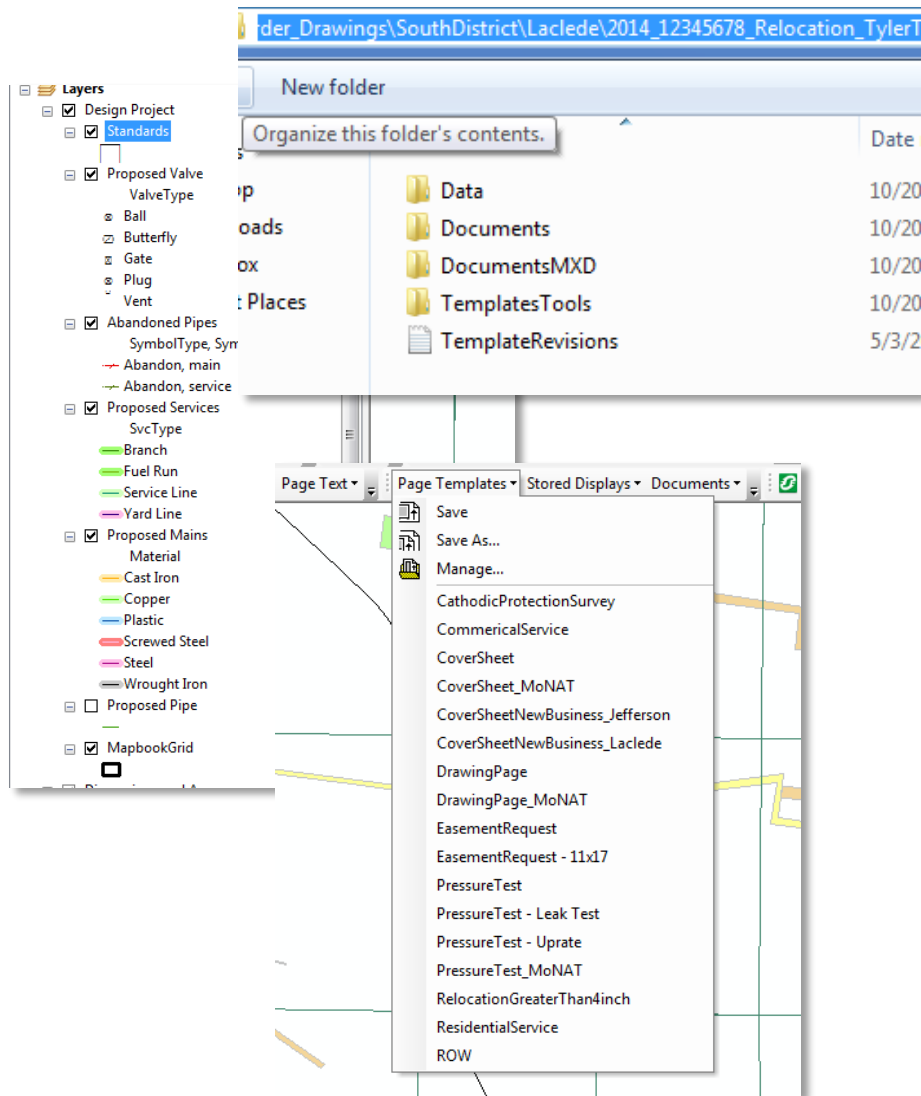
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Developed to leverage the Maximo Enterprise Asset Management and GIS.

## Four Core Components

- **Project Management**
- **Core ESRI**
- **Custom Tools**
- **Maximo for Cost Estimating**

# PROJECT MANAGEMENT



- Different Data Storage than Designer
  - Eliminated versions for Designs
- Moved to file geodatabase in a network folder structure
- Stored Displays and Page Templates stored in File Geodatabase (ArcFM)
- Custom Design Feature classes
  - Standards
  - Proposed Valves
  - Proposed Mains
  - Map Book Grid
- Supplemental tools also stored in folder structure.
- Customizable to apply to across business units



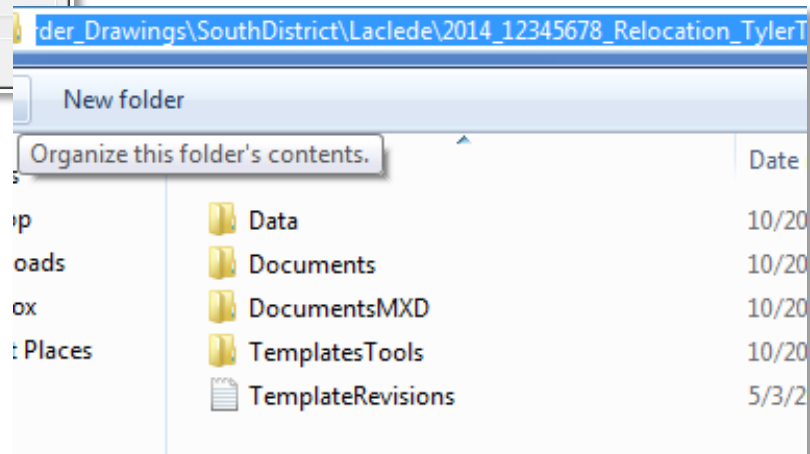
# PROJECT MANAGEMENT - CUSTOM TOOL

**Create Project Folder** – Allows user to designate Region, District, Year, Work Type, Project Name, and WO number. Copies master project folder to defined folder directory with unique folder name.

The 'Create Project Folder' dialog box contains the following fields and options:

- Laclede** (selected) | **MoNat**
- District & Region**
  - ☐ North
  - ☐ Central
  - ☒ South
  - ☐ StCharles
  - ☒ Laclede
  - ☐ Midwest
- Year & Type**
  - Year: 2014
  - Type: Relocation
- Project Name**: TylerTest
- Maximo Project ID**: 12345678
- Path**: \\gisappser2\Engineering\_gis\Work\_Order\_Drawings\SouthDistrict\Laclede\2014\_12345678\_Relocation\_TylerTest
- Buttons**: Create Folder, Copy Path

- 2013\_11919841\_NewBusiness\_Woods of Ladue
- 2013\_11919961\_Replacement\_Itaska\_AOR
- 2013\_11920331\_Replacement\_Robert\_AOR
- 2013\_11920358\_Replacement\_Bradley\_AOR
- 2013\_11923877\_Relocation\_Pond Grover Loop Culvert
- 2013\_11929549\_NewBusiness\_5129 Paradise
- 2013\_11941496\_NewBusiness\_Mason Heights
- 2013\_11944219\_Replacement\_Maplewood\_Ph1E
- 2013\_11944821\_Replacement\_Maplewood\_Ph1E-Abandon



# CORE ESRI


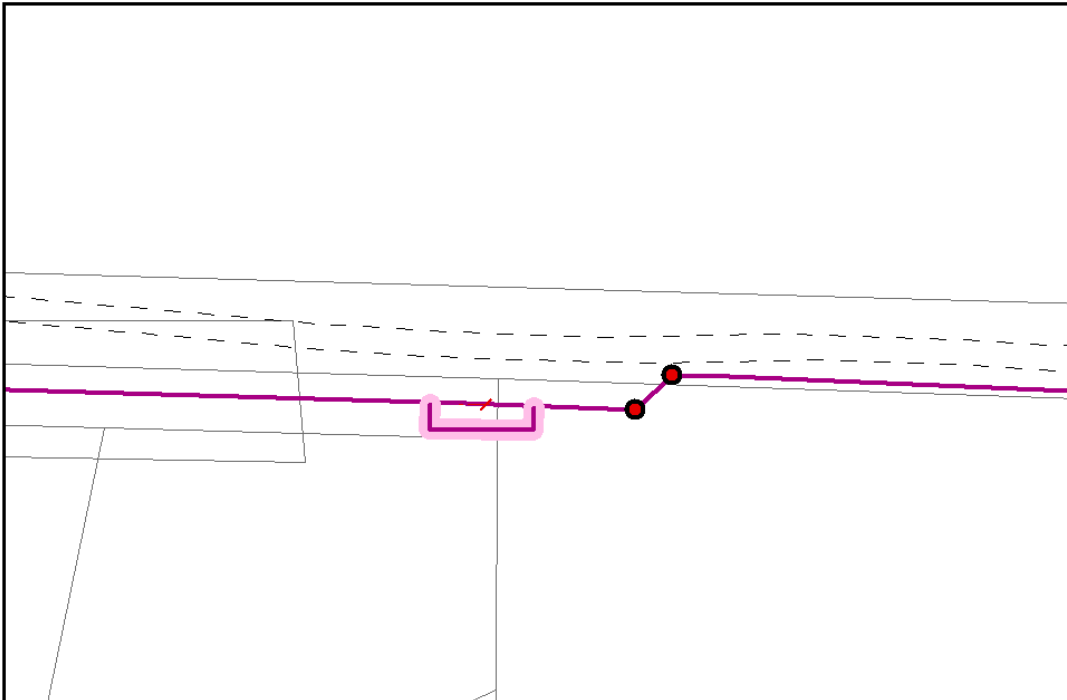
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ESRI core tools to create and complete construction designs. Able to Leverage Construction Drawing Process across Business Units.

- **Customized Page Templates** – Covers all job types: New Business, Relocation , Replacements, Commercial and Residential Services, and other Supplemental exhibits. Stored in file geodatabase and ArcFm toolbar.
- **Data Driven Pages** – Core ESRI tool. Helps with multi-page designs. Driven off of Map Page Grid polygon feature class.
- **CU Summary** – Calculates the total installed and abandoned pipe footage from the Proposed Pipe Feature Classes. Report used to build CU estimates in Maximo.

# CORE ESRI – PAGE TEMPLATES

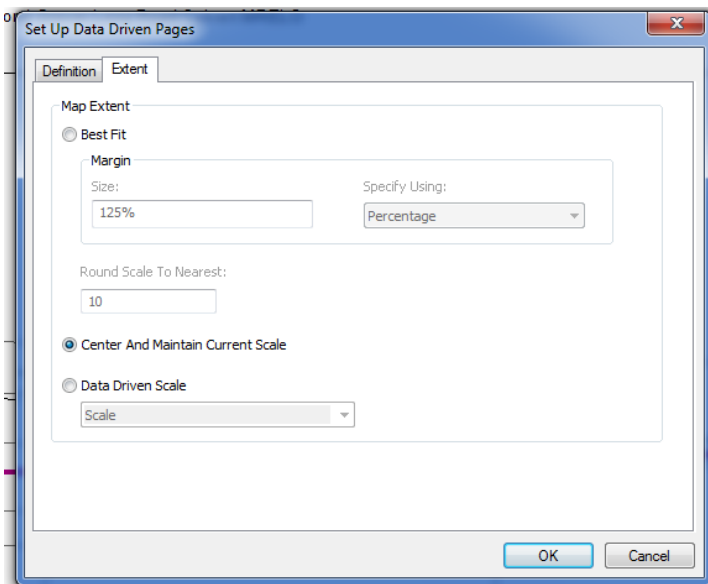
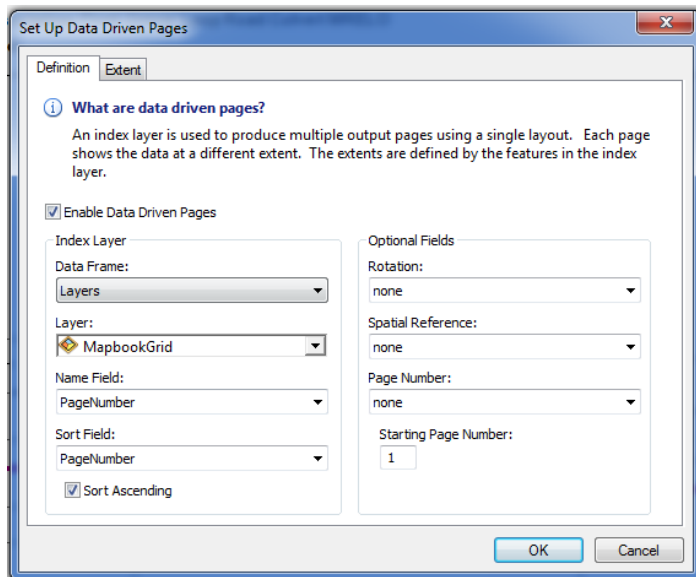
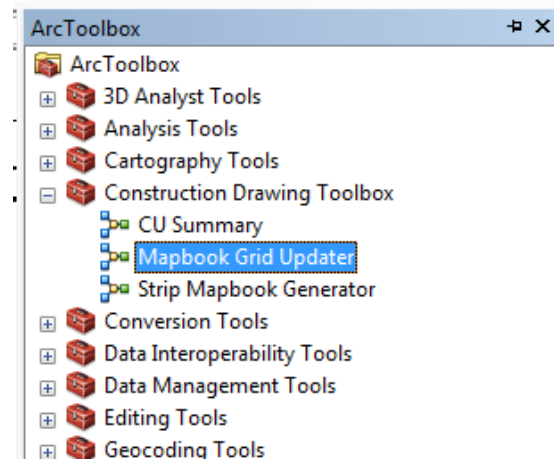
Page Templates – Stored in File Geodatabase. Covers all the job designs types (Relocation, Replacement, New Business, Commercial and Residential Services)

<b>Job</b> <b>Max</b>	<b>Job D</b> <b>Maxim</b>	<b>Job</b> <b>Ma</b>	<div><p><b>Municipality:</b> City is null <b>Map Grid:</b> 500°10'0"E 500°10'0"N NAD83 <b>Register #:</b> Error: Source object not found. Maximo Work Order: 11923877 THE ROUTE OF THE GAS SERVICE MUST BE BROUGHT TO GRADE AND CLEARED OF BUILDING MATERIAL BY THE CUSTOMER PRIOR TO INSTALLATION. GRANULAR BACKFILL, IF REQUIRED, IS TO BE PROVIDED BY THE CUSTOMER. IN WHICH CASE, LACLEDE GAS WILL NOT BE RESPONSIBLE FOR THE DISPOSAL OF EXCESS SPOIL FROM THE DITCH. LACLEDE GAS TO ONLY PATCH THAT PAVEMENT REMOVED FOR THE INSTALLATION OF THE GAS SERVICE. GAS METER MUST COMPLY WITH REQUIREMENTS SHOWN BELOW</p><p><b>APPROVED</b></p><p>FOR SERVICE AND METER LOCATION</p><p>BY: _____</p><p>DATE: _____</p><p>TITLE: _____</p><p>8.5" x 11" sheet may not be to scale</p><p>1 inch = 27 feet</p><p>0 12.5 25 50 75 Feet</p><p>DRAWN BY: _____ DATE: 10/21/2014 TRACED BY: _____ CHECKED BY: _____ INITIATED BY: 09143 DATE: 10/21/2014</p><p><b>LACLEDE GAS COMPANY</b> ST. LOUIS, MO.</p><p><b>Job Description:</b> Pond Grover Loop Road Culvert M RELO</p></div>
<b>Job Des</b>	<b>Comm</b>		

PATH: \\BAPPSRQ2\ENGINEERING\01\BWORK\ORDER\_DRAWING\BOUTHDISTRICT\LACLEDE\2013\_11923877\_RELLOCATION\_POND GROVER LOOP CULVERT\DOCUMENTS\MADTEST\JOB\_811356\10121201409143

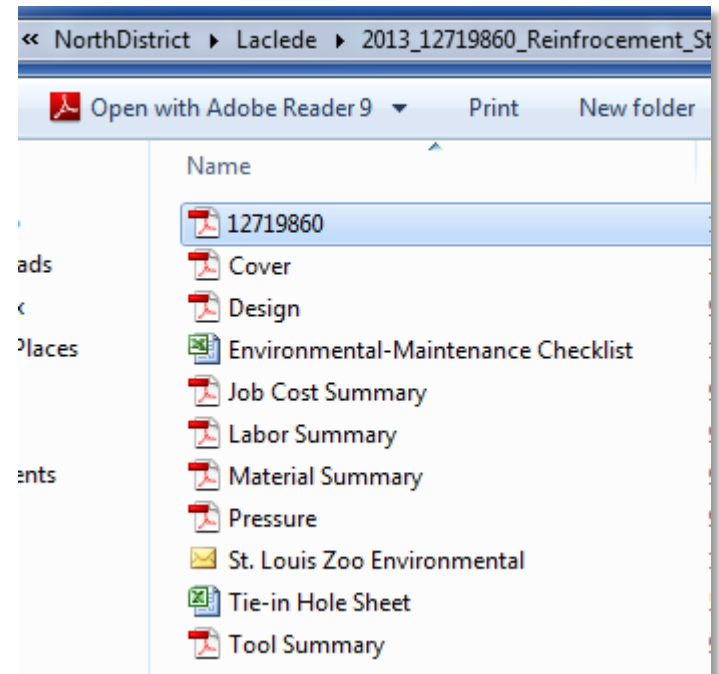
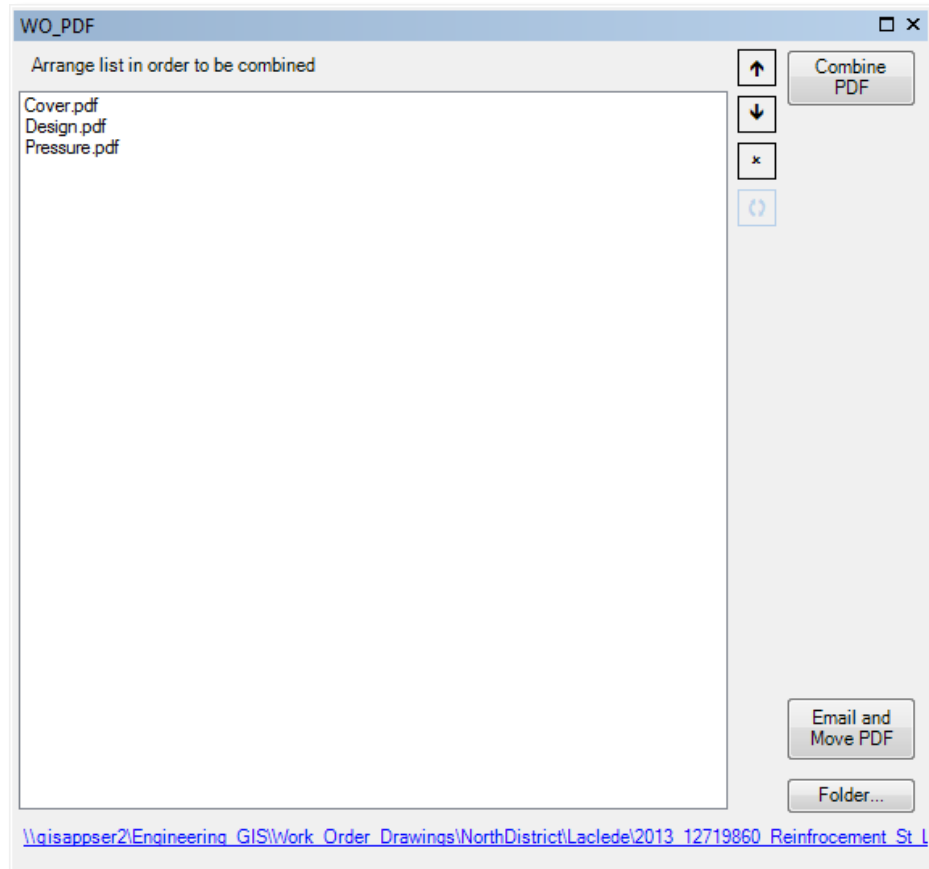
# CORE ESRI – DATA DRIVEN PAGES

- Allows for multipage designs to be stored in one MXD
- Driven by the MapbookGrid Feature Class
- Calculates page order by OID using the Mapbook Grid Updater tool



# CUSTOM TOOLS

**WO PDF Create** – Combines the Cover, Drawing, and Pressure to WO Drawing PDF. Automatically saves in “Documents” folder in the project folder structure designated by the WO polygon.



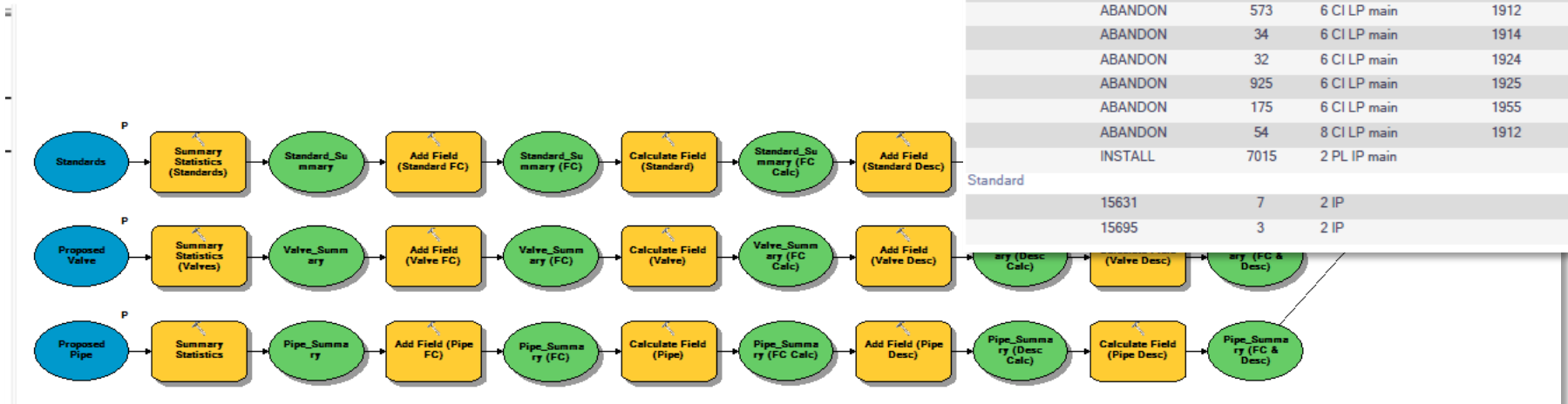
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# CORE ESRI – CU SUMMARY

- Computes total installed and abandon footage for proposed mains and services
- Totals number of valves by size and material
- Totals standard numbers for CU estimate
- Generates Report with all three components

CU Summary Report

Feature Class	Type	Quantity	Description	Vintage
Pipes				
ABANDON		20	10 CI LP main	1912
ABANDON		412	12 CI LP main	1955
ABANDON		1410	24 CI LP main	1896
ABANDON		628	3 CI LP main	1890
ABANDON		20	3 PL LP main	2000
ABANDON		1992	4 CI LP main	1890
ABANDON		363	4 CI LP main	1904
ABANDON		2472	4 CI LP main	1905
ABANDON		120	4 CI LP main	1910
ABANDON		812	6 CI LP main	1890
ABANDON		53	6 CI LP main	1903
ABANDON		44	6 CI LP main	1904
ABANDON		728	6 CI LP main	1905
ABANDON		20	6 CI LP main	1906
ABANDON		1408	6 CI LP main	1910
ABANDON		573	6 CI LP main	1912
ABANDON		34	6 CI LP main	1914
ABANDON		32	6 CI LP main	1924
ABANDON		925	6 CI LP main	1925
ABANDON		175	6 CI LP main	1955
ABANDON		54	8 CI LP main	1912
INSTALL		7015	2 PL IP main	
Standard				
		15631	7	2 IP
		15695	3	2 IP



# MAXIMO

Maximo is the owner of the WO lifecycle. Jobs are estimated using the CU Estimating Application. Estimates are built using the CU Summary Report and Standards Manual.

The screenshot displays the Maximo Work Order (WO) lifecycle interface, specifically the 'Estimate Request' tab. The interface is divided into several sections:

- Top Navigation:** Includes tabs for List, Work Order, Plans, Assignments, Related Records, Actuals, Log, Map (Spatial), Service Address, and Details.
- Work Order Details:**
  - Work Order: 11923877
  - Location: Core esri - data driven pages
  - Asset: [Empty]
  - Device Tag Number: [Empty]
  - Project: 900438
  - Parent WO: [Empty]
  - Owner: 00677
  - Owner Group: [Empty]
  - Feature Class: WOPOLY
  - CC&B FA: [Empty]
- Estimate Request Details:**
  - Estimate Request: 1294
  - Target WO: 11923877
  - Project ID: 900438
  - Location ID: 1
  - Funding Project: 3403L
  - PP WO Type: 319
  - Department ID: 10,638
  - Reason CD: 3
- Work Type Details:**
  - Site: SITE ONE
  - Permit: [Empty]
  - Work Type: MRELO
  - Work Type Description: Main Relocation
  - SubWork Type: CIVIC IMPROVEMENT
- Status and Dates:**
  - Status: ENGAPPR
  - Status Date: 8/13/13 9:56 AM
  - Inherit Status Changes? [Checked]
  - Accepts Charges? [Checked]
  - Status: ACCEPTED
  - Status Date: 8/6/13 7:55 AM
  - Accepted Design Version: 3
  - Accepted As-Built Version: [Empty]
  - By: 09111
  - Date: 8/13/13 9:56 AM
- Costs Table:**

The estimated costs are calculated when the action Perform Estimation is selected.

Version	Labor	Materials	Services	Tools	Overheads	Applied Contributions	Deferred	Total Cost	Status	Status Date
3	6,920.03	4,043.78	0.00	11,584.36	27,606.48	0.00	0.00	50,154.65	ACCEPTED	8/6/13 7:55 AM
2	6,920.03	4,043.78	0.00	11,584.36	27,606.48	0.00	0.00	50,154.65	ACCEPTED	8/6/13 7:54 AM
1	6,920.03	4,039.66	0.00	11,584.36	27,605.19	0.00	0.00	50,149.24	ESTIMATED	8/1/13 10:13 AM

# SUMMARY

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## Leverage Maximo

- True Work Order Life Cycle for Company
- Eliminated maintenance of CU's
- Eliminated Reporting Requirements for GIS Group

## Leverage Core Esri

- Reduce Versions – 800 > 40
- Cost Savings – 25 Designer licenses
- Cost Savings – Cost to integrate Designer to Maximo



# Q&A

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