3D DGN to Multipatch for City Engine

UNITED KINGDOM

Konrad Poplawski

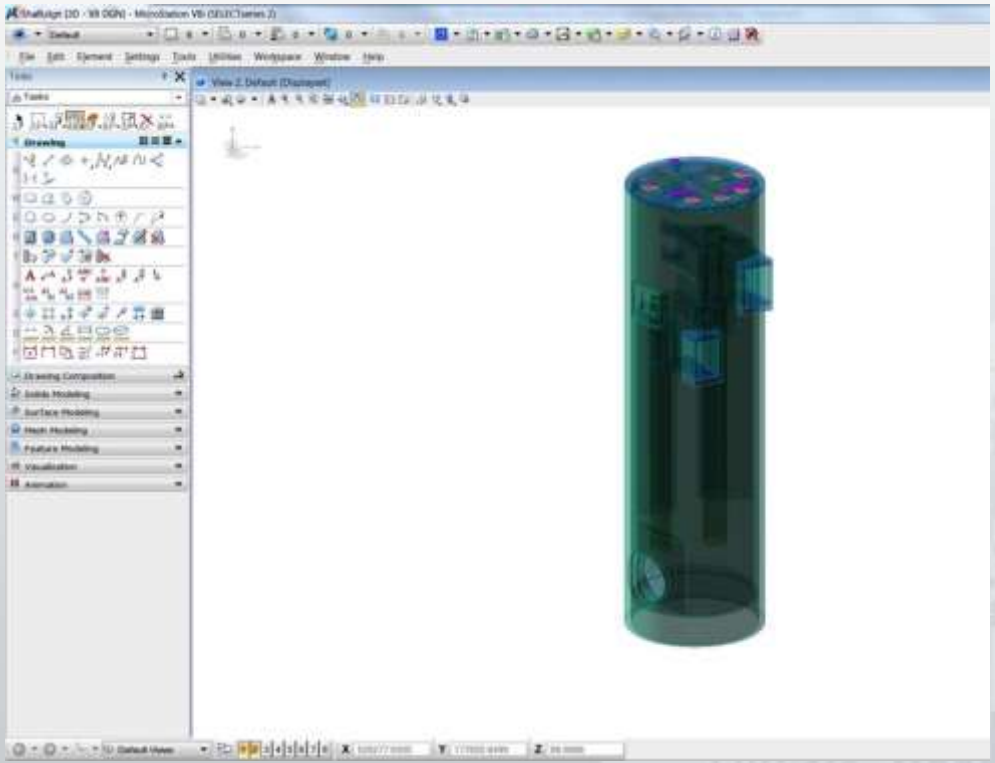
CRITIGEN

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Tideway Tunnel

Needed:

- a reliable, repeatable method to transfer 3D model data between Bentley MicroStation and Esri City Engine.



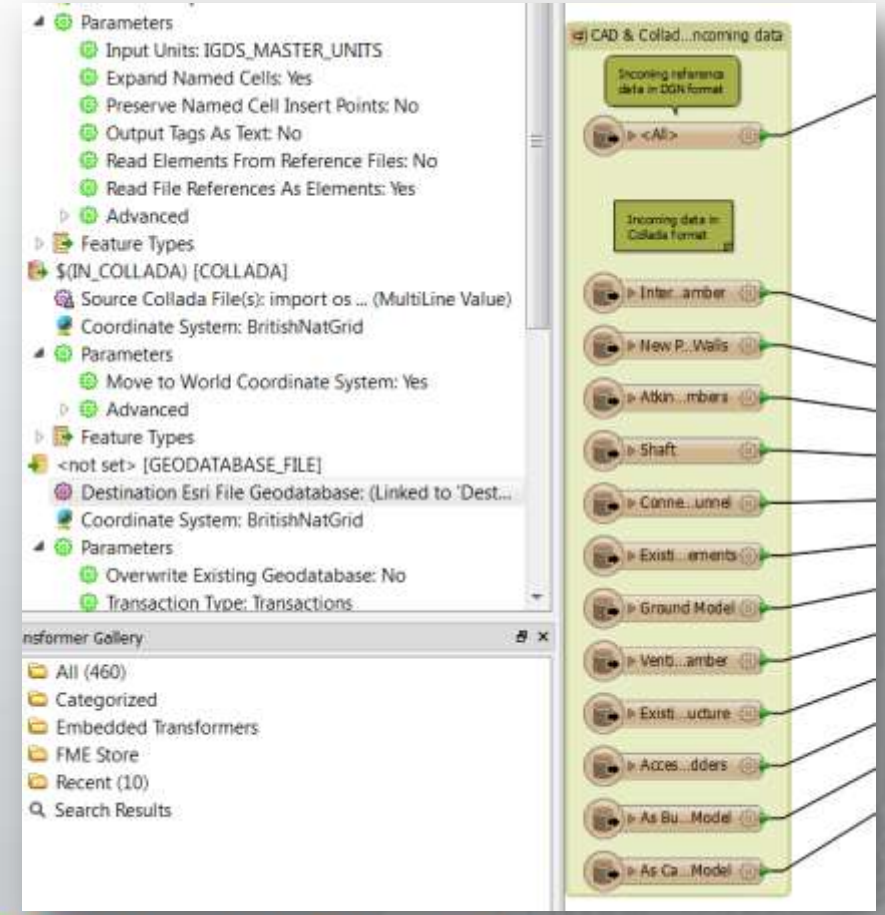
Challenges:

- no direct format support
- georeferencing
- attribution

CONNECT. TRANSFORM. AUTOMATE.

Basics

- Collada chosen as an interim format
- DGN is georeferenced
- Python script reads file pairs based on name
- Batch deploy processes full sets of models



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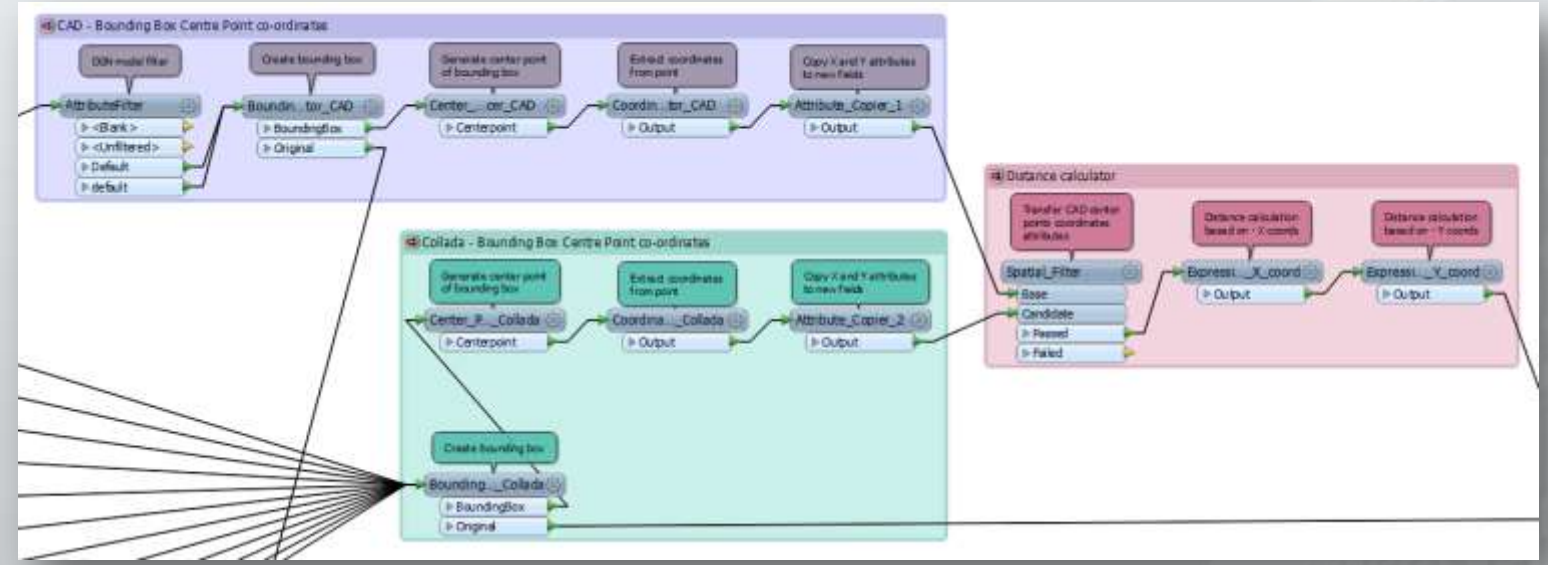
Maintaining Georeferencing

- BoundingBoxAccumulator
- CenterPointReplacer



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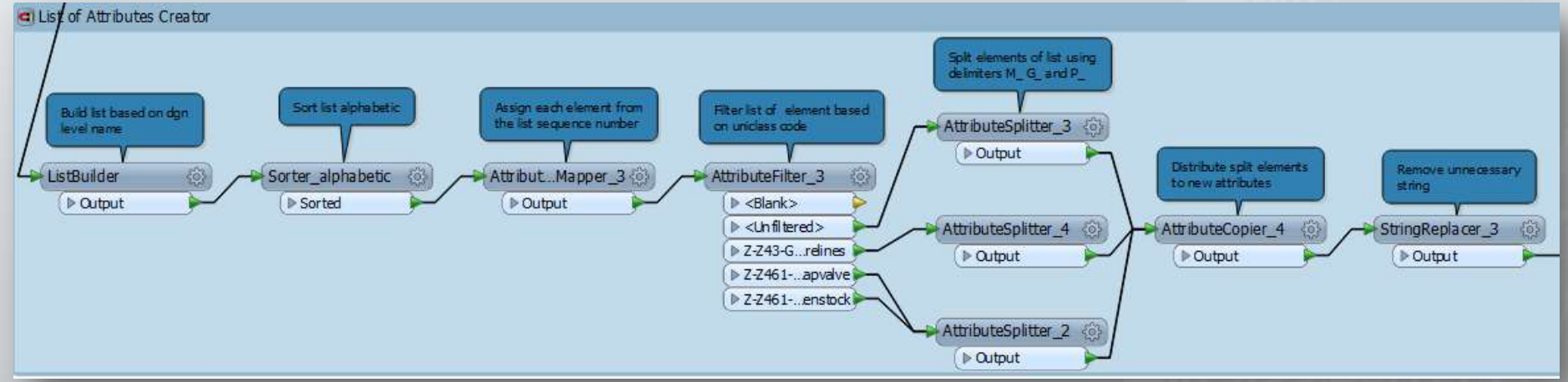
Attribute Handling

- Create attribute lists from original CAD file
- Generate keys for downstream re-attribution
- Clean up attributes



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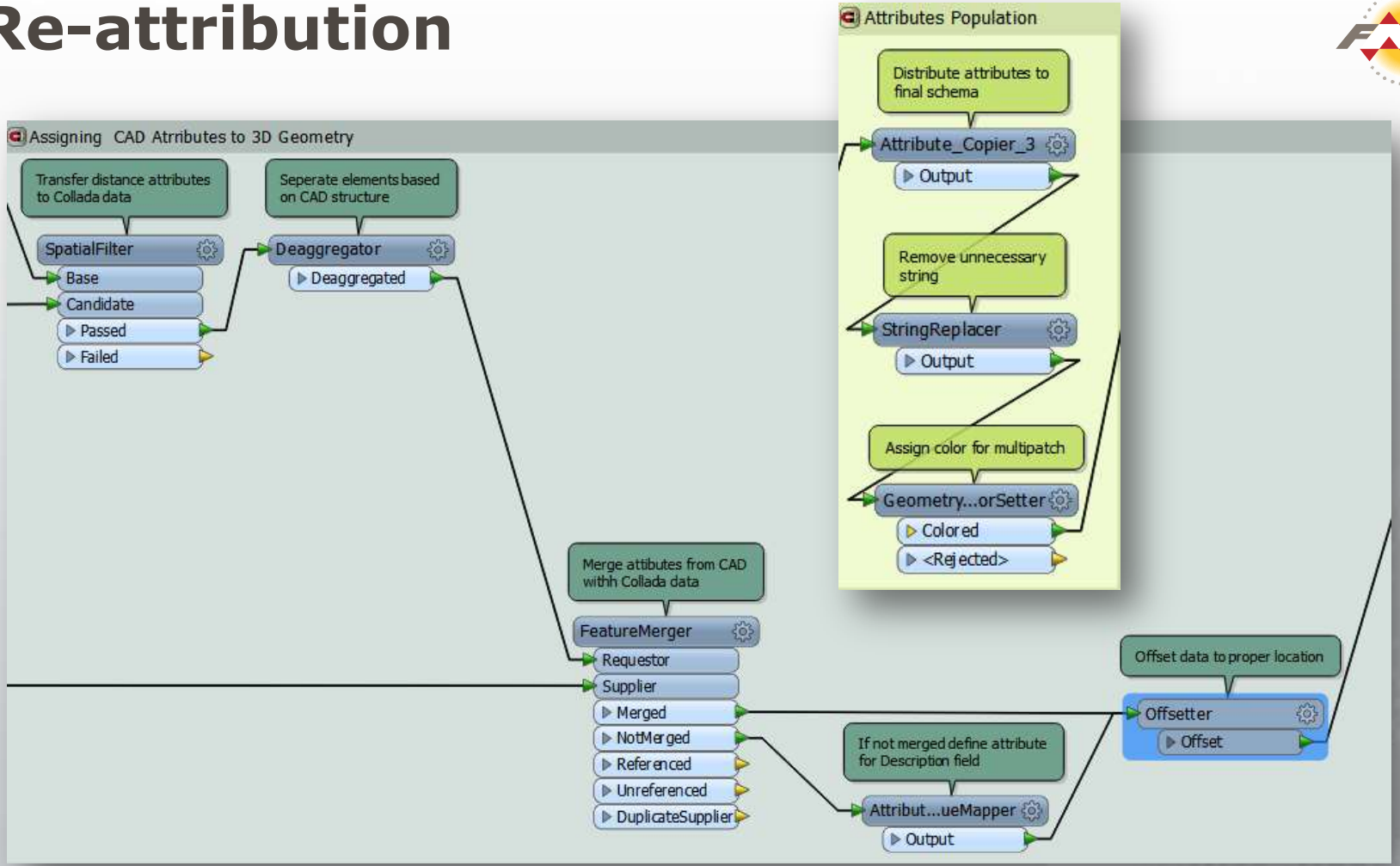
Re-attribution



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The Result: 3D Web View

- Esri Multipatch Feature Classes, positioned and with attributes
- Detailed planned construction available to all stakeholders in a browser

OS 3D Data Generation:

Using FME to Investigate the Creation of Point Clouds from Imagery

UNITED KINGDOM

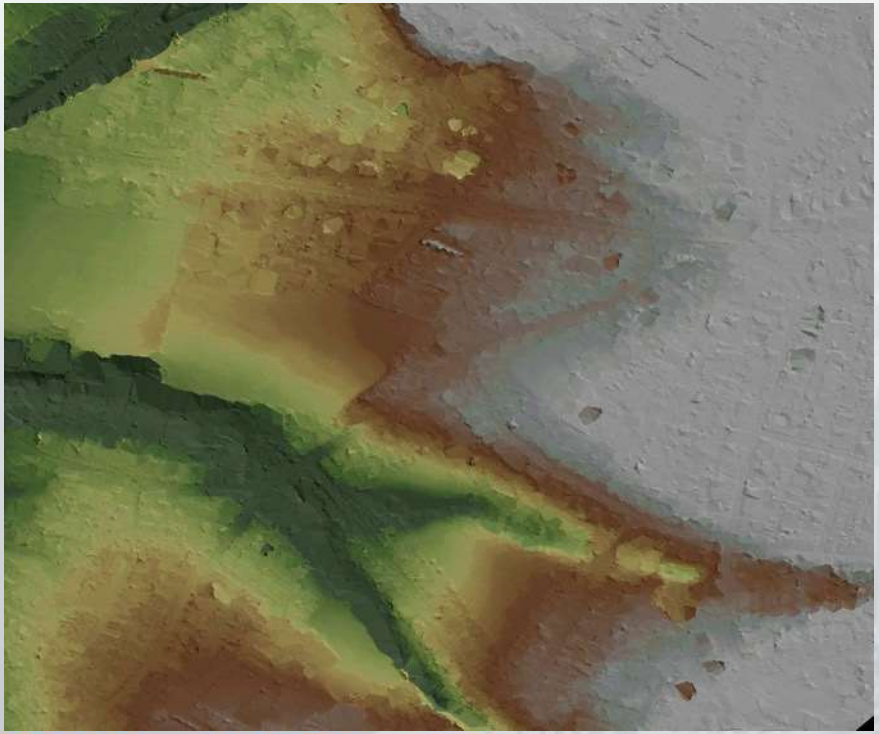
Nikki Goodwyn
Photogrammetric Surveyor
Ordnance Survey

THE CHALLENGE

- SYNCHRONISING TWO OUTPUTS: DIGITAL SURFACE MODEL (DSM) AND DIGITAL TERRAIN MODEL (DTM)

DSM

DTM



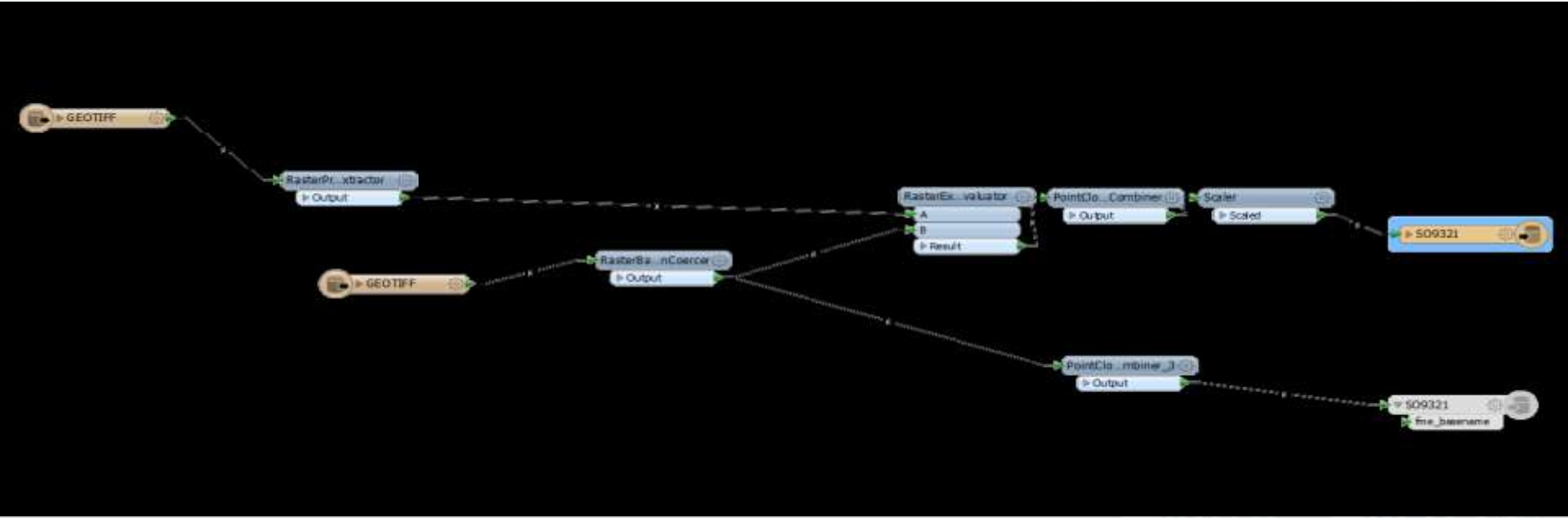
METHODS

RGB colouring brings points back to reality

Point Cloud- No colour values

SOLUTION

FME WORKBENCH



SOLUTION

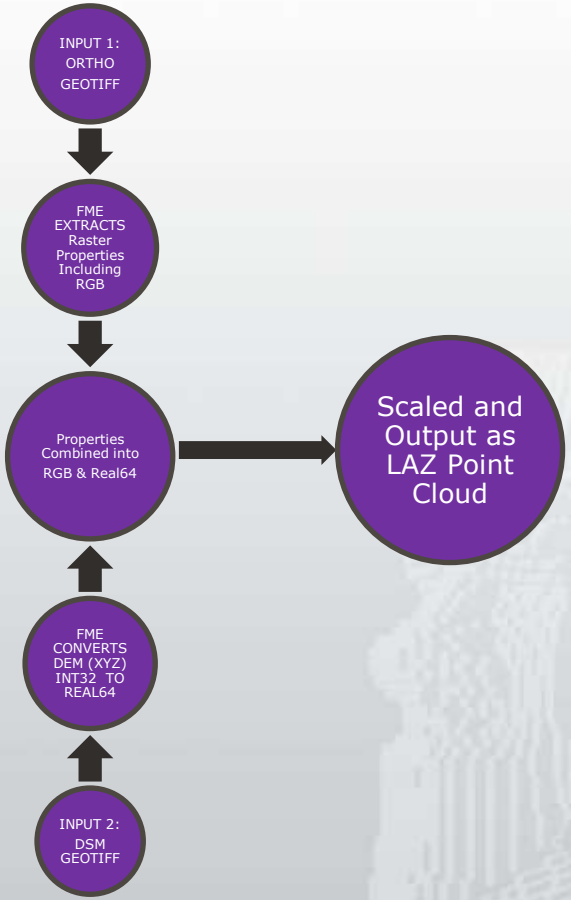
Input =1km Ortho Tile as Geotiff

RasterPropertiesExtractor

RasterExpressionEvaluator

RasterBandInterpretation Coercer

Input= 1km DSM of same Tile as Geotiff



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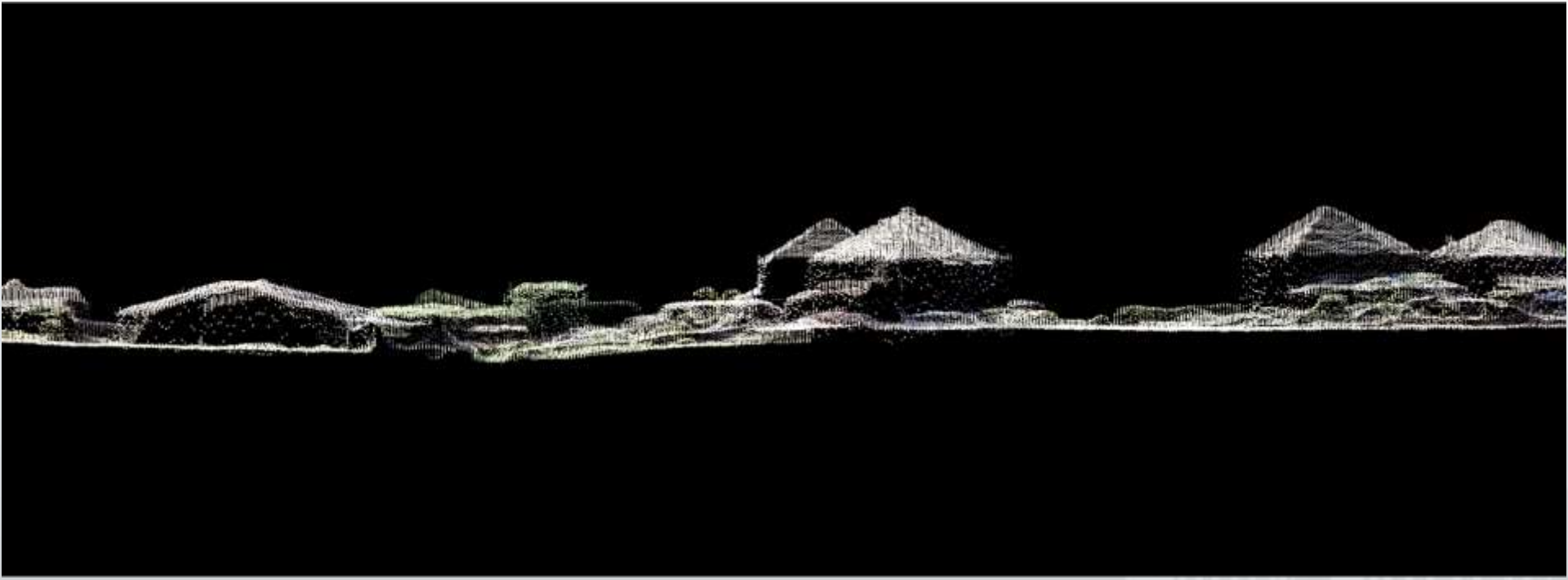
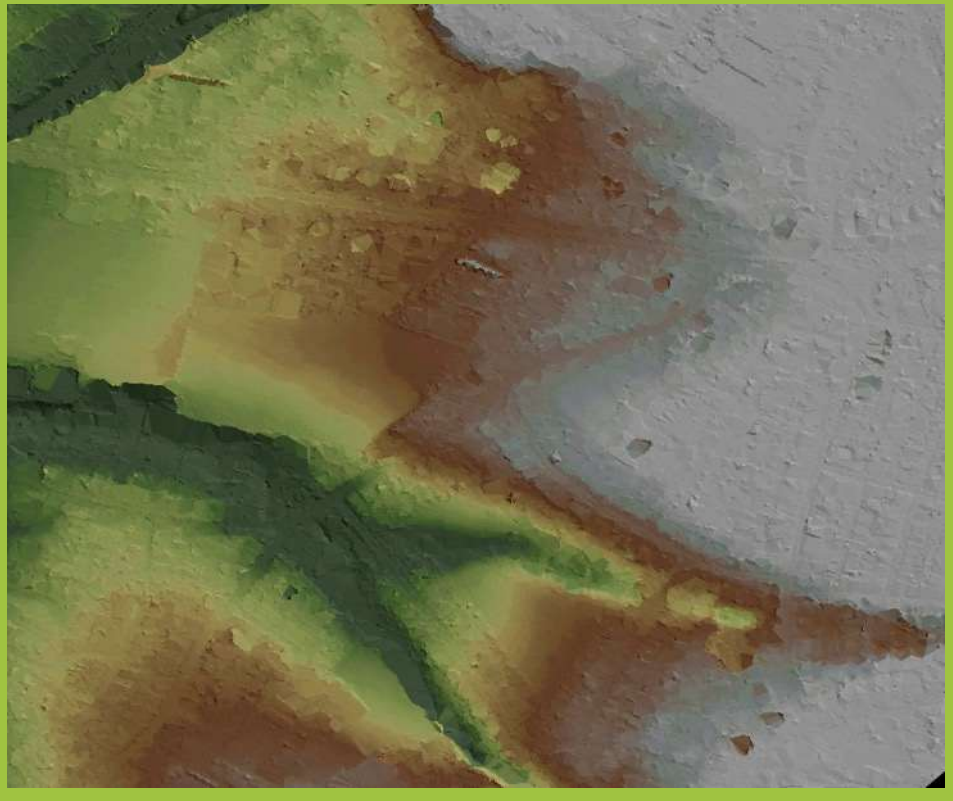
RESULTS

COLOURISED IMAGE-BASED POINT CLOUD OUTPUT



THANK YOU



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02380 055972

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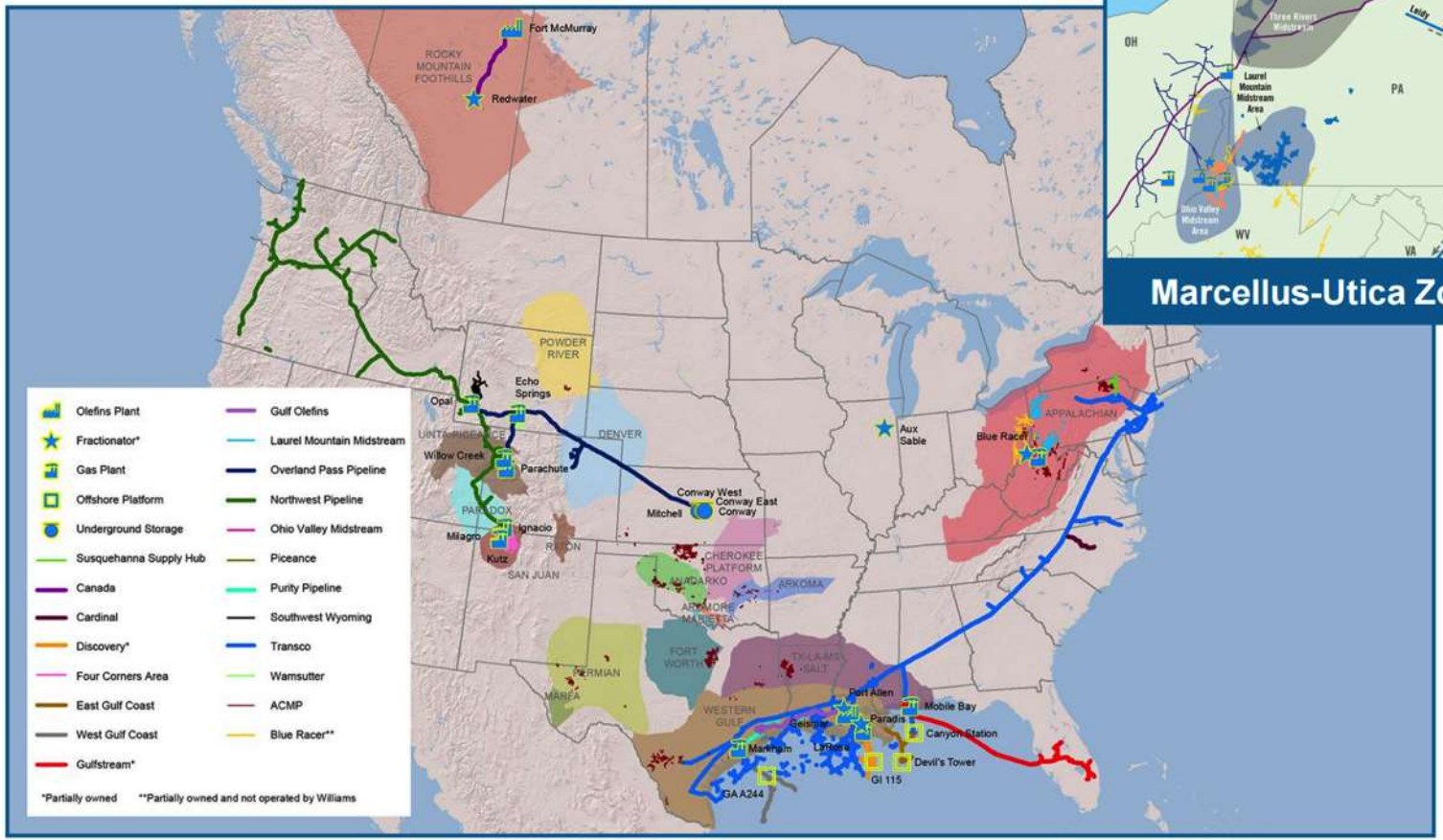
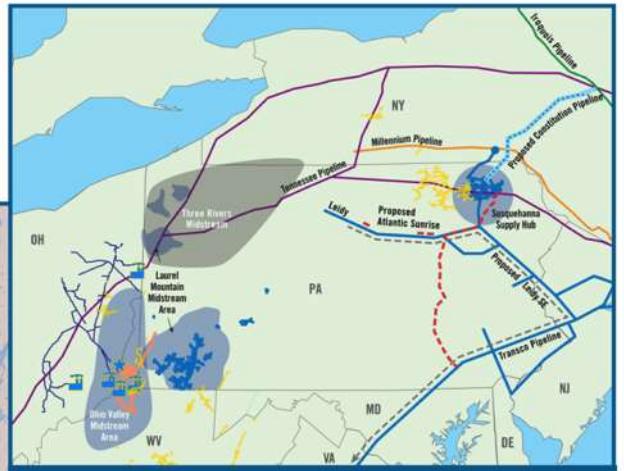
Building a Spatial Decision Support System for Natural Gas Pipeline Risk

OKLAHOMA, USA

Matt Landry
Frank Yeboah

Williams Companies

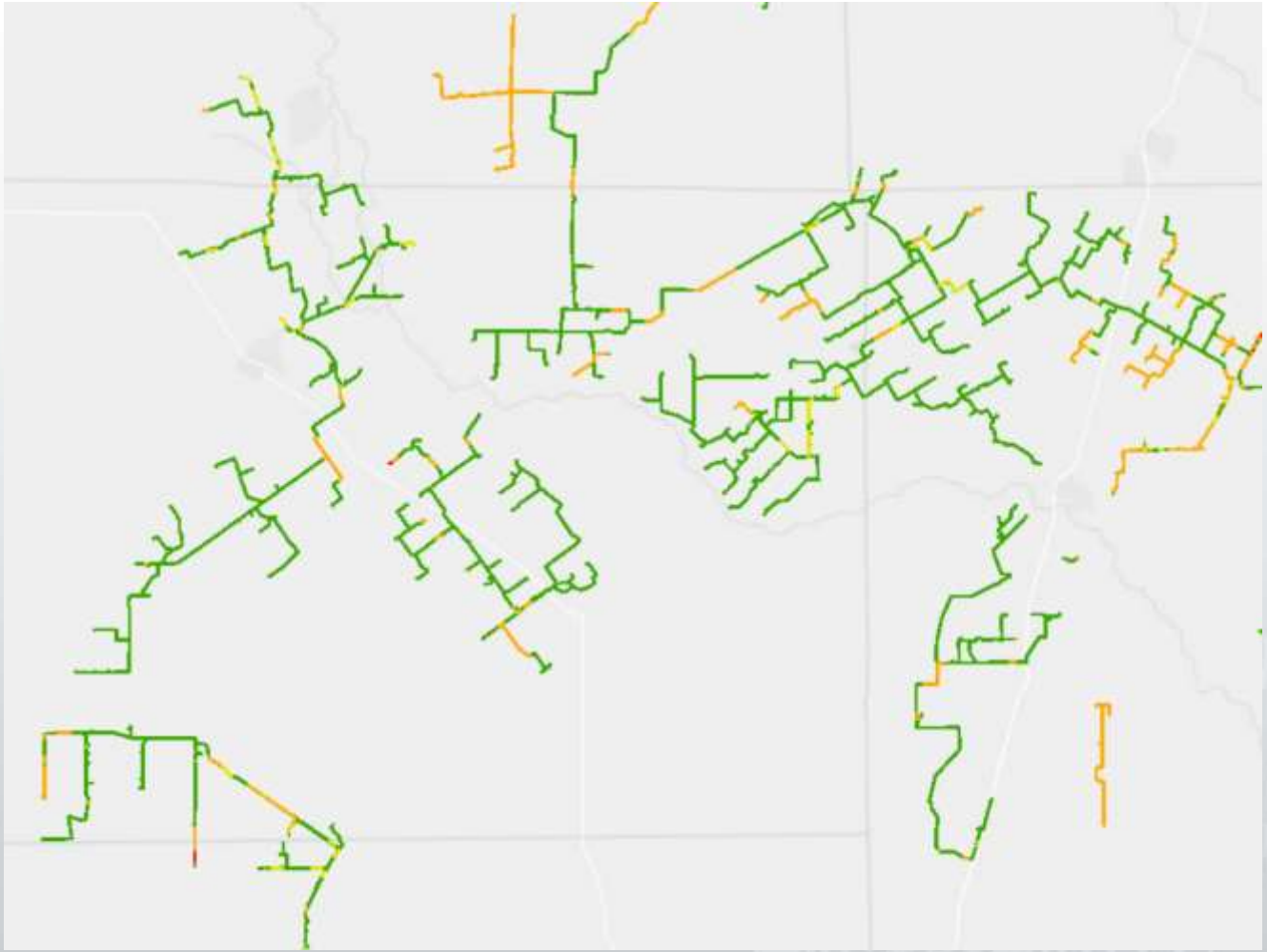




Marcellus-Utica Zoom-in View

Pipeline - Risk

- 1
- 2
- 3
- 4



CONSEQUENCE	PROBABILITY				
	E	D	C	B	A
I	3	2	2	1	1
II	4	3	2	2	1
III	4	4	3	3	2
IV	4	4	4	4	3

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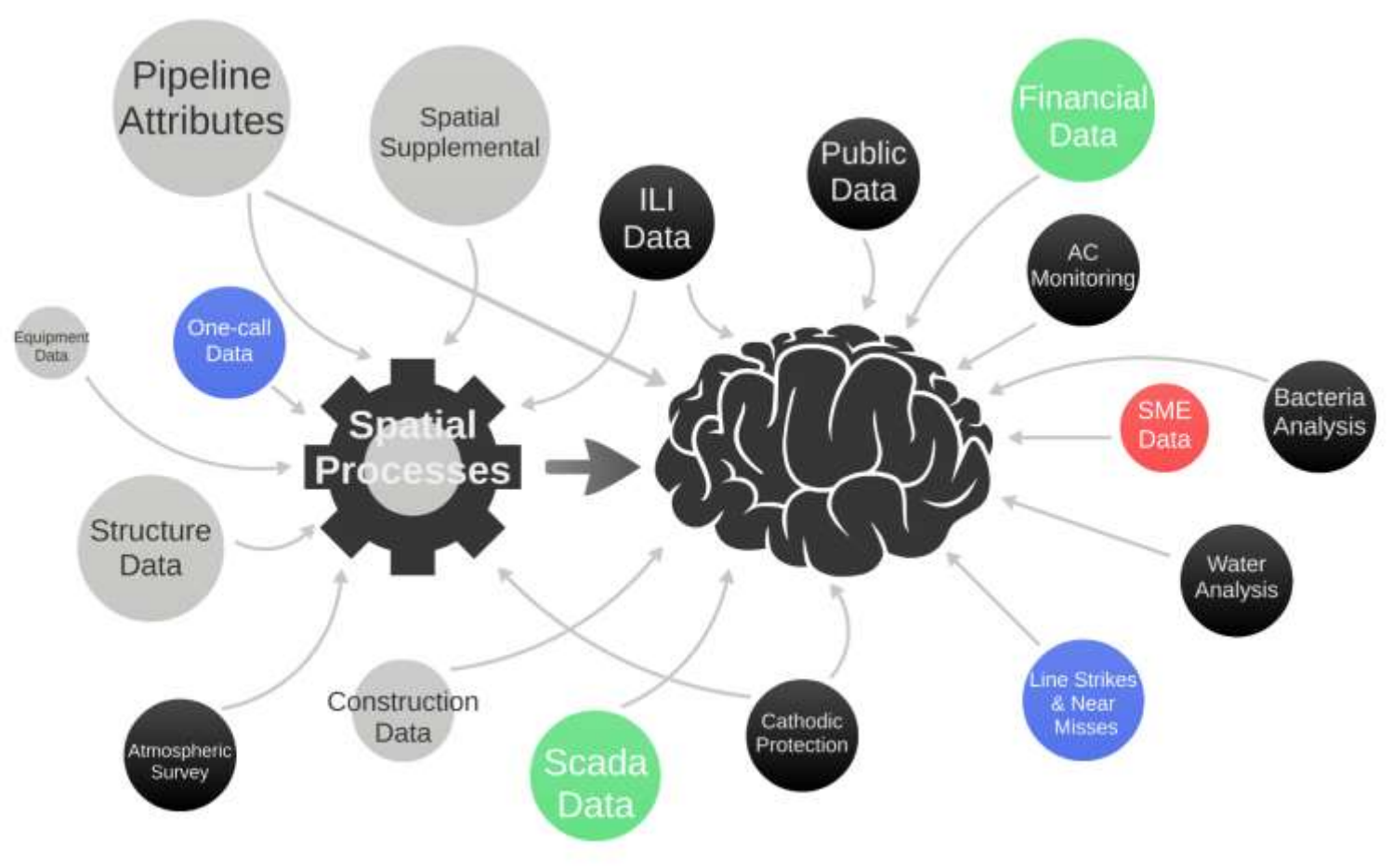

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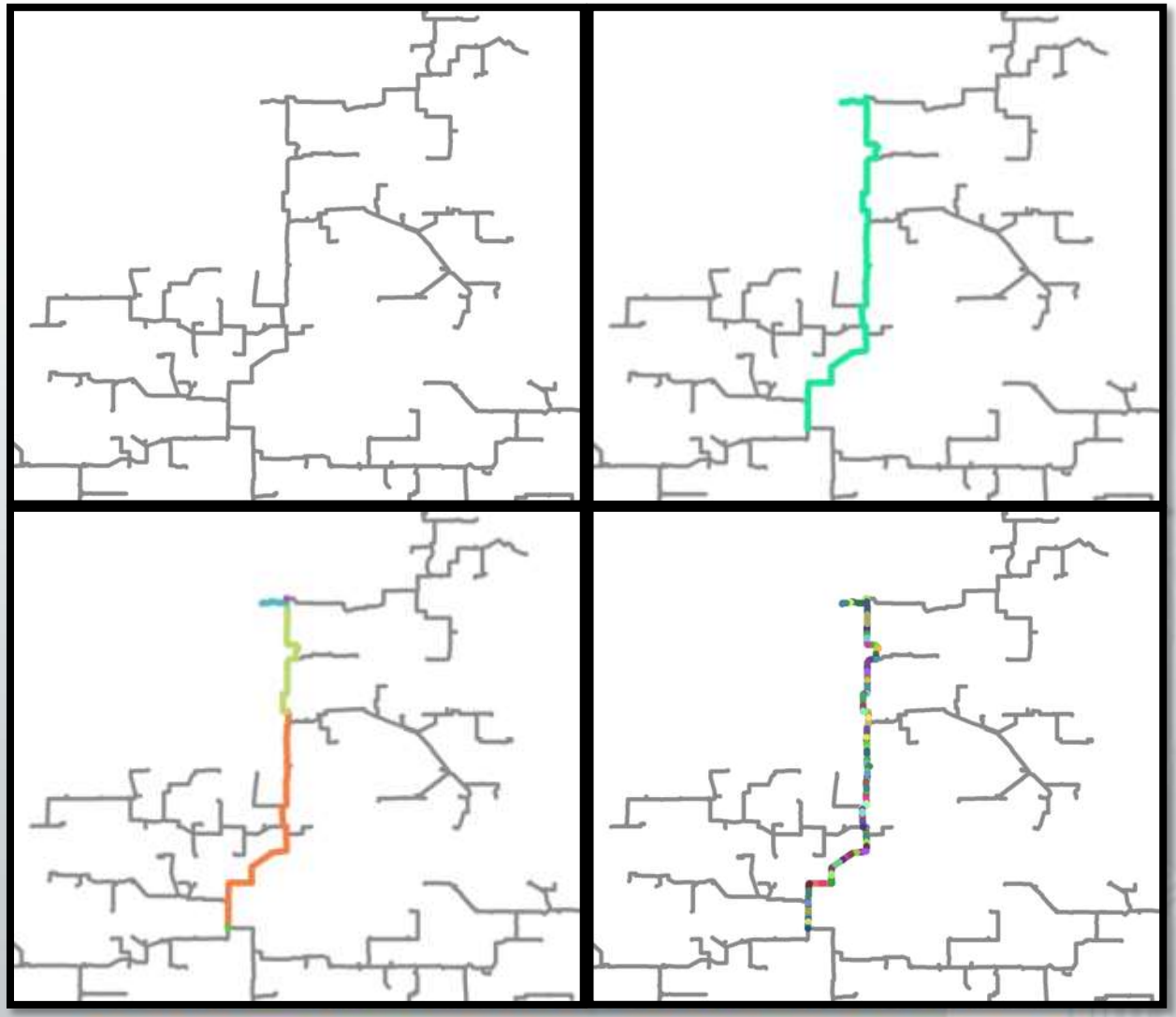
Gas Gathering System
R_GGS_FACTS.fmw
[R_GGS_FACTS]

SEGMENT_ID
R_SEGID_FACTS.fmw
[R_SEGID_FACTS]



GISID_ID
R_GISID_FACTS.fmw
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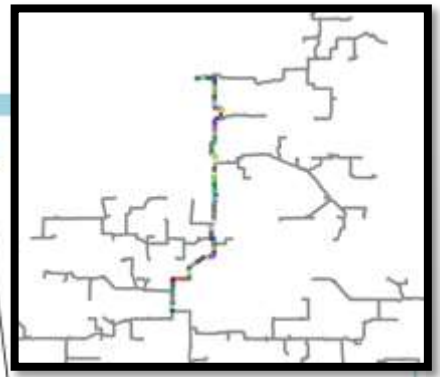
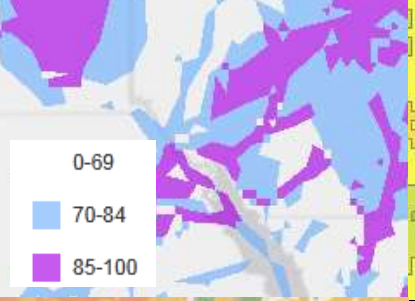
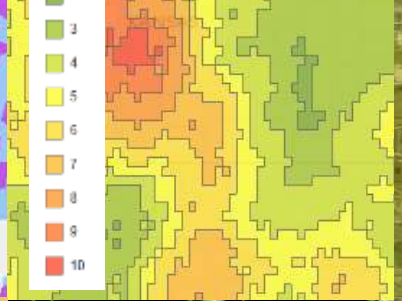
SUBSEG_ID
R_SUBSEGID_FACTS.fmw
[R_SUBSEGID_FACTS]

R_SUBSEGID_FACTS.fmw



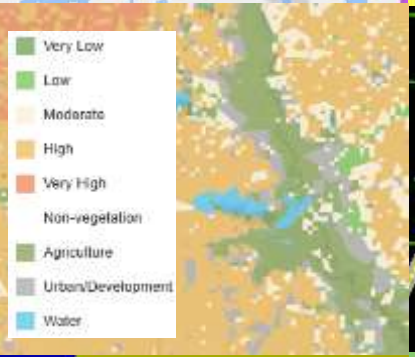
CONNECT. TRANSFORM. AUTOMATE.


0-69
70-84
85-100

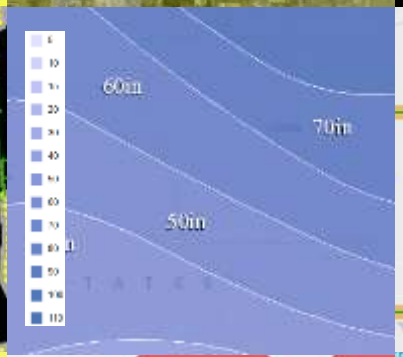

3
4
5
6
7
8
9
10

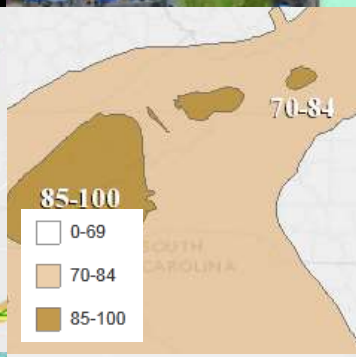

Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity

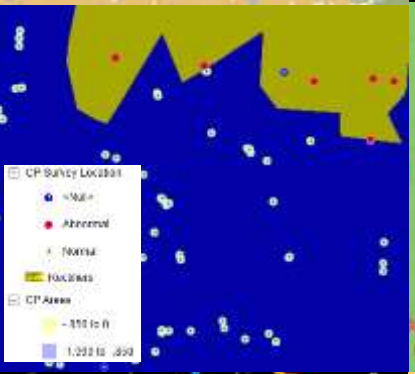

$0 $50,000
$50,001 $200,000
$200,001 $500,000
$500,001 $50,000,000

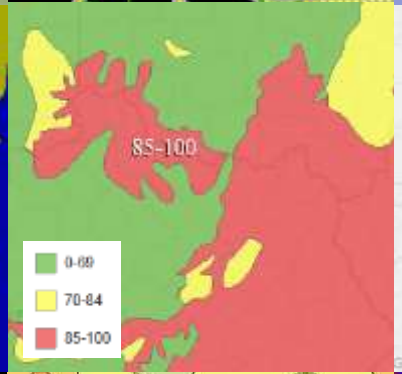

Very Low
Low
Moderate
High
Very High
Non-vegetation
Agriculture
Urban/Development
Water

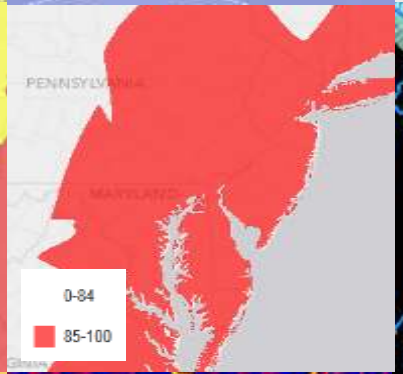

AC Monitoring Stations
Pipeline - Risk
Electrical Transmission Lines
Electrical Transmission Buffer


60in
70in
50in


70-84
85-100
0-69
70-84
85-100


CP Survey Location
Abnormal
Normal
CP Areas


85-100
0-69
70-84
85-100


PENNSYLVANIA
MARYLAND
0-84
85-100


Lakes
Rivers
Drinking Water Zones
Ecologically Sensitive Area


IC Metal Loss at Weld
LC Metal Loss at Weld
External Metal Loss (Corrosion)
Internal Metal Loss (Corrosion)


Carrollton CF Phase 2
Carrollton CF
UFO NGL Pipeline
UFO 34 in Gathering Pipeline Phase 2


25 - 3
6
9
12
15
18

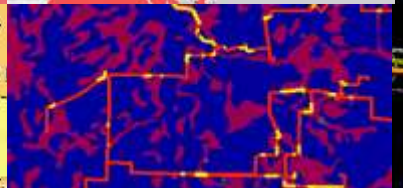
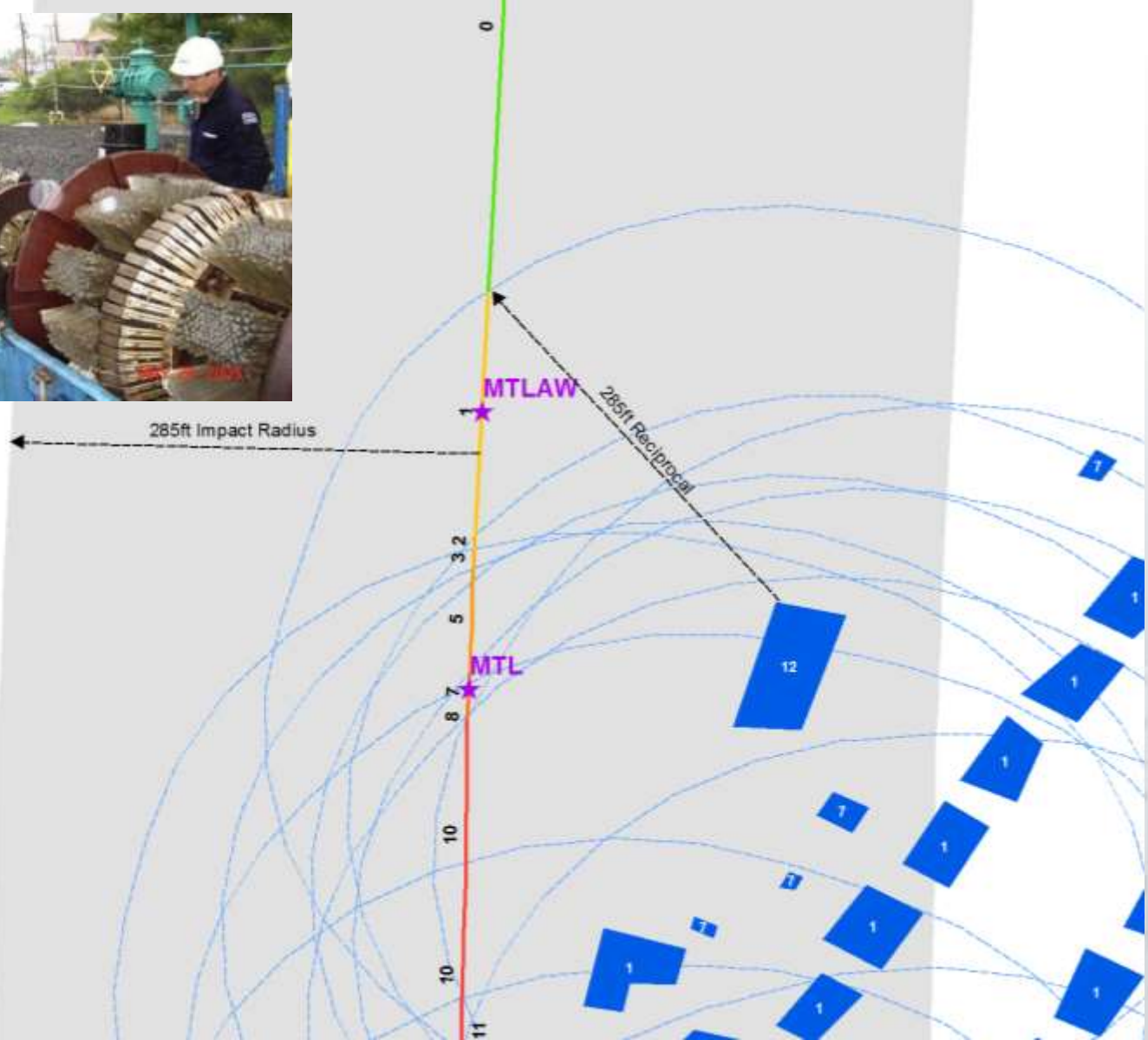
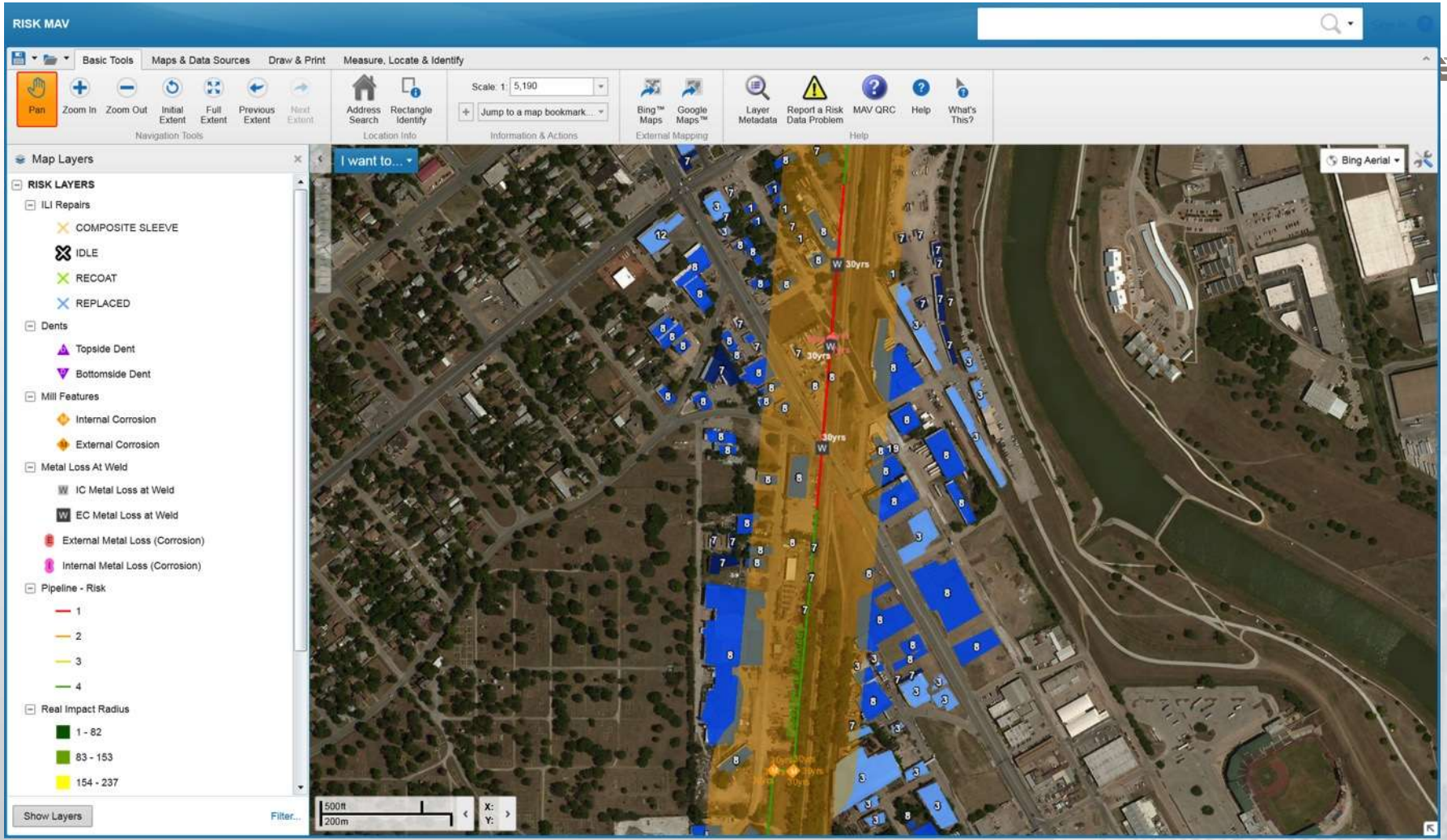


Image Source:
http://www.utc.wa.gov/publicSafety/Documents/Williams%20Presentation%20-%20ILI%20Technologies.pdf





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Data Migration at Irish Water

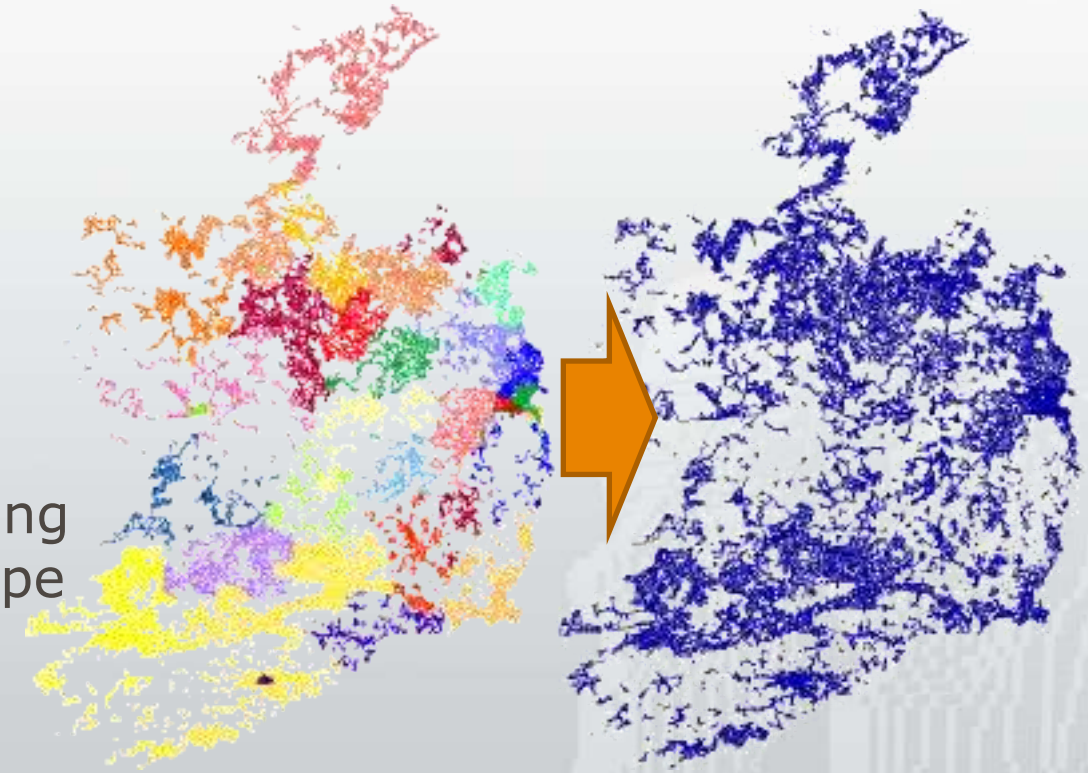
IRELAND

Patrick Daly
Irish Water

The Project

- Irish Water formed in 2013 to bring together water and wastewater services of 34 Local Authorities

- Networked data including nearly 80,000 km of pipe and hundreds of thousands of point features



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Challenges

- Source: Local authority data in CIS and MapInfo datasets
- Not in consistent formats
- 30+ variants in format and schema

Water Below Ground

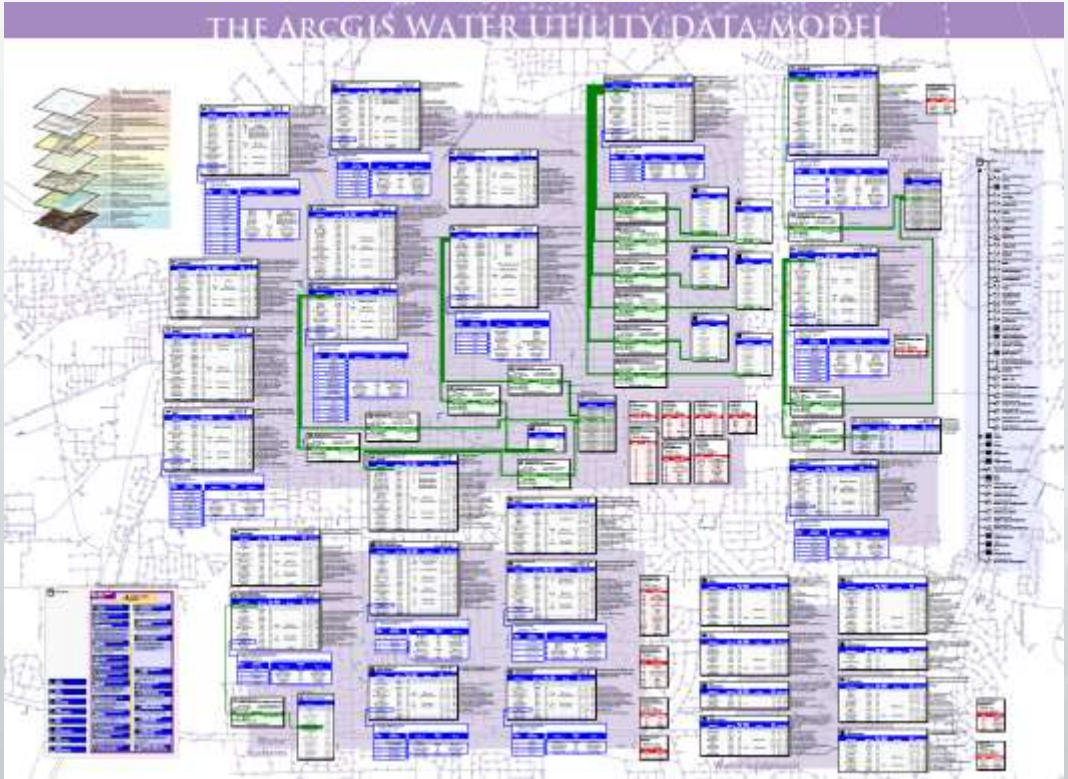
Selected Feature Class	Feature Count	Length /km
Air Valve	34,479	
Fittings	493,798	
Flow Control Valves	2,932	
Hydrants	148,451	
Network Meters	28,221	
System Valves	229,623	
Laterals (Service/Comms)	307,003	6,293
Water Mains (of which 6,055Km Private)	713,390	61,183

Waste & Surface Below Gorund

Selected Feature Class	Feature Count	Length /km
Combined & Foul Sewer	248,525	10,539
Surface Water Sewer	113,952	4,246
Combined & Foul Manholes	253,642	
Surface Water Manholes	102,543	

Solving with FME

- Destination: complex ArcGIS Water Utility Data Model
- 30+ sets of workspaces for normalization and migration
- 15 hours processing time



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Destination: IW Enterprise GIS

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Irish Water

We completed this project in 9 weeks using FME, migrating almost 80,000 km of Water & Waste Water Network data. This scale of project with this timeline would not be achievable without FME.

Patrick Daly, *Asset Register & Data Aggregation Specialist*
Irish Water

Irish Water GIS Migration Team
Kelly Brady – GIS Analyst North West
Sean Minogue – GIS Analyst East/Midlands
Sandra Nestor - GIS Analyst East/Midlands
Rónán O'Shea – GIS Analyst South
Mark Healy – Reporting & Information Analyst