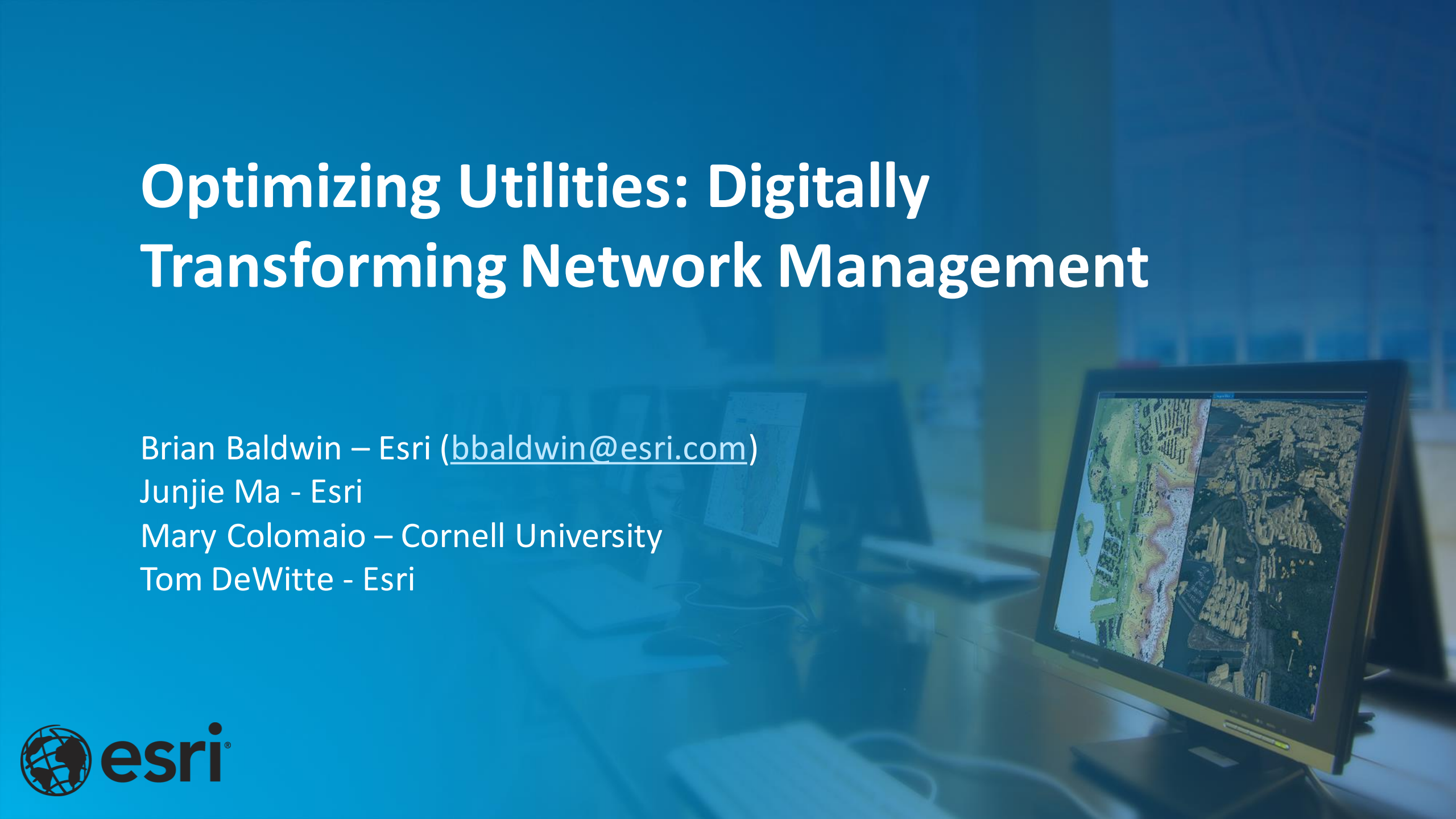
Optimizing Utilities: Digitally Transforming Network Management

Brian Baldwin – Esri (bbaldwin@esri.com)
Junjie Ma - Esri
Mary Colomaio – Cornell University
Tom DeWitte - Esri



Webinar Housekeeping

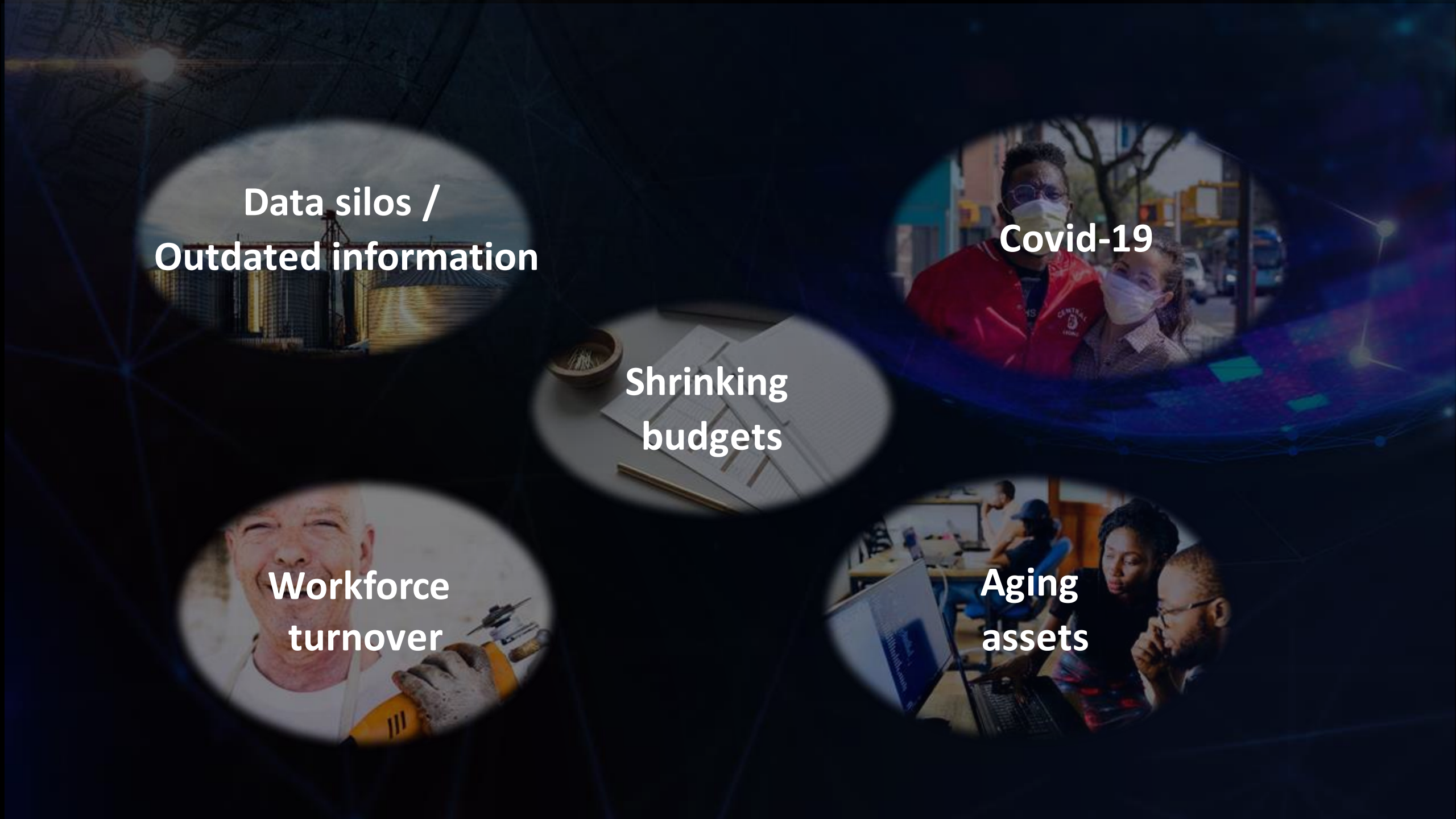
- Please enter your questions in the chat box
- Microphones will be muted
- Q&A session at the conclusion of the webinar
- Webinar & slides will be available
- Survey following the webinar

Welcome to the ‘Campus Operations’ webinar series!

- Webinar 1 (September 16 at 10 AM PT)— Getting Started: Building Your Spatial Foundation
- Webinar 2 (October 7 at 10 AM PT) - Bringing GIS Indoors: Space Planning and Optimization
- Webinar 3 (October 28 at 10 AM PT) - Building a Mobile Workforce: Getting Decision Support into the Field
- **Webinar 4 (November 18 at 10 AM PT) - Optimizing Utilities: Digitally Transforming Network Management**

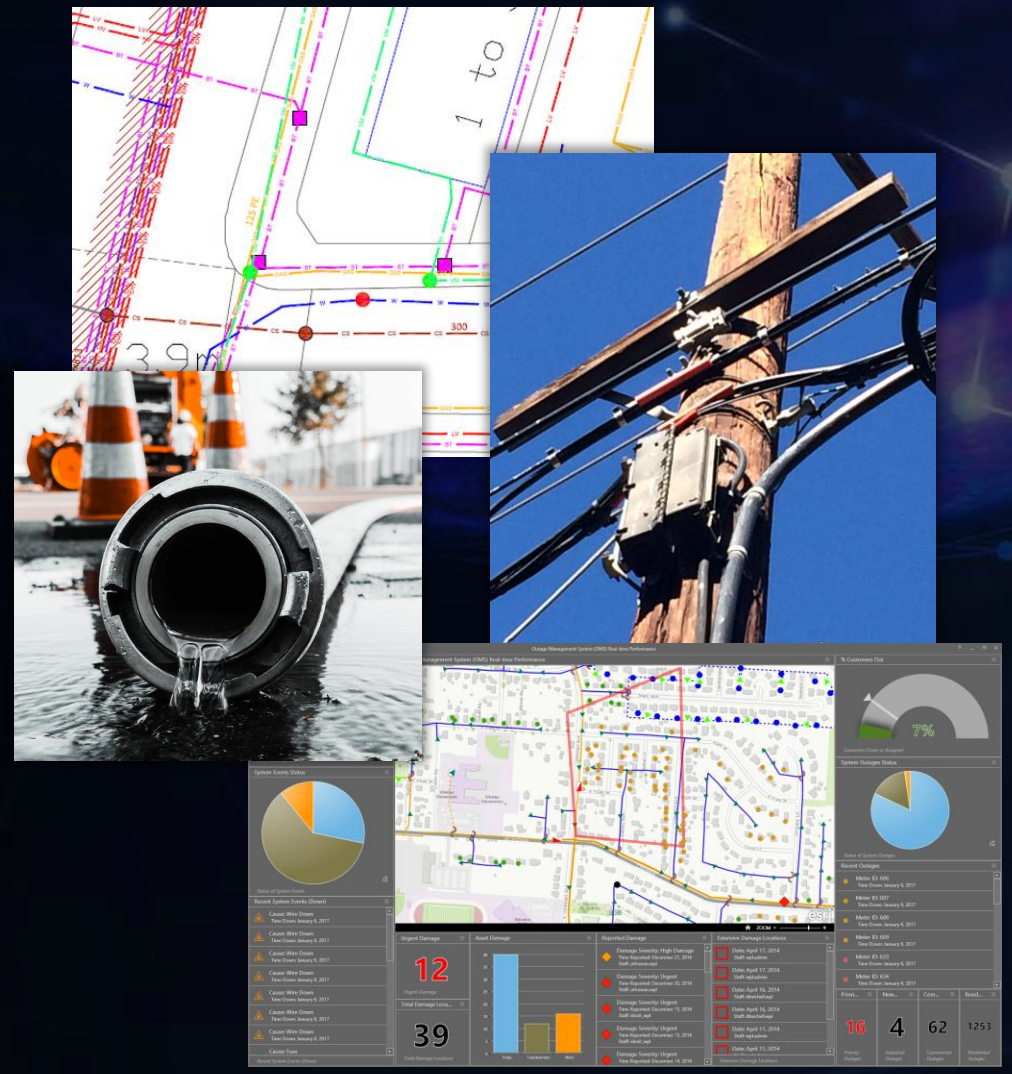
Optimizing Utilities - Outline

- Network Management with GIS
- Fiber Management (demonstration)
- Mary Colomaio – Cornell University
- District Heating & Cooling with the Utility Network (demonstration)
- Resources
- Q&A


Data silos /
Outdated information
Covid-19
Shrinking
budgets
Workforce
turnover
Aging
assets

GIS for Campus Utilities

- Where are my assets?
- How old are these pipes/valves?
- Where are unsafe conditions?
- Where is water loss occurring?
- Active construction/projects?
- Real-time voltage?

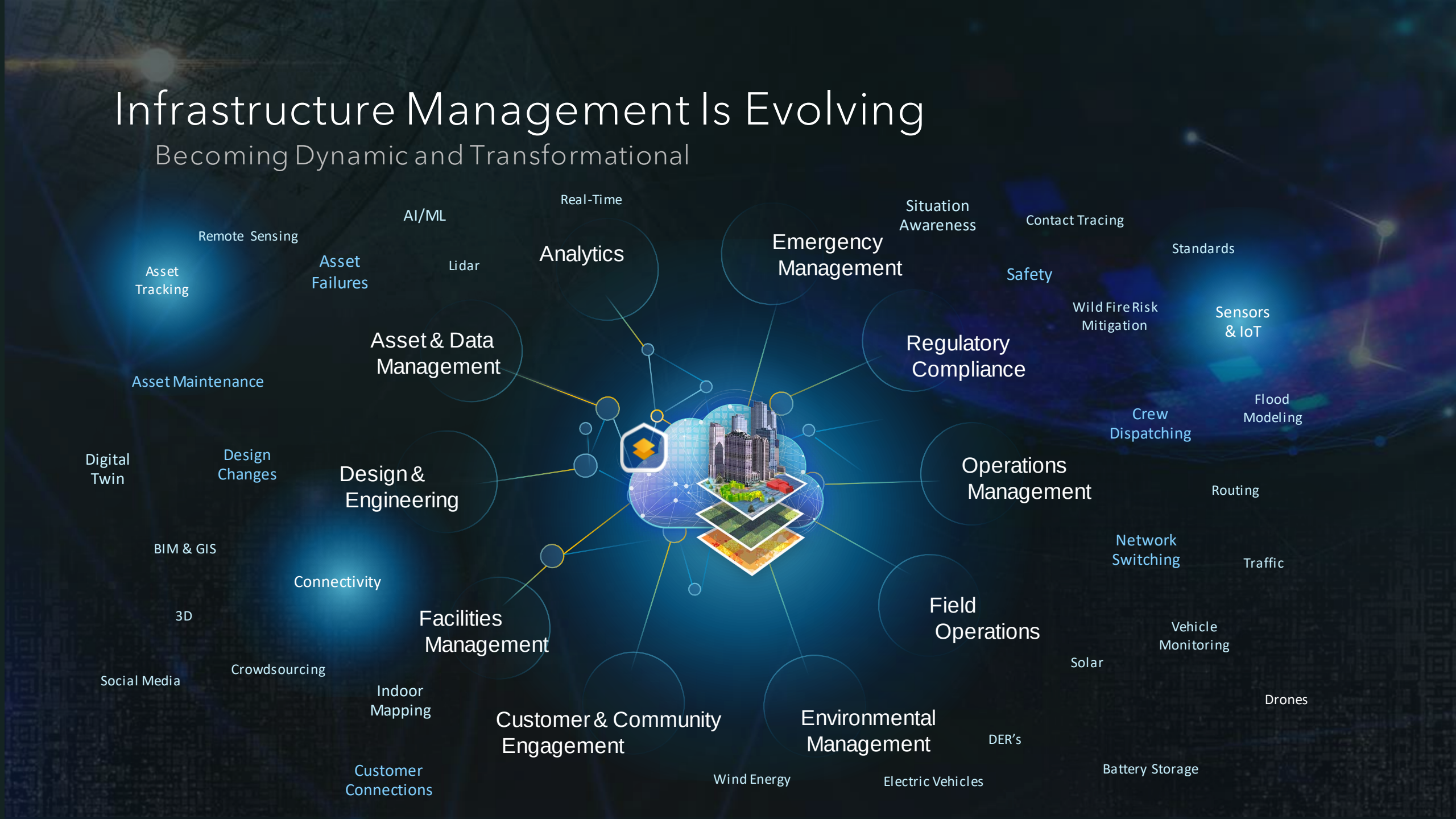


Geospatial Infrastructure

Empowering All Types & Aspects of Infrastructure Management

Infrastructure Management Is Evolving

Becoming Dynamic and Transformational



Network Management: 1-2-3

1. Data Management for ArcGIS Online
2. Utility Network (FGDB)
3. Utility Network (Enterprise)

Junjie Ma

Esri

Network Management: 1-2-3

1. **Data Management for ArcGIS Online**

- Data Model
- Editing Tools

Network Modeling

- Hosted
- Web and Mobile
- Reports

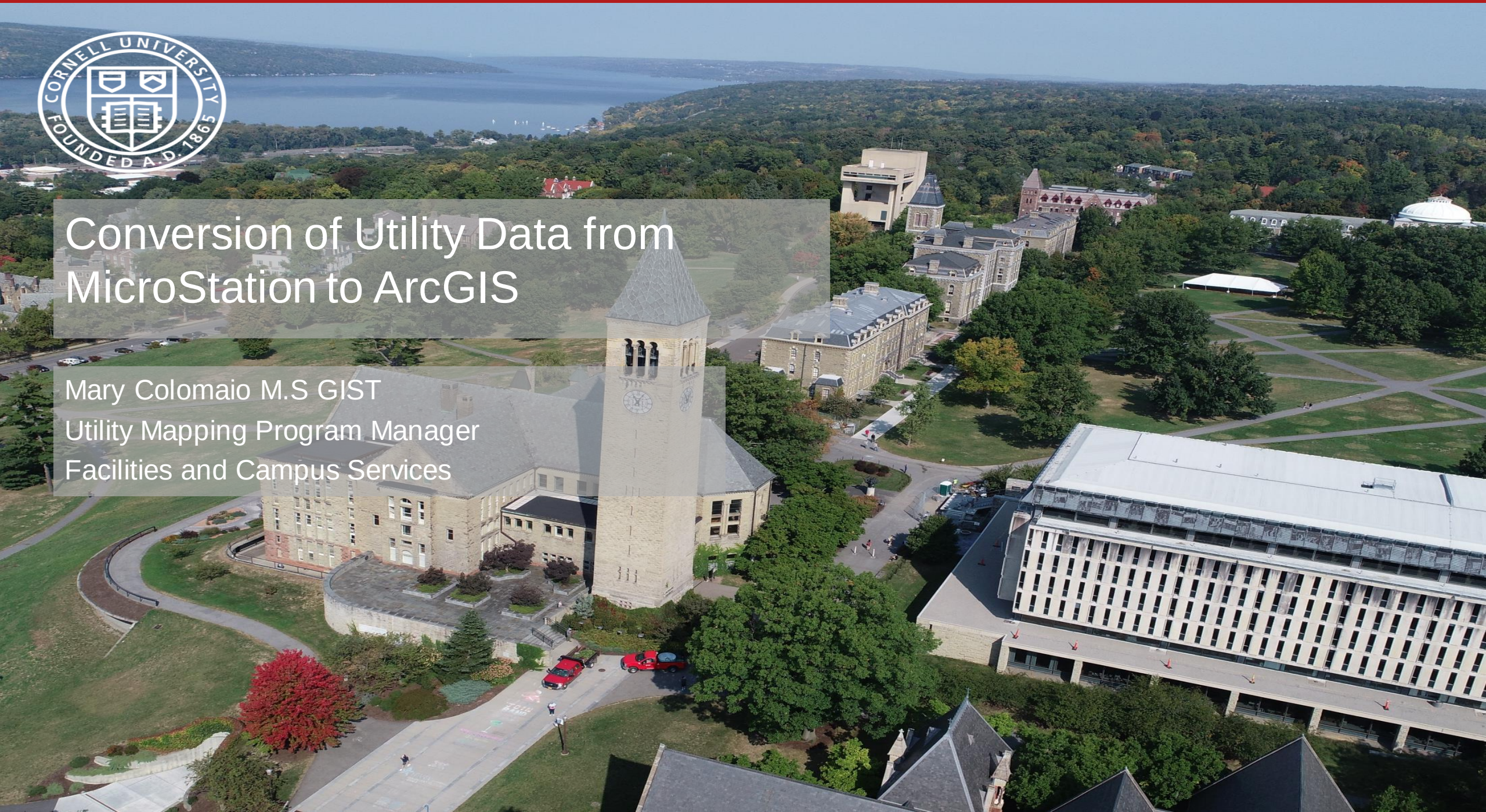
Visualization and Analysis

- Access and Roles
- Services Based

Architecture & Security

Mary Colomaio

Cornell University



Conversion of Utility Data from MicroStation to ArcGIS

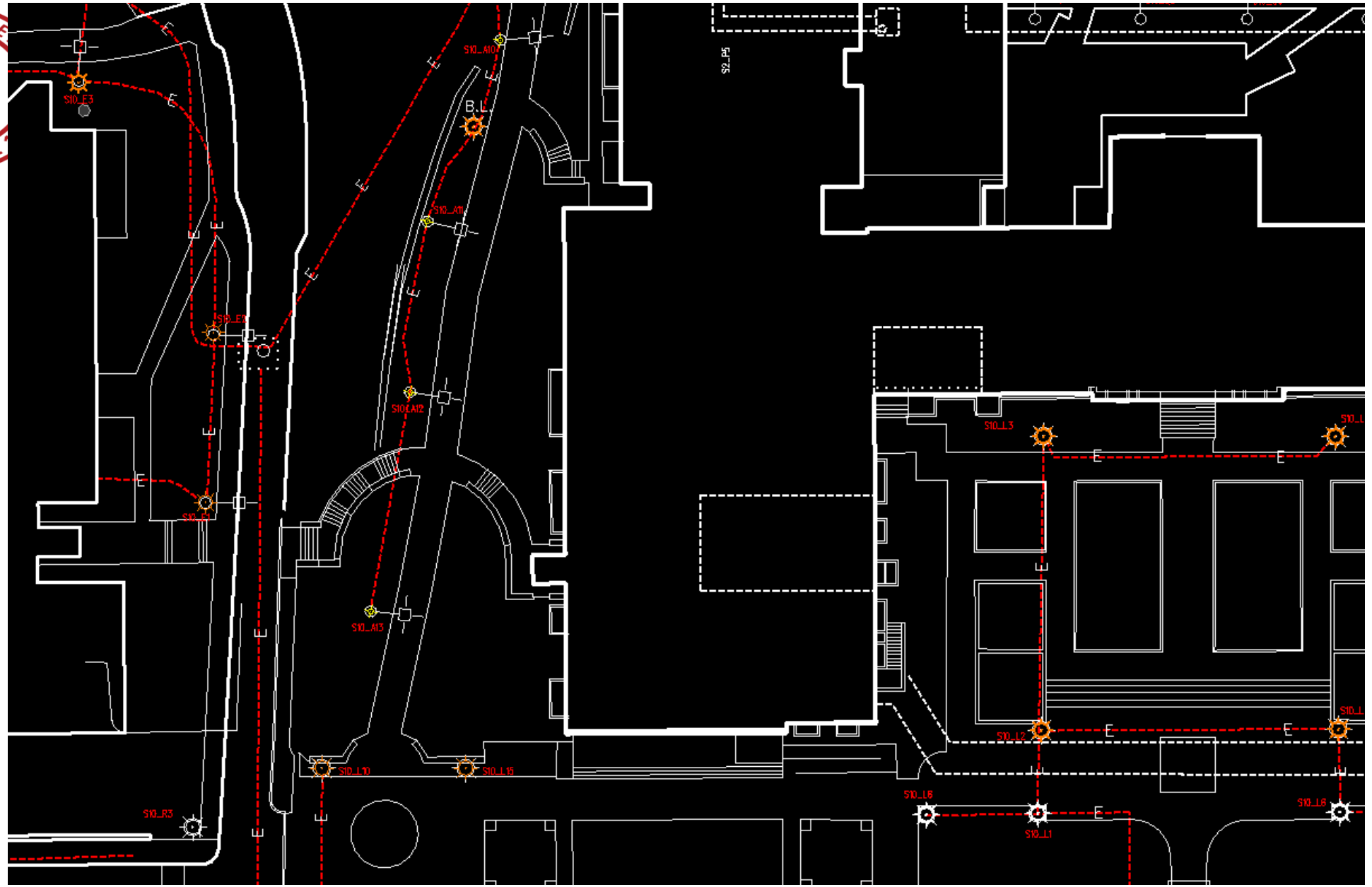
Mary Colomaio M.S GIST
Utility Mapping Program Manager
Facilities and Campus Services

Why?

- Cornell as 12 distinct utility networks
  - Each utility has associated information and books
  - Data lives mainly in Excel
  - Not currently accessible in the map

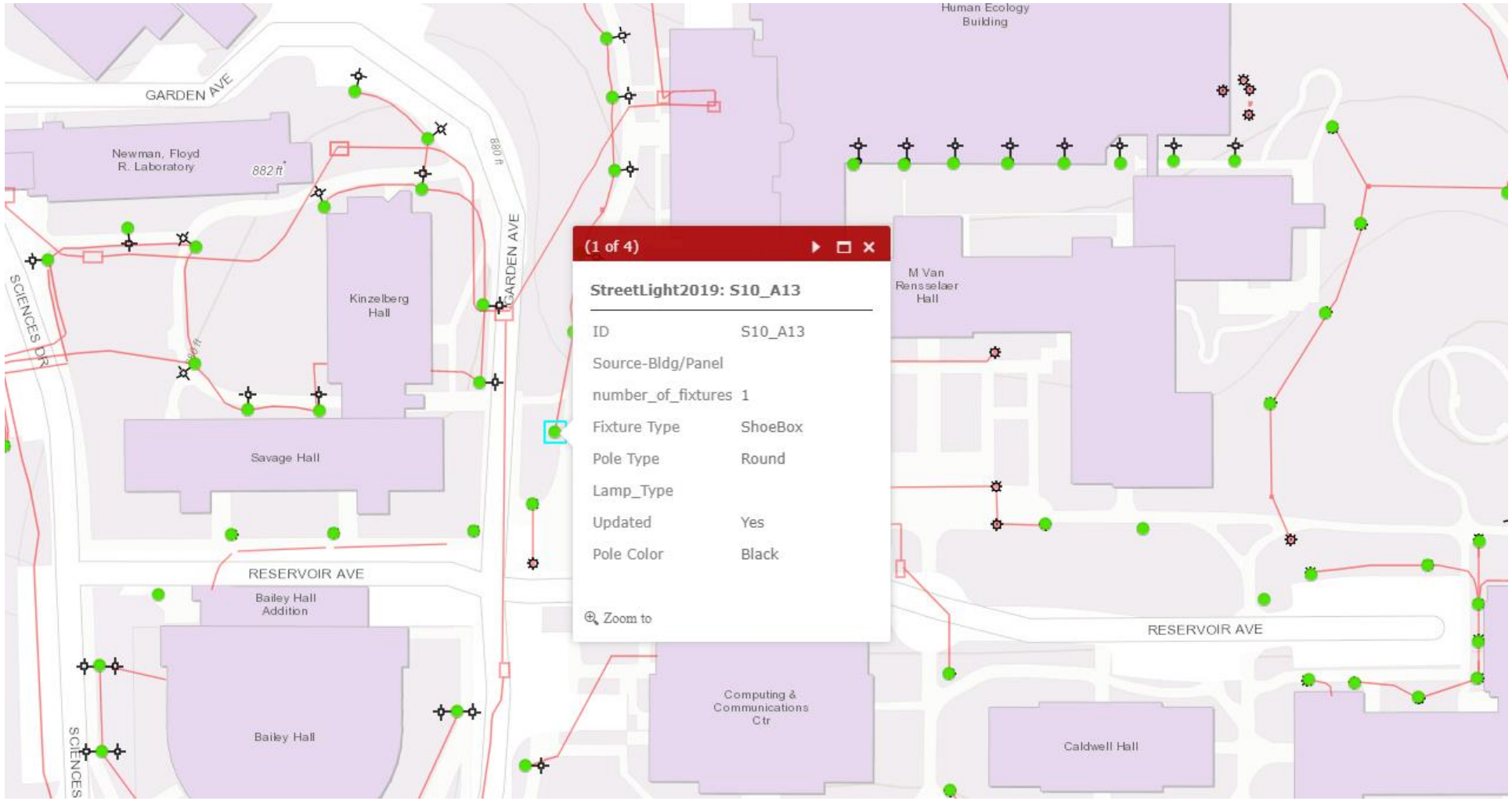
Bentley MicroStation

- CAD software platform primarily used for drafting and 2D/3D design
  - Architects and engineers are typical users
  - Some utilities use MicroStation to design and map assets
  - Cornell Facilities Engineering currently uses MicroStation for utility asset management


S10_E3
S10_A10
B.L.
S10_A11
S10_E2
S10_A12
S10_E1
S10_A13
S10_L10
S10_L15
S10_R3
S10_L3
S10_L2
S10_L1
S10_L8

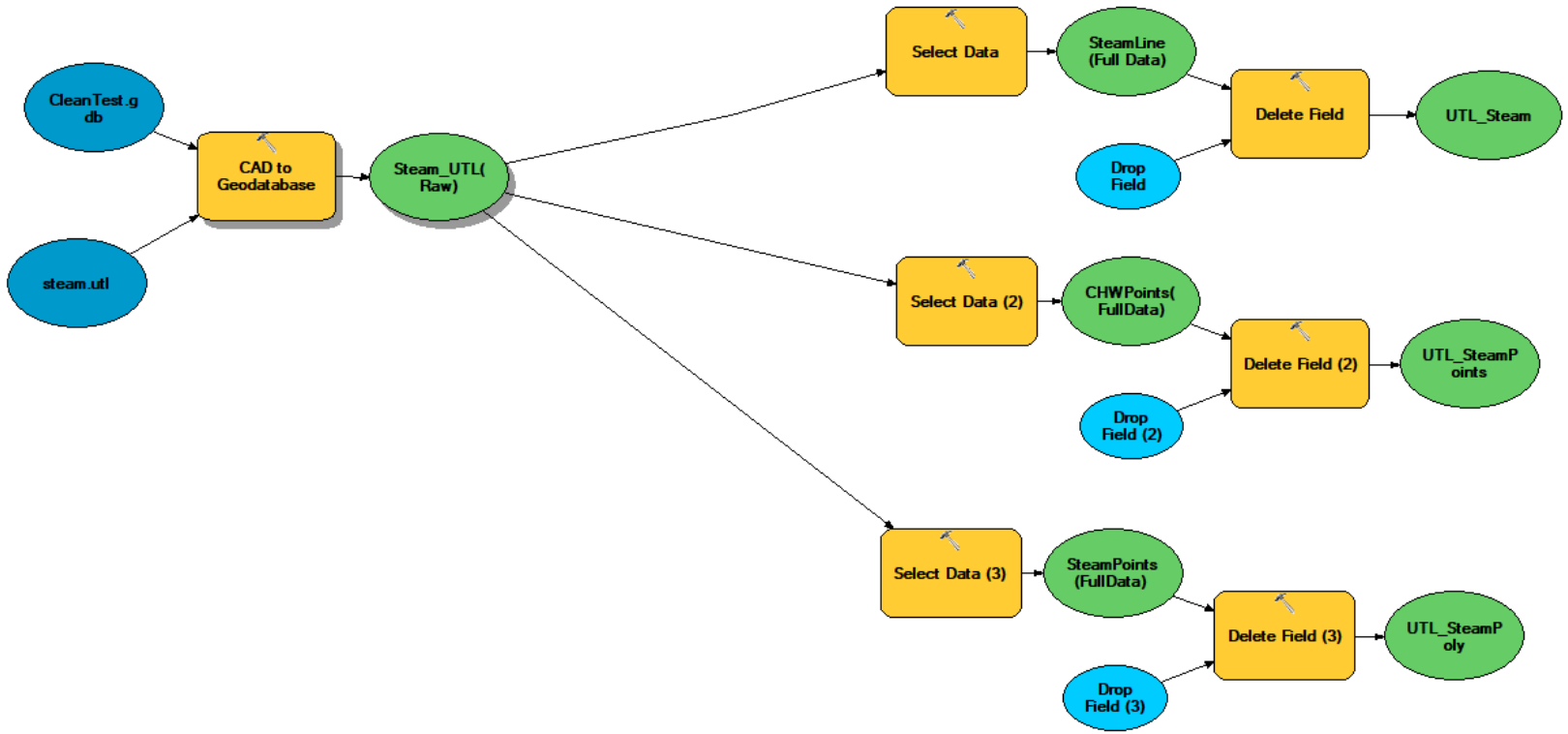
Esri ArcGIS Enterprise

- GIS software products used across numerous industries including utility management
- Facilities and Campus Services already has departments that utilize the full spectrum of Esri Products


Human Ecology Building
GARDEN AVE
Newman, Floyd R. Laboratory
882 ft
Kinzelberg Hall
SCIENCES DR
Savage Hall
RESERVOIR AVE
Bailey Hall Addition
Bailey Hall
SCIENCES
(1 of 4)
StreetLight2019: S10_A13
ID S10_A13
Source-Bldg/Panel
number_of_fixtures 1
Fixture Type ShoeBox
Pole Type Round
Lamp_Type
Updated Yes
Pole Color Black
Zoom to
M Van Rensselaer Hall
RESERVOIR AVE
Computing & Communications Ctr
Caldwell Hall

How?

- Data Inventory
- Development of Enterprise Database(s)
- QA/QC of Data
- Model Builder Processing


CleanTest.gdb
steam.utl
CAD to Geodatabase
Steam_UTL(Raw)
Select Data
SteamLine (Full Data)
Drop Field
Delete Field
UTL_Steam
Select Data (2)
CHWPoints(FullData)
Drop Field (2)
Delete Field (2)
UTL_SteamPoints
Select Data (3)
SteamPoints (FullData)
Drop Field (3)
Delete Field (3)
UTL_SteamPoly

Thank You!

Mary Colomaio
Utility Mapping Program Manager
201 Humphreys Service Building
Ithaca, NY 14853

T. 607-255-6646
E.mcc298@cornell.edu

Tom DeWitte

Esri

Network Management: 1-2-3

1. Data Management for ArcGIS Online
2. **Utility Network (FGDB)**
3. **Utility Network (Enterprise)**

- Structure Networks
- Domain Networks
- Terminals
- Network Tiers
- Sub Networks
- Asset Types and Groups

Advanced Network Modeling

- Containments
- Tracing
- Diagrams

Visualization and Analysis

- Access and Roles
- Services Based

Architecture & Security

Water
Electric
Gas
Telecom
District Heating

. . . Foundations of a Modern GIS

Network Management: 1-2-3

1. **Data Management for ArcGIS Online**
    1. Base data model, web & mobile visualization, and editing
2. **Utility Network (FGDB)**
    1. Network connectivity, single-user desktop
3. **Utility Network (Enterprise)**
    1. Network connectivity, multi-user, web & mobile

Key Takeaways

- Where? What?
  - Mobile/Web access
- Asking questions of the data
- Network Management ‘1-2-3’

Resources

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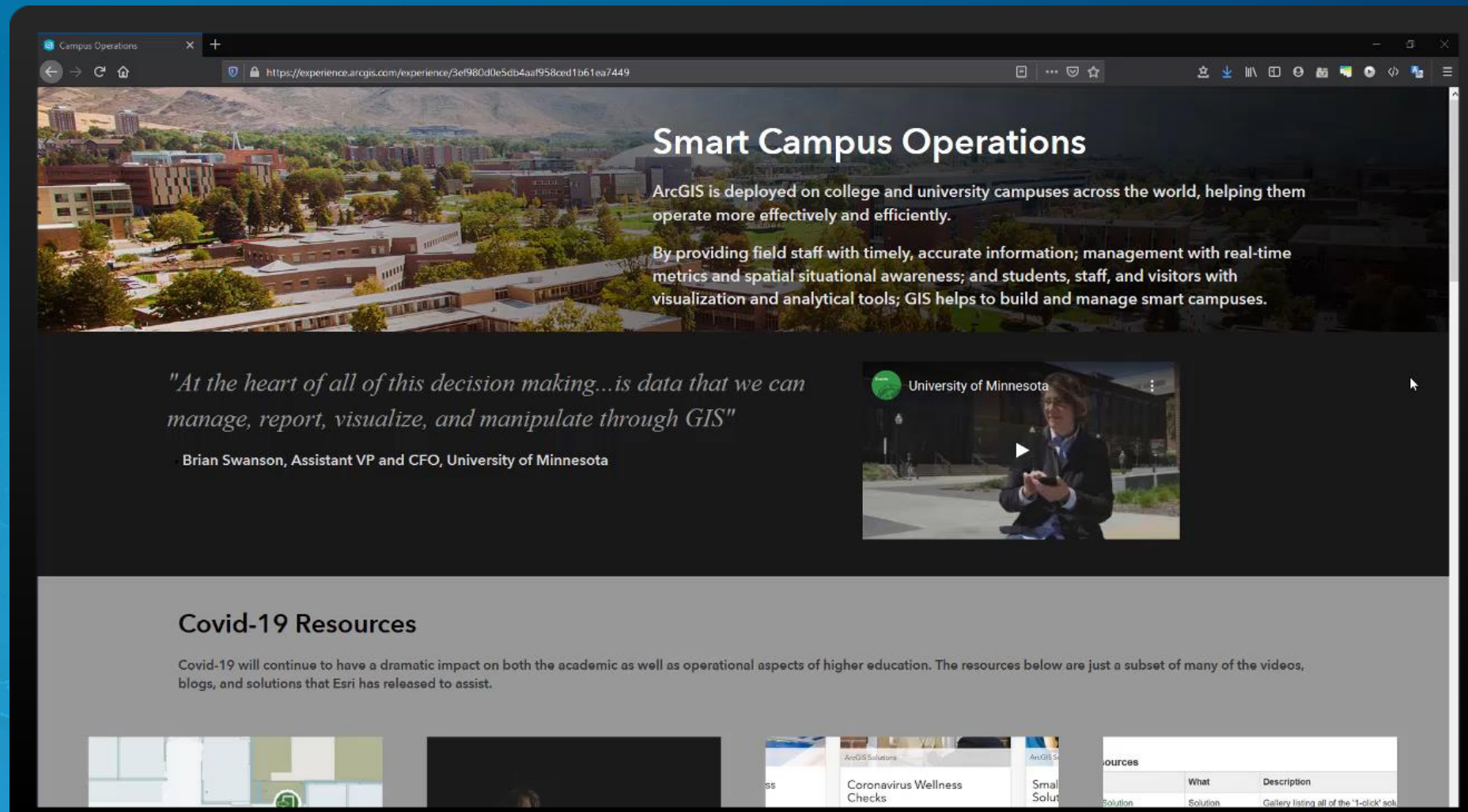
Campus Operations
https://experience.arcgis.com/experience/3ef980d0e5db4aaf958cad1b61ea7449
Smart Campus Operations
ArcGIS is deployed on college and university campuses across the world, helping them operate more effectively and efficiently.
By providing field staff with timely, accurate information; management with real-time metrics and spatial situational awareness; and students, staff, and visitors with visualization and analytical tools; GIS helps to build and manage smart campuses.
"At the heart of all of this decision making...is data that we can manage, report, visualize, and manipulate through GIS"
Brian Swanson, Assistant VP and CFO, University of Minnesota
University of Minnesota
Covid-19 Resources
Covid-19 will continue to have a dramatic impact on both the academic as well as operational aspects of higher education. The resources below are just a subset of many of the videos, blogs, and solutions that Esri has released to assist.
Coronavirus Wellness Checks
What
Description

Actions

- Contact account managers
  - Where do I start?
    - Data quality? Migration? Utility Network vs. Network Management for ArcGIS Online?
  - What's my licensing?
- Survey
  - Have Esri rep. contact you (me)
- Questions/Issues:
  - Brian Baldwin – bbaldwin@esri.com
- Resource pages/links

Thanks so much!

Q&A

esri | THE SCIENCE OF WHERE