

Getting Started: Building Your Spatial Foundation

Brian Baldwin - Esri (bbaldwin@esri.com)

Ken Kato - University of Oregon

Adam Lawver - Michigan State University

Webinar Housekeeping

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



Welcome to the 'Campus Operations' webinar series!

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



Goals for the series

- **GIS is more than maps**
- **Build community**
- **Share best practices**
- **Highlight the value of 'enterprise' GIS**
- **Configuration vs. customization**



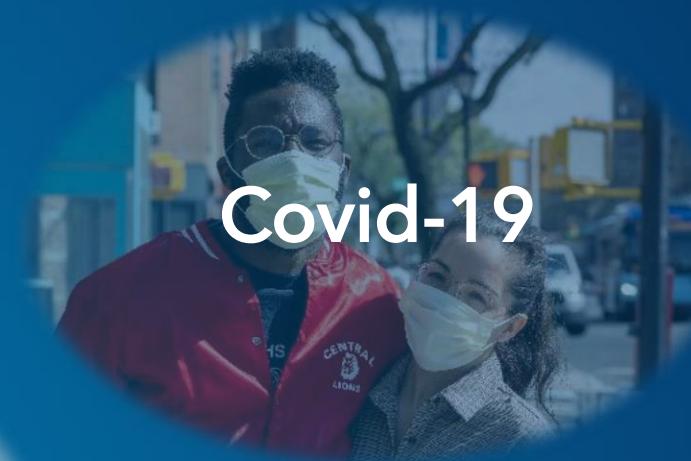
Getting Started: Building your Foundation - Outline

- Why GIS?: Building a Geospatial Strategy
- Michigan State - Adam Lawver
- University of Oregon - Ken Kato
- Resources
- Q&A





Workforce
turnover



Covid-19



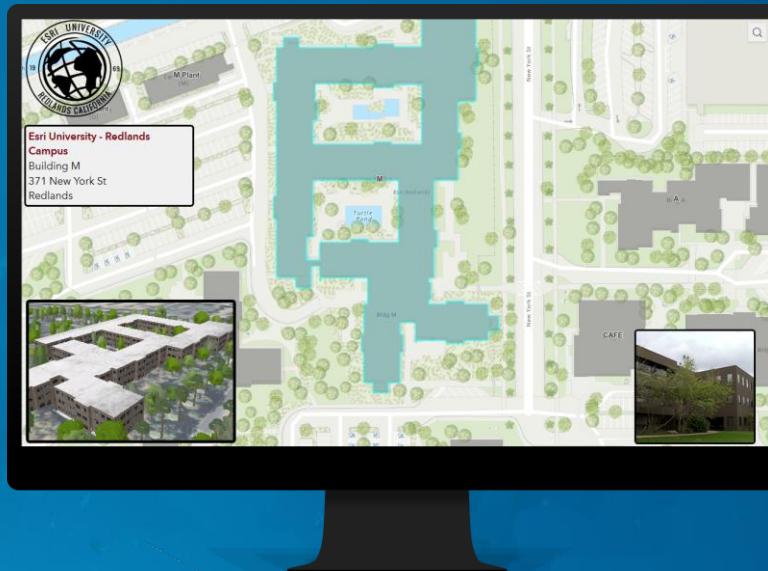
Shrinking
budgets



Data silos

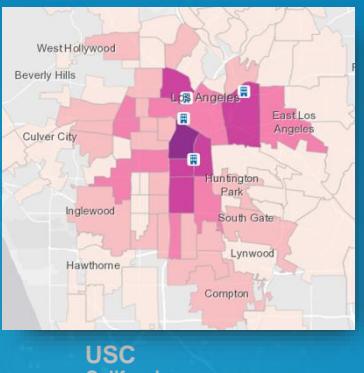


Hiring/retaining
talent



GIS today

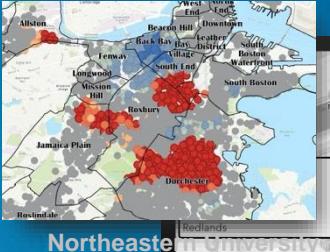
Racial and Ethnic Disparities



Water Management



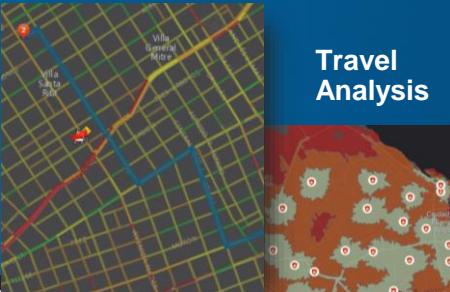
Hot Spot Patterns



Tree Inventory



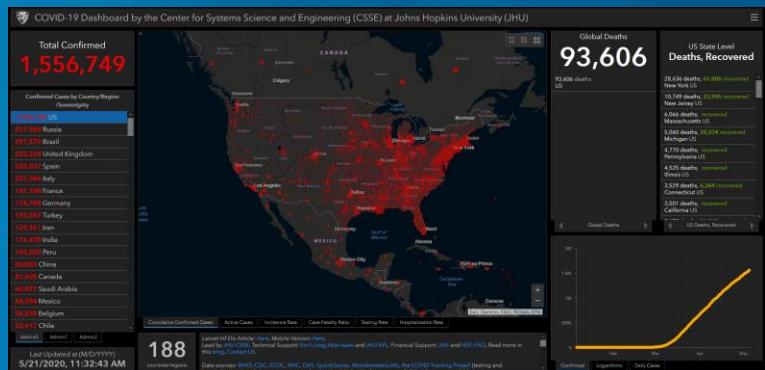
Emergency Routing



Travel Analysis



COVID-19 JHU Dashboard



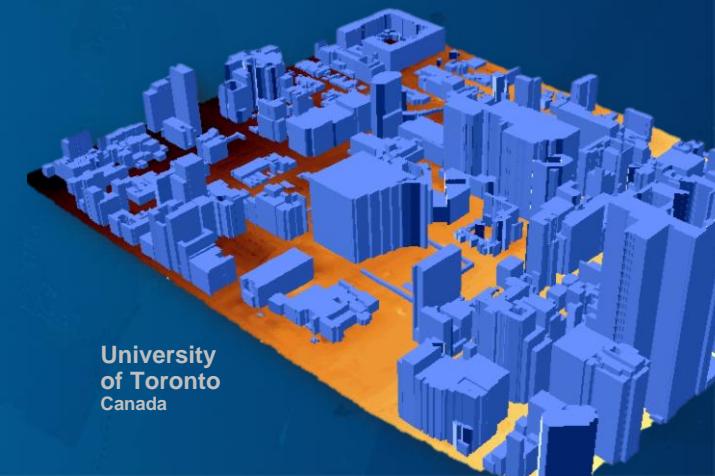
3D Maps



Sidewalk Ramp Status



Campus Visualization



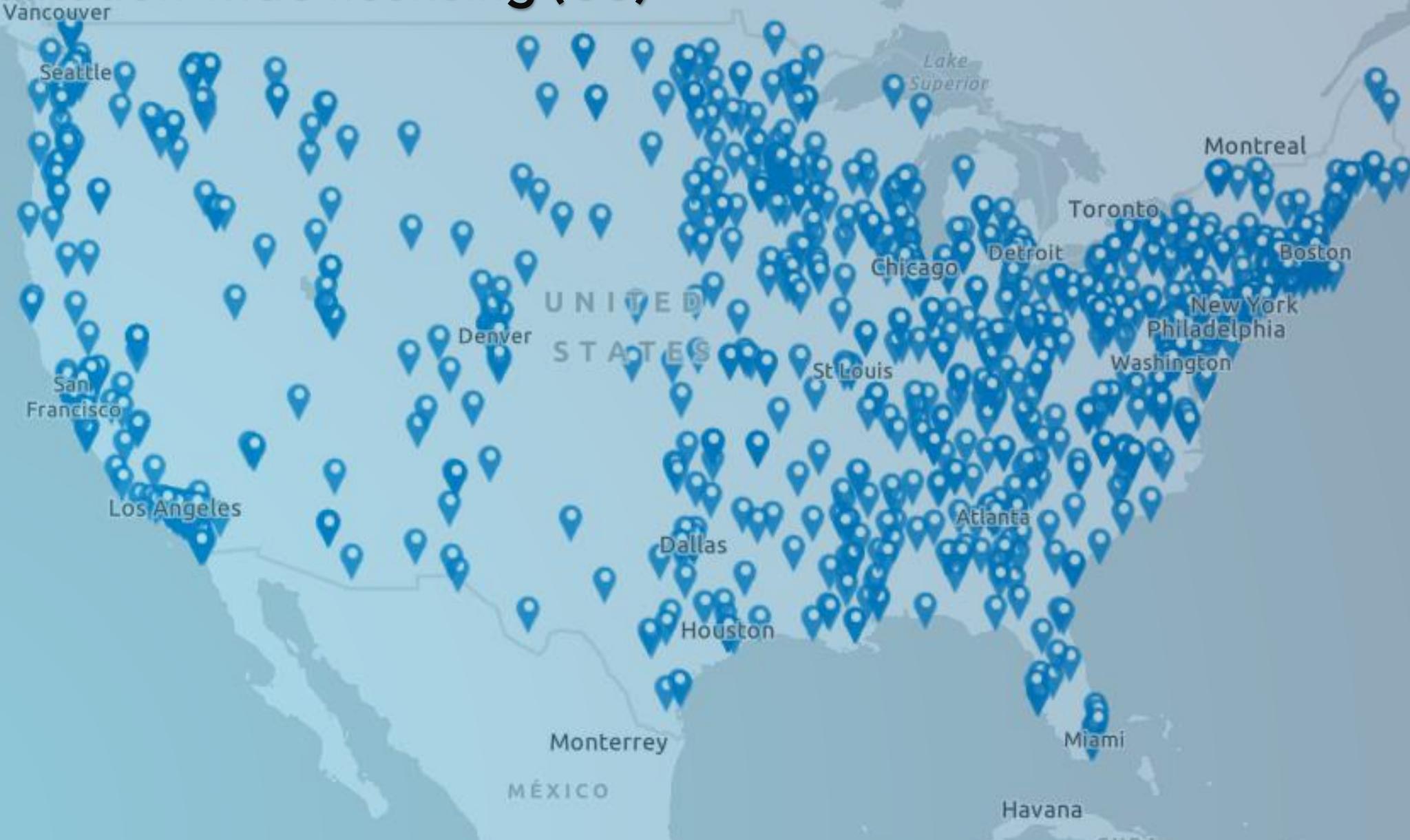
University
of Toronto
Canada

Geospatial Infrastructure Is Transforming Campus Operations

Integrating and Leveraging Many Technologies



Institution wide licensing (US)





Do you have a Geospatial
Strategy?

A **Geospatial Strategy** is a business-oriented plan that defines how a university will use GIS to achieve its goals and desired outcomes.

The plan includes considerations of people, process, and technology needed to meet goals and overcome challenges.

Developing & Executing a Geospatial Strategy

The Esri Method

Understand



Plan



Revisit

Act

1 Prepare



2 Implement



4 Review



3 Operate



...Maximize Impact

Prioritization





"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**

Adam Lawver

Michigan State University



Michigan State University: Seeing Challenges as Opportunity

Esri Getting Started: Building Your Spatial Foundation

Adam Lawver, Director of Campus Services, Infrastructure Planning and Facilities



INFRASTRUCTURE PLANNING
AND FACILITIES

Michigan State University

Top 100 Global University

Leading research institution (\$700M)

50,000 students

5400 acres of land

17 degree granting colleges

24M square feet of space



Infrastructure Planning and Facilities

Infrastructure Planning and Facilities (IPF) is responsible for **planning, building, maintaining, energizing, and beautifying** the physical campus of Michigan State University.

Purpose

We deliver services and facilities that help Spartans change the world.

We value our people, our partners, and stewardship of our resources.

Operations

We manage all facets of facilities and campus park

+

Power plant and well system

+

Capital Construction

People

We employ approximately 1,300 employees (full time, part time, & student)



Learning to work smart(er)

- Problems appear in loops. What stage of maturity is your business?
- Individual technologies to create cost or energy savings
- Exploration of operational technologies including augmentation
- How do you create a portfolio of innovation best practices – across your organization? Innovation breeds more innovation.
- The payback may not always be favorable – but any idea will create loops of learning through educated risk

A Silo Mentality

Infrastructure Planning & Facilities

Operational efficiency
Building Automation
Mobile Robotics
Transportation on demand
Utility master plan

MSU IT Services

Network
Cybersecurity
Data and analytics
WiFi
Fiber
Cellular
GIS

MSU Police

Safety Awareness
Enforcement
Traffic Management

Senior Administration

Positioning MSU as a leader
V2X
Mobility Initiative
Energy Initiatives

Academic and Socio-mobility Research

Engineering research
Social, economic, and policy research
Sustainability research

Private-Public Partnerships

MSU Innovation Center
Coordination with industry partners to explore social implications and advance technology

|||||||



How many organizational habits were formed before an evidence- based approach?

||||||

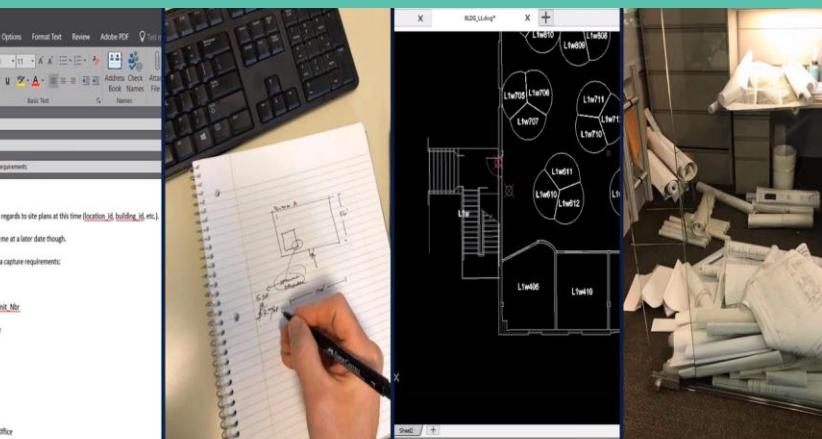


The Business Case



'Bet on Everyone'

Equipping the 21st century workforce with access to information at the point of decision-making.



Interoperability of Facilities Information to Improve Workforce Efficiency

\$0.33/SF per Year



Mobile Robotics & Operational Dashboards

Machines complementing Humans



INFRASTRUCTURE PLANNING
AND FACILITIES

Bet on Everyone

3-30-300 Rule

FY17-18 76,298 WO's

FY18-19 89,822 WO's

FY19-20 108,346 WO's

(8 months in....)

15% more volume 18-19

17% more volume 19-20

Same FTE count....

Increased Access

at the point of decision making



468 ▶ 1,276

Apple mobile devices



2 ▶ 20

Mobile applications



WHO WILL?
SPARTANS WILL.



Reduced Expenses

while promoting interaction among team members



-\$24,500

Thin client hardware reduction



-\$4,320

Per year saved by eliminating office phones



-\$3,888

Per year saved with hot spots



-\$7,051

Per year saved for phone plans



-\$70,000

Per year saved with annual radio service



-\$654,000

Radio hardware reduction

-\$763,759

First year cost avoidance



INFRASRUCTURE PLANNING
AND FACILITIES

Improved Operational Efficiency

by increasing shared-learning and empowering the workforce



-\$100,000

By reducing cost per tree trimmed from \$129 to \$109 annually



-\$150,000

By reducing litter control costs related to collections in 2 years, while increasing volume collected by 35%



-\$60,000

By eliminating payroll errors annually



+ 581 ▶ 1276

By increasing communication devices and deploying emergency messaging software



- 1034 ▶ 53

By streamlining capital project asset collection eliminating 981 days per project



Infrastructure Planning and Facilities
MICHIGAN STATE UNIVERSITY

**Check out more of
our journey**

To watch these videos:

1. Launch the Camera app
2. Point it at the QR code
3. Tap the notification



Interoperability of Facilities Information to Improve Workforce Efficiency

\$0.33/SF
waste-in-process

Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industry

Michael P. Gallaher, Alan C. O'Connor, John L. Dettbarn, Jr., and Linda T. Gilday



<https://nvlpubs.nist.gov/nistpubs/gcr/2004/NIST.GCR.04-867.pdf>

NIST GCR 04-867



U.S. Department of Commerce
Technology Administration
National Institute of Standards and Technology

Advanced Technology Program
Information Technology and Electronics Office
Gaithersburg, Maryland 20899



esri

Welcome to  GIS Indoors
an ArcGIS Indoors Webinar


Beau Ryck
Account Executive
ArcGIS Indoors
builddynamics.com


Christian Tait
Marketing Specialist
ArcGIS Indoors
builddynamics.com


Will Isley
Product Manager
ArcGIS Indoors
willisley.com

GIS Indoors webinar March 2019



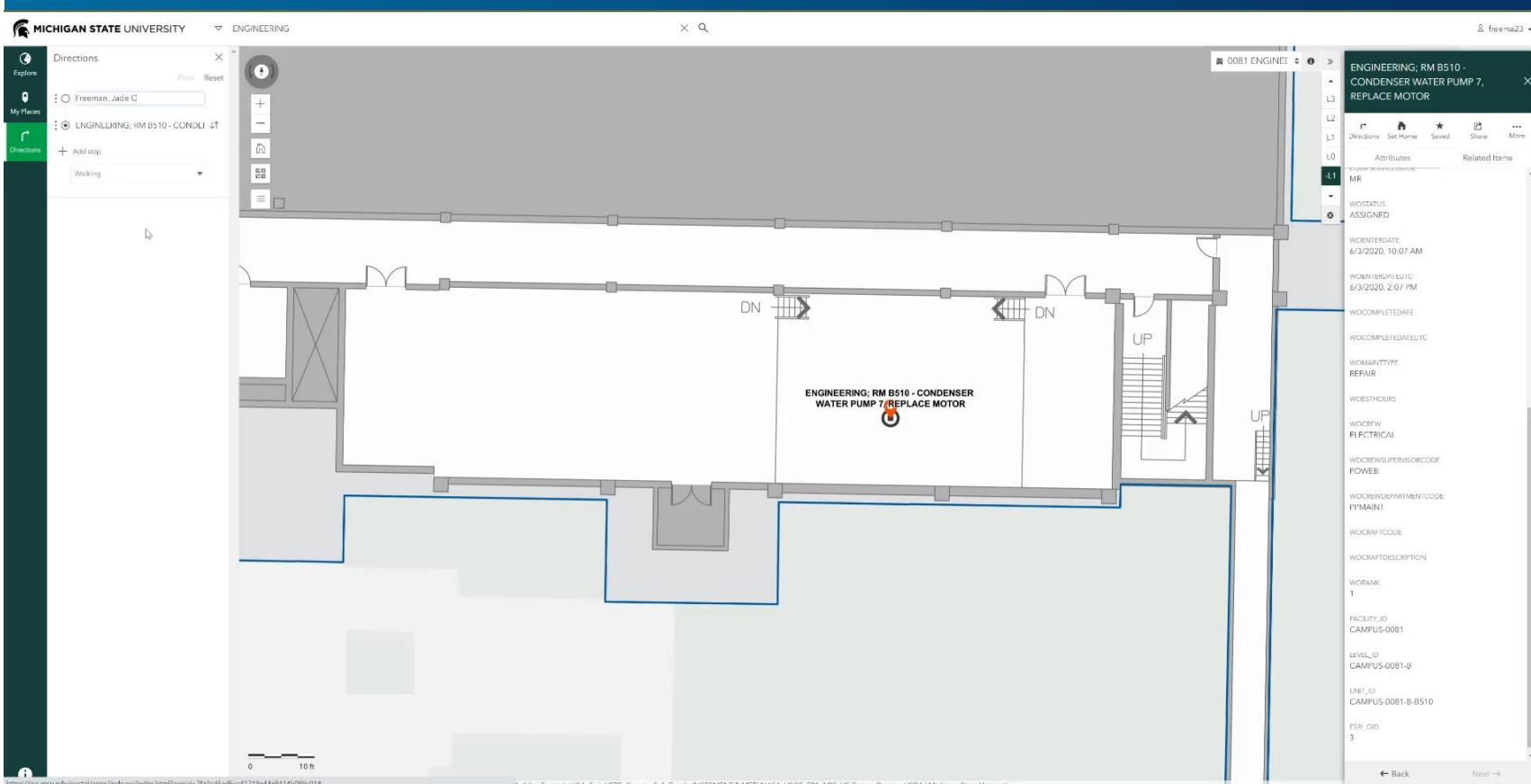
INFRASTRUCTURE PLANNING
AND FACILITIES

Workforce Routing through Integration of IWMS and Assets

24,000,000 GSF

\$0.33/SF waste-in-process

\$7.9 million annually



Asset

Location

IWMS

O&M Documents

Condition

Facility Condition Assessment



INFRASTRUCTURE PLANNING
AND FACILITIES

Mobile Robotics

Autonomous Vehicle
Industry & Mobile Robotics
Industry

Fleet of Mobile Robotics

“Up-Skill” workforce to
reallocates to tasks
currently not being done.



INFRASTRUCTURE PLANNING
AND FACILITIES

Operational Dashboards

Trust and buy-in through public display of outputs

Connection to mission and purpose....every day.

Pride and wins for teams



INFRASTRUCTURE PLANNING
AND FACILITIES

The ROI Value Proposition

Monetary return
or savings

Faculty/student/
staff recruitment
and retention

Staying relevant
– core to the
mission

Long term
sustainability

Advancing
research (living
laboratory)

Student
outcomes



The Opportunity



Ken Kato

University of Oregon



Key Takeaways

- 'Spatial glue'
- Build a geospatial strategy for your organization
- Agile approach
- Review where 'GIS' currently resides at your institution
- Operational awareness



Resources

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Campus Operations

https://experience.arcgis.com/experience/3ef980d0e5db4aa958ced1b61ea7449

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.

[View Resources](#)

Coronavirus Wellness Checks

Small Solutions

Solutions

What	Description
Solution	Gallery listing all of the "1-click" sol...

Actions

- **Contact account managers**
 - Where do I start?
 - What's my licensing?
 - How do I build a geospatial strategy?
- **Questions/Issues:**
 - Brian Baldwin – bbaldwin@esri.com
- **Resource pages/links**



Thanks so much!

Q&A

