



Location-Powered Connectivity: Building Safer, Smarter Tribal Networks

Heston Smith | Native Nations Account Manager

hestonsmith@esri.com

Thomas Warner | Solution Engineer

twarner@esri.com



2025 National Transportation in Indian Country Conference

Key Points

Get to know your Esri Native Nations Team

Transportation GIS is foundational to tribes

Quick start resource

DOI Enterprise Licensing Agreement (EA) investment in tribes

Workforce development and capacity building



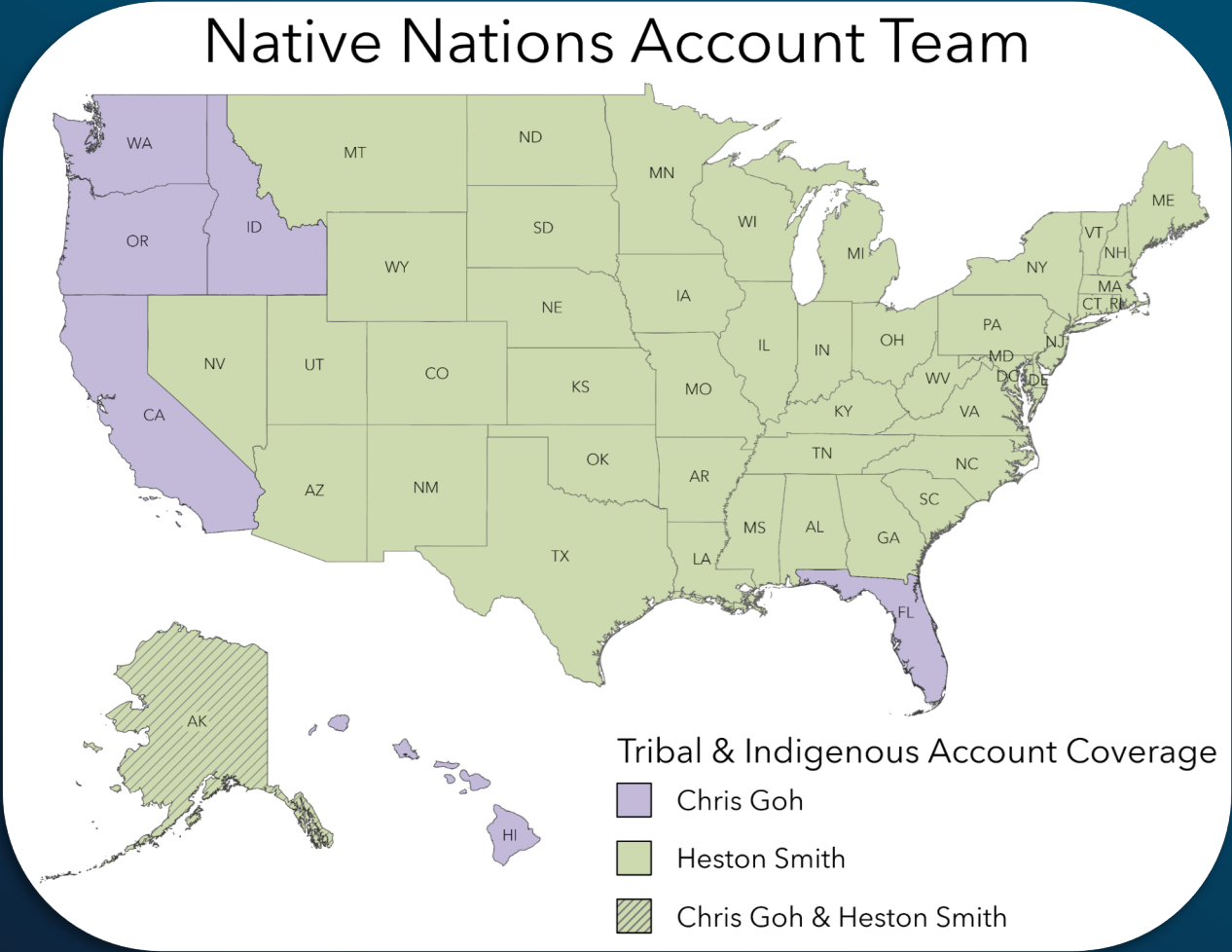
Your Esri Native Nations Team Leads - TribalGovernment@esri.com



Heston Smith
Account Manager



Chris Goh
Account Manager



Your Esri Native Nations Team - TribalGovernment@esri.com



Paulina Mnev
Solution Engineer



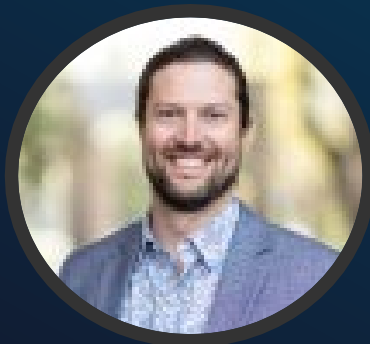
Courtney Lusk
Solution Engineer



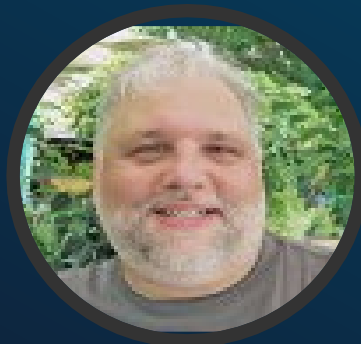
Thomas Warner
Solution Engineer



Cynthia Porter
Training Consultant



Devin Hougardy
BIA Account Manager



Peter Eredics
Professional Services

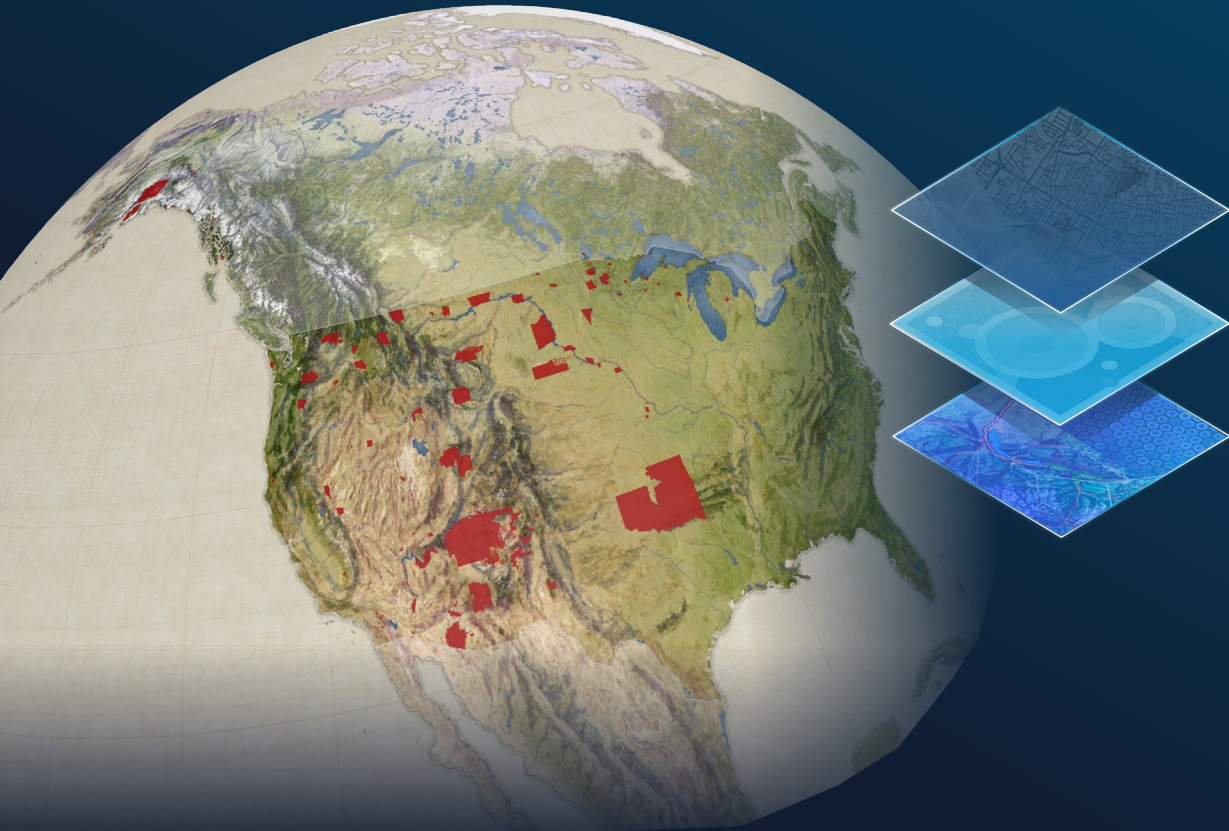


Chris Pearce
Inside Sales

Customer Service
Non-Profit
Education
Technical Support
Events & Marketing
Esri Distributors
Partner Manager
Contracts
... more...

Esri: Mapping the Future Together

Using the Science of Where to solve real-world challenges



What

When

Where

- **GIS** - turning location data into insight
- **Transforms data** into interactive maps and tools
- **Partners with Tribes** to solve real-world challenges
- **Supports locally led solutions** for sustainable, resilient futures

Geography for Indian Country



What

When

Where

- Geography reveals connections.
- **GIS** turns location into action.
- **Under Tribal governance** -your data, your control.

Tools + Partnership to Advance Tribal Priorities



What

When

Where

- ArcGIS tools:
Outcomes first.
- Flexible deployment -
You control access.
- Training and support
to build **workforce
capacity.**
- **DOI-BIA EA:** no-cost
to lower cost entry;
discounts for growth.

Over 40 Years of GIS with Tribes

Water Rights Prioritization

Utilities & Broadband

Lease & Permit Review

Climate Resilience

Suitability Planning

Impacts of Policy Changes

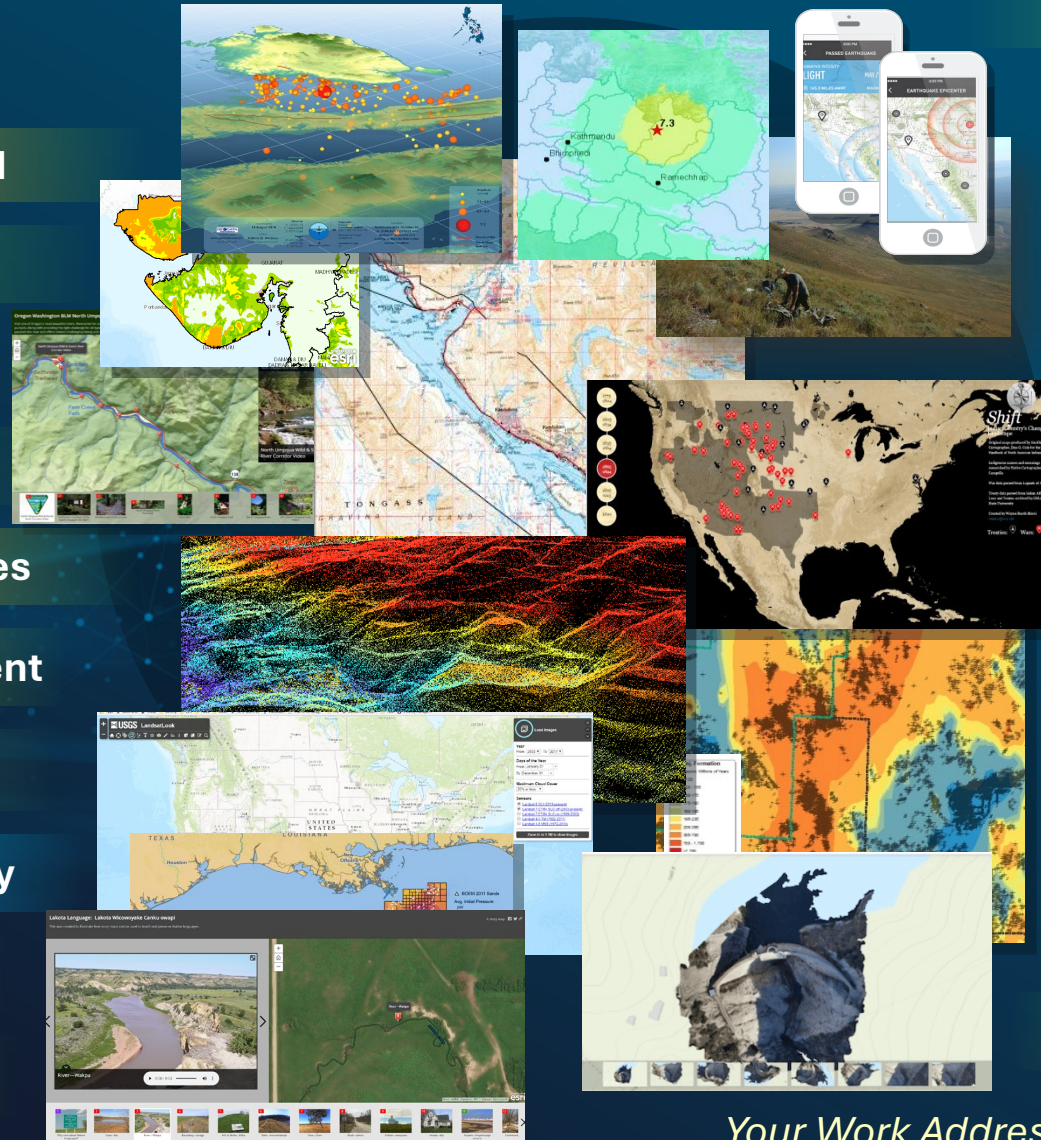
Land & Resource Management

Entertainment & Hospitality

Tribal Trust Responsibility

Education & Language

Roads & Highways



Transportation

Prioritize Disaster Response

Citizen Engagement

Enterprise IT Integrations

Cultural Preservation

Infrastructure & Urban Planning

Imagery Collection & Management

Wildland Fire Management

State and Federal Collaboration

Powwow Experience

Health & Safety, Security

Your Work Addresses some of the greatest challenges. . .

Esri Native Nations Summit



2023 Native Nations Summit

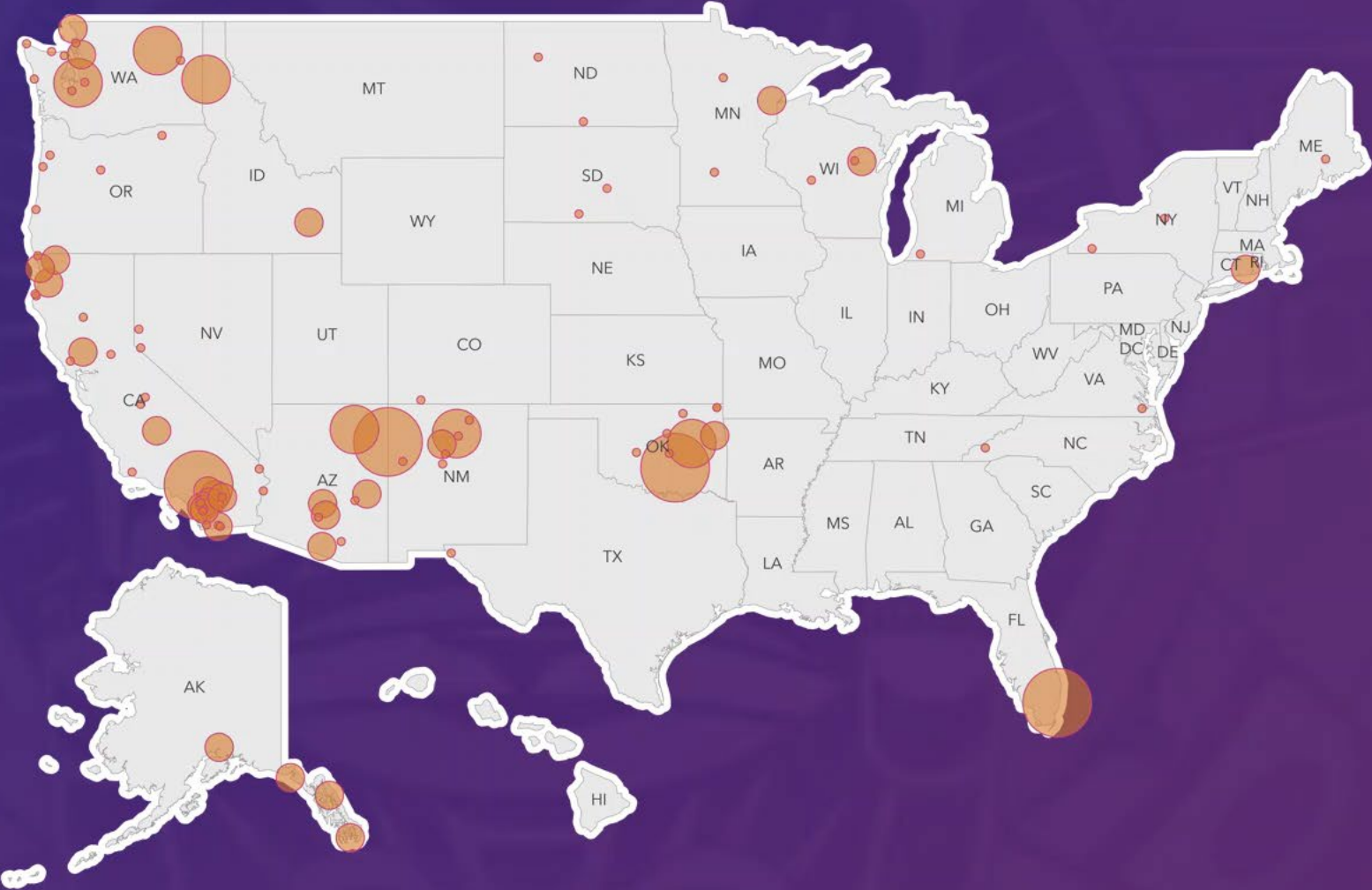


2024 Native Nations Summit



2025 Native Nations Summit

2023





... Transportation GIS is a Critical & Growing Foundational Systems

... Continually Transforming with Innovations & Integrations

... Unifying Community & Enhancing Safety

... Addressing immediate challenges ...

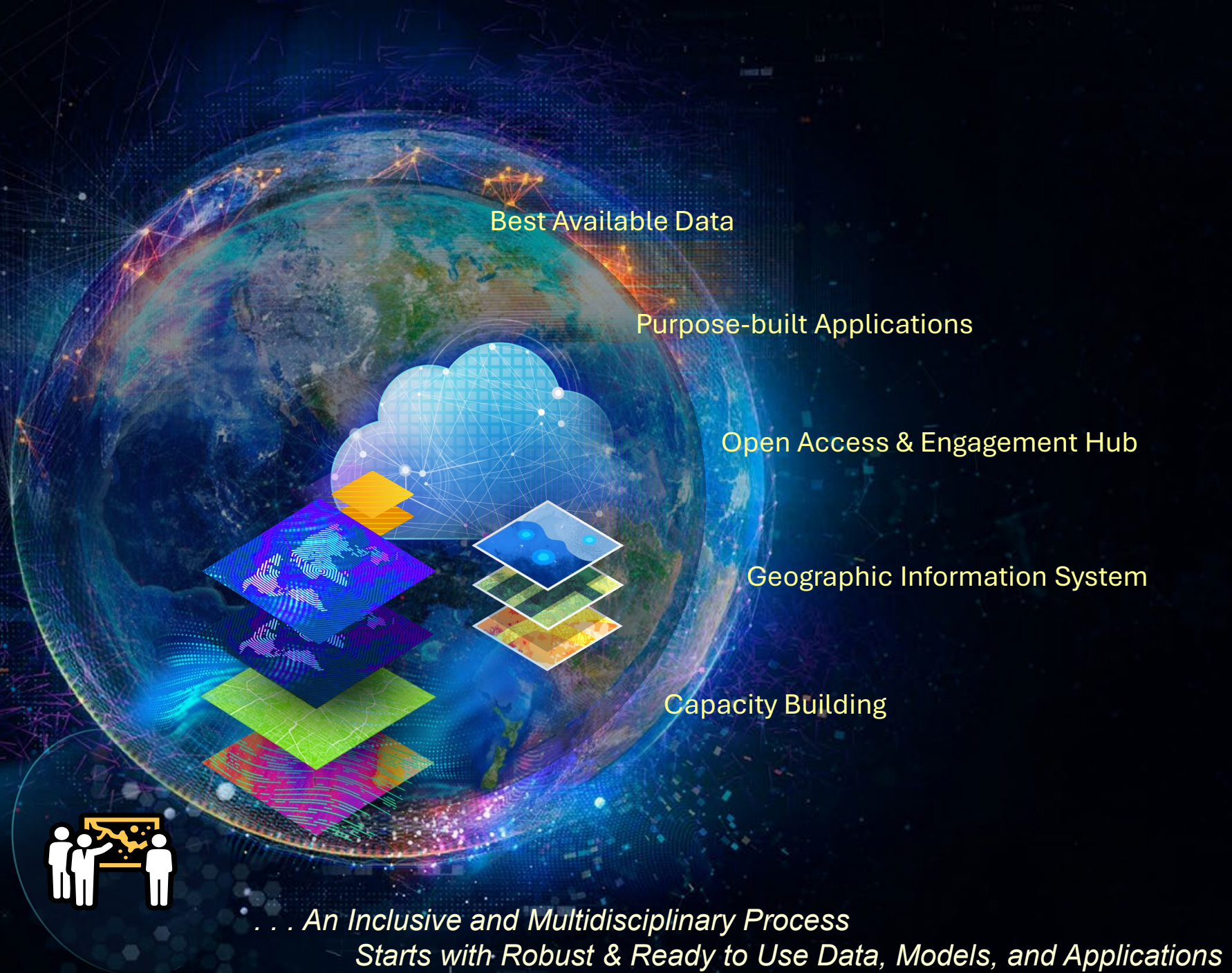
... Simplified by an integrated visualizations (web maps, dashboards, etc.)



The Geographic Approach

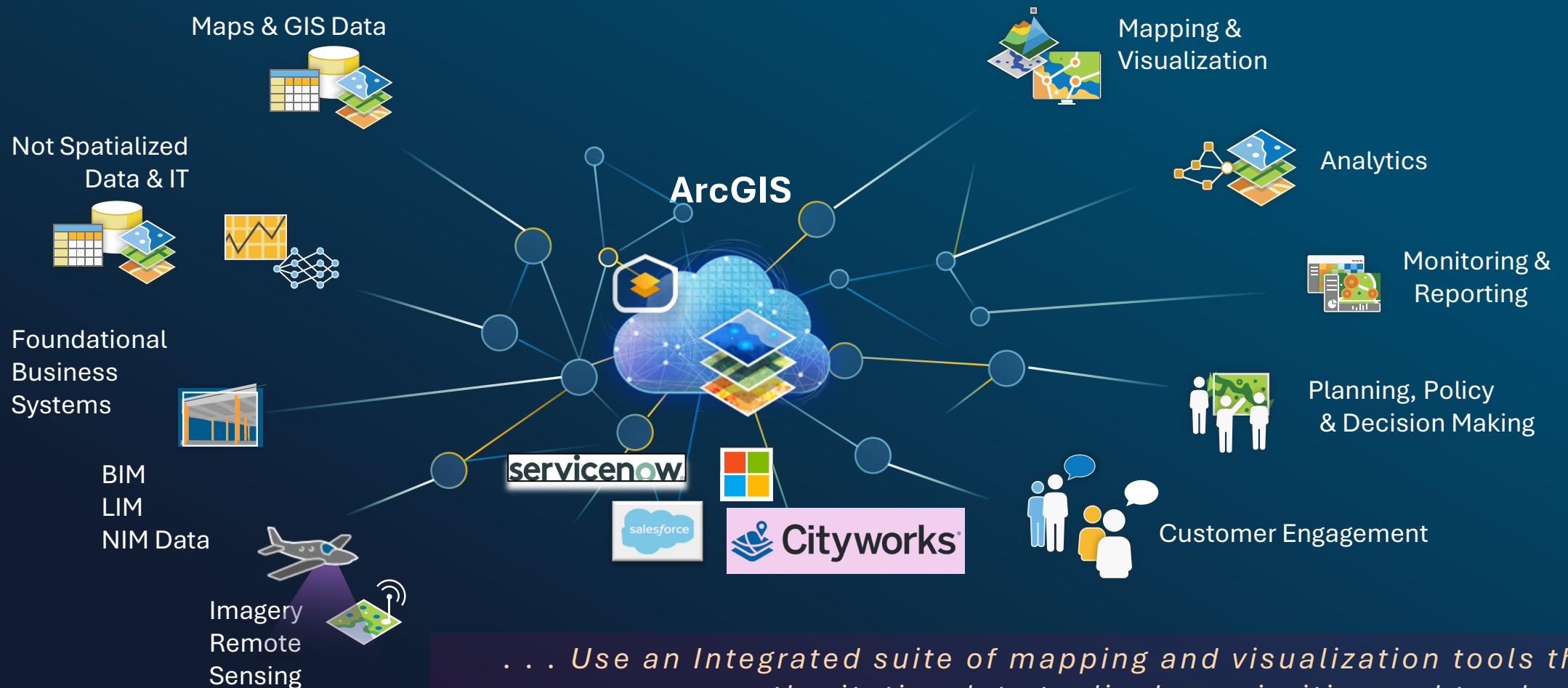
The *where* of transportation network is critical.

What holes are in your maps & visualizations?



ArcGIS is an Enterprise IT System

Spatially Enabling & Integrating All Systems, Business Units, and Operations



One Map From Many Systems

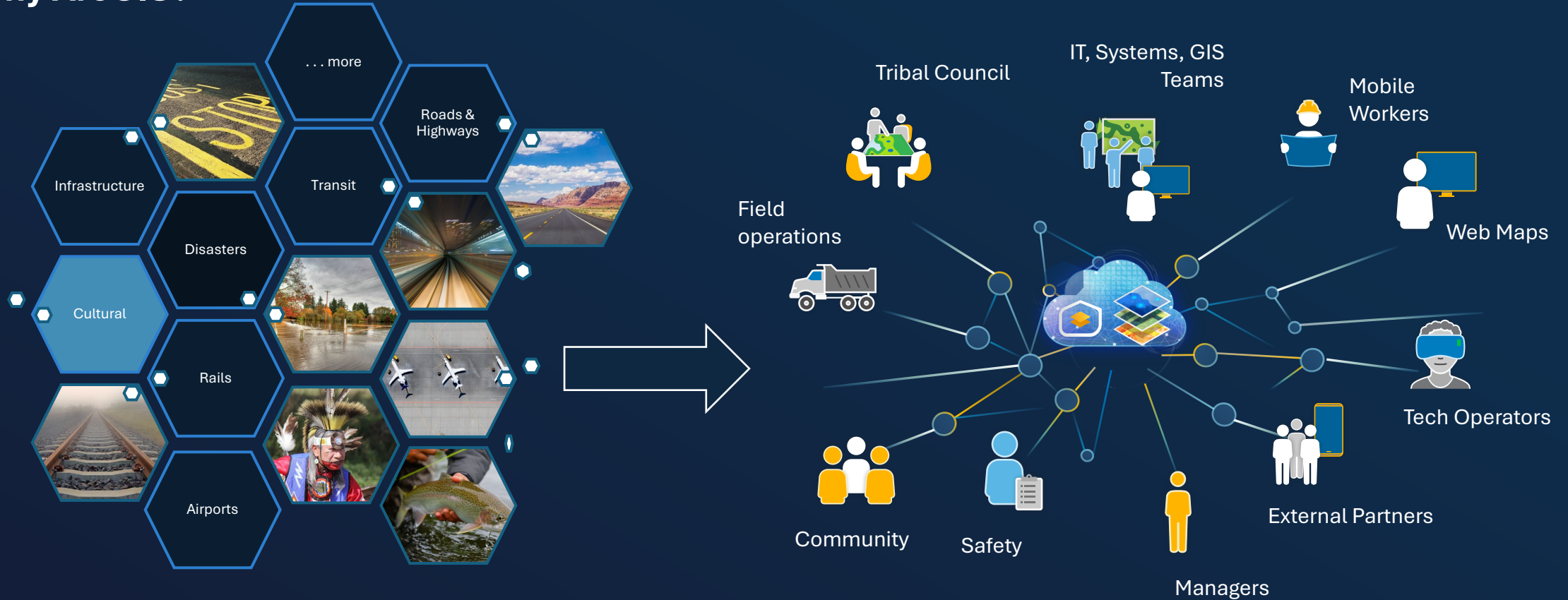
How ArcGIS can support transportation professionals

- Enhance planning, safety, operations, and community engagement.
- Deliver the right information to the right people
- Empower with interactive, integrated, and mobile GIS



ArcGIS: Empowering Tribal Transportation Professionals

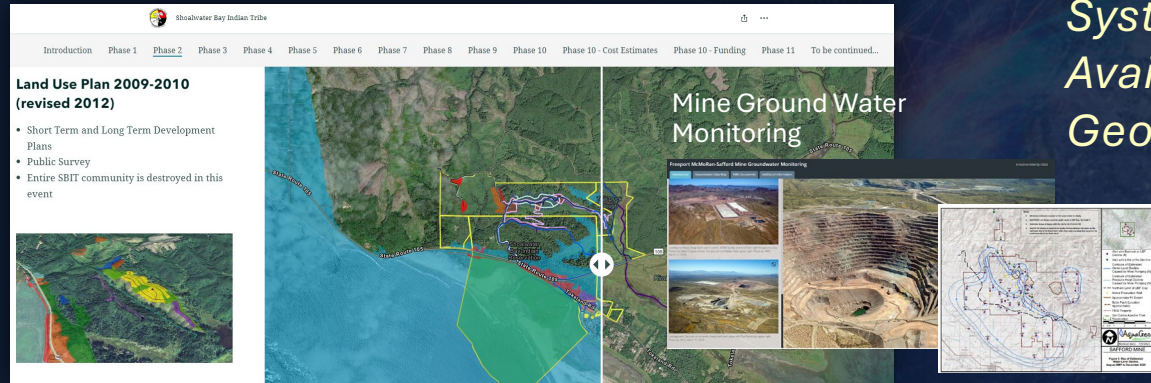
Why ArcGIS?



ONE Integrated System → ONE Map

Examples of Your Work Using ArcGIS

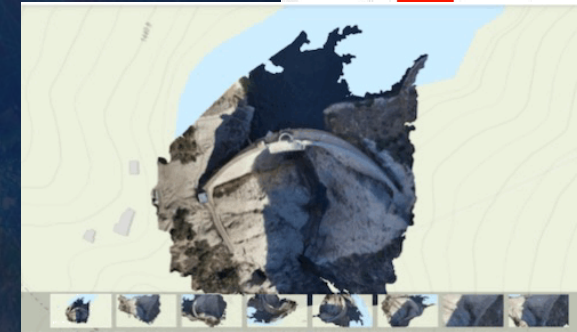
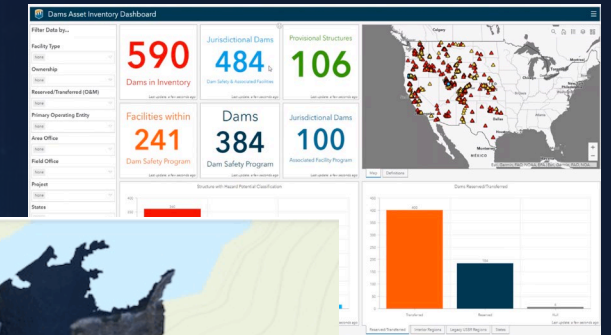
Health & Safety



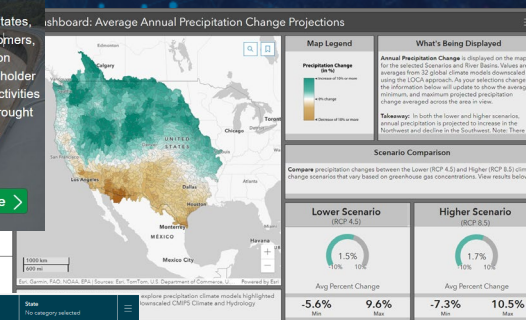
Systems for Collaborative, Open, Available Data, Tools, and Geospatial Information products

Infrastructure

Dams Asset Inventory & Safety

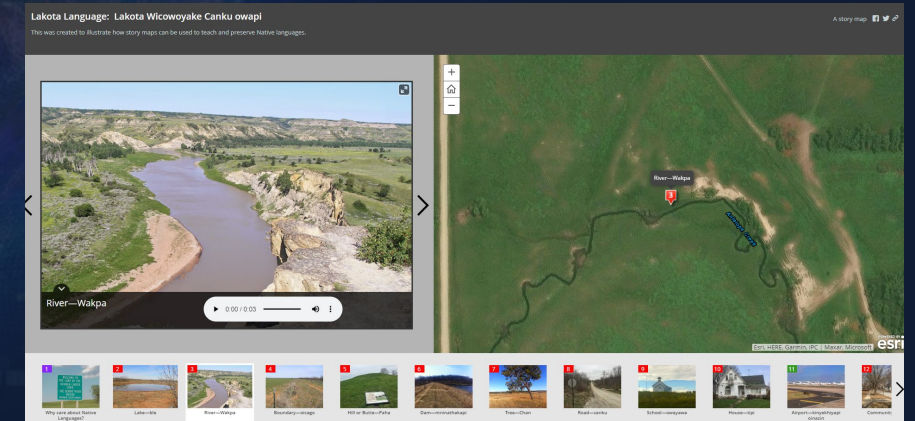


Precipitation Projections



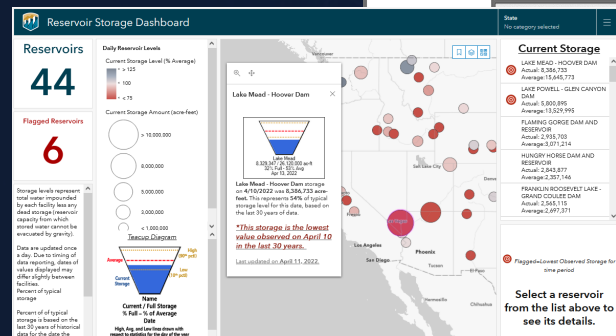
Cultural Resilience

Teach & Preserve Lakota Language



Climate

Current Reservoir Storage



Transportation Planning and Management

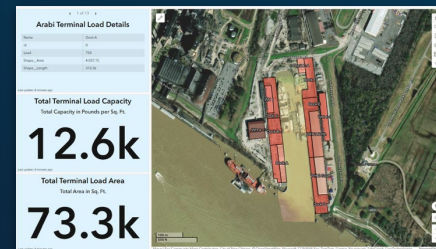
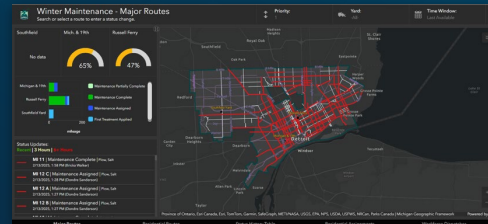
Jobs Accessible via Transit

RTA | Northeastern Illinois



Winter Maintenance Dashboard

City of Detroit – DoIT-EGIS DOW | Michigan

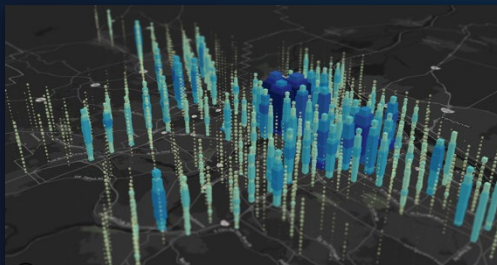


Port Management

St. Bernard Port Harbor and Terminal District | Chalmette, Louisiana

Space Time Cube of Fatal Crashes

Metro | Portland, Oregon

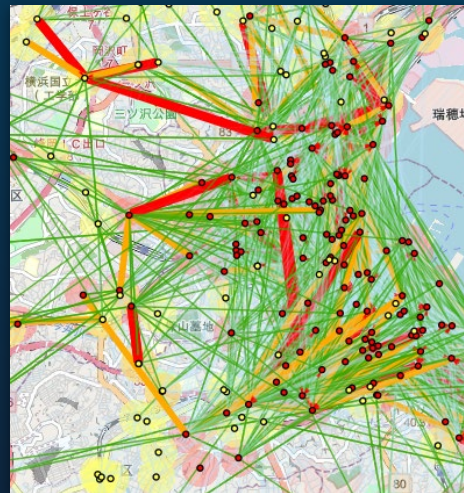


Accident Reporting Dashboard

Codex Remote | Brazil

Airport Facility Management

City of Charlotte | Charlotte Douglas International Airport, North Carolina

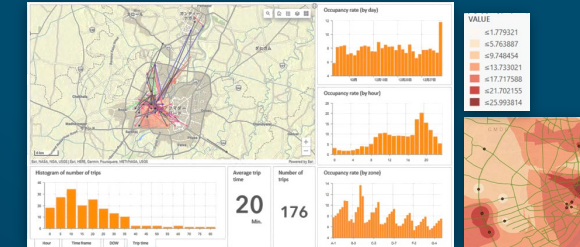


Bicycle Sharing Movement

Yokohama City Road Bureau | Japan

Traffic Analysis

Nagoya Electric Works | Ahmedabad, India

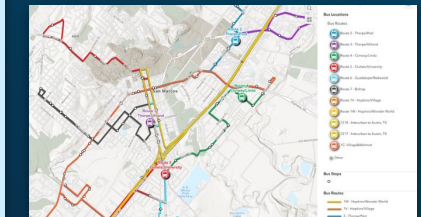
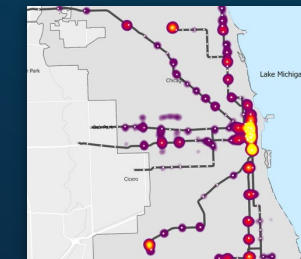


Real-Time Traffic Counts

Larson Design Group | Washington, DC | North Carolina

Real-Time Bus Tracker

City of San Marcos | Texas



Transit Crime

RTA | Chicago, Illinois

Why Safety Needs Real-Time Solution

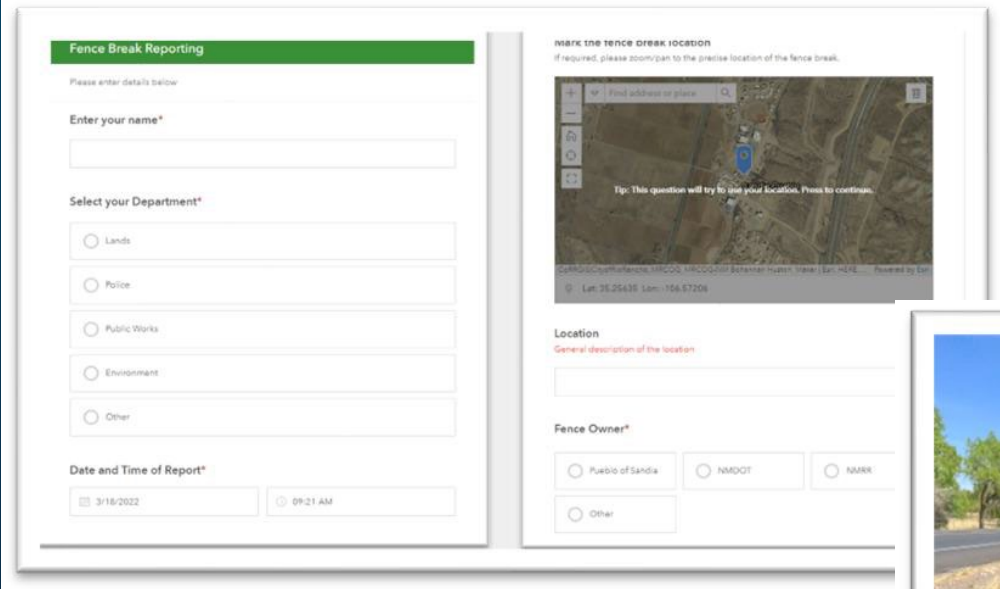
Pueblo of Sandia – Transportation Safety Reporting Mechanism

- Safety risks from broken fences and debris.
- Delays in paper-based reporting.
- Need for fast, coordinated response.

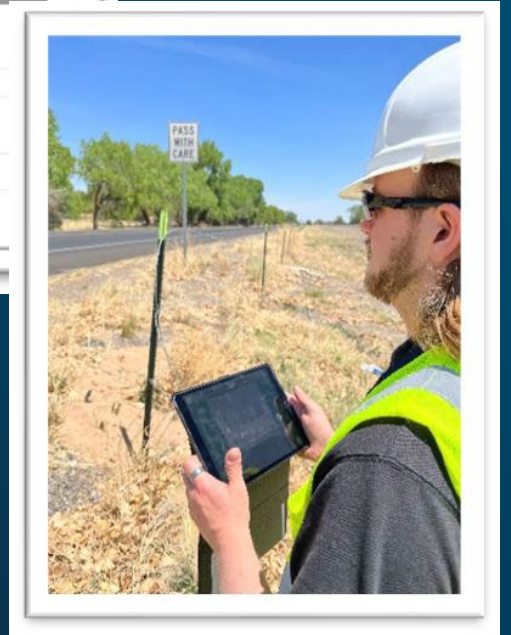


What Sandia Built: A Community-Driven GIS Safety System

- Mobile reporting with Survey123.
- Instant alerts via GeoEvent Server.
- Real-time dashboards for decision-making.
- Built in-house by Pueblo GIS staff and programs

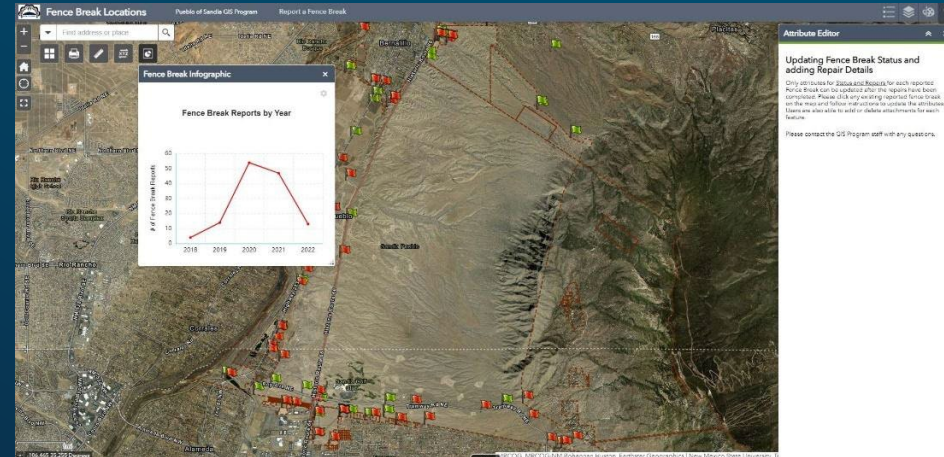


Survey123 form
Simple & user friendly
Edit and submit in the field
Use location, submit pictures



How ArcGIS Empowers Tribal Safety & Sovereignty

- Supports Tribal self-determination.
- Improves interdepartmental coordination.
- Enables faster, safer decisions.
- Accessible to non-GIS staff.
- Available through BIA's no-cost ELA program.



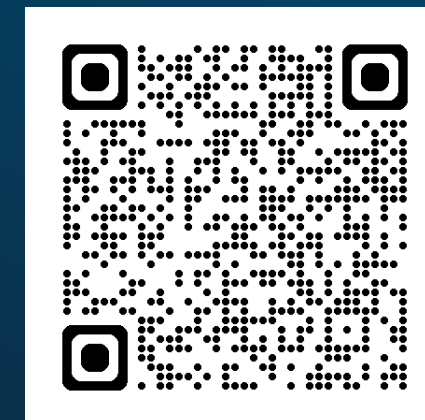
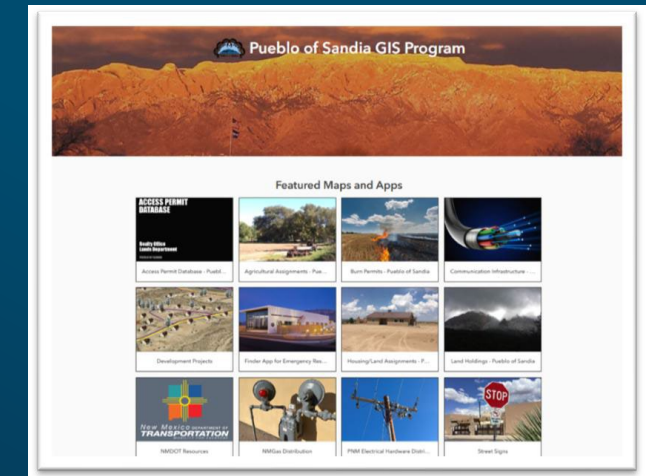
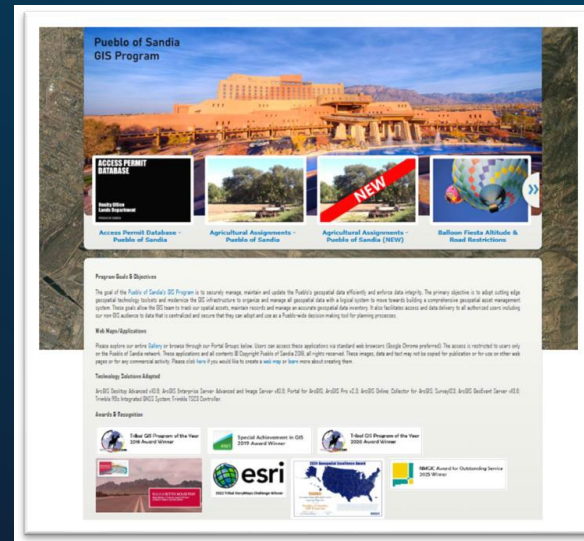
Esri web apps:
Low-Code/No-Code



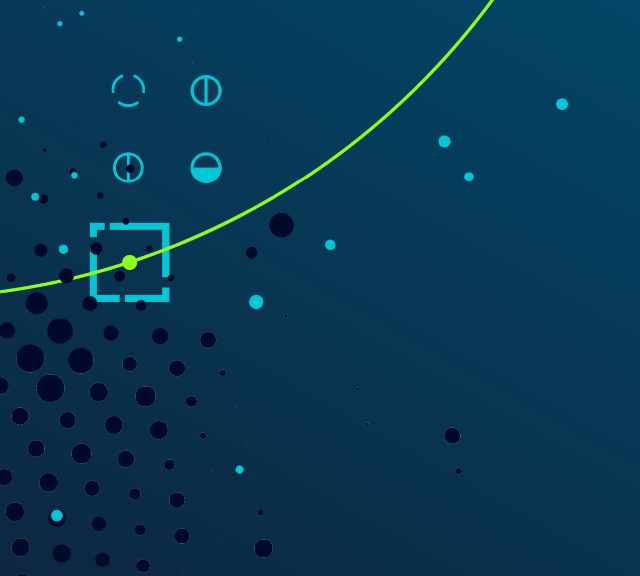
Pueblo of Sandia – Faster and Safer

- Real-time GIS safety system
- Replaced slow paper-based processes
- Empowered quick, collaborative action
- Supports Tribal sovereignty and safety
- Coordination & Collaboration

Web GIS for
tribal gov
business

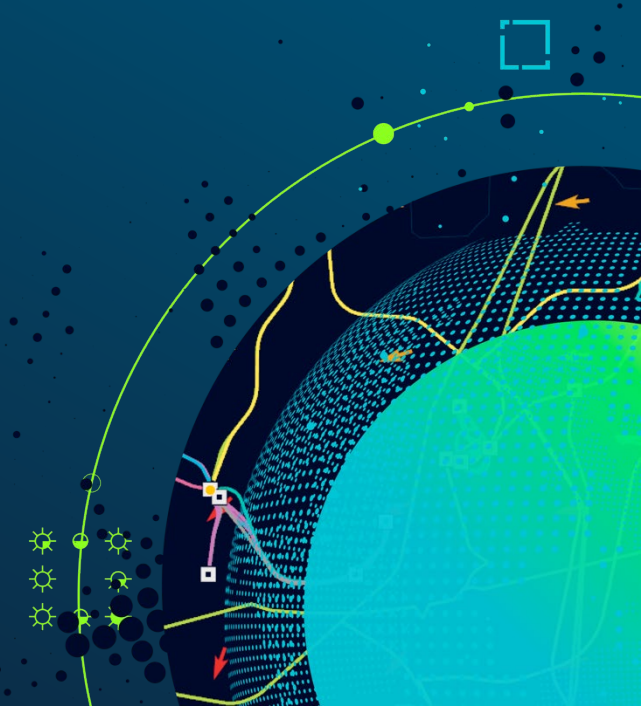


Award
Winning



Tools for Transportation Networks

Introduction to Core Software, Features, and Ready to go Industry-Specific Solutions



ArcGIS System

A Comprehensive Geospatial Capability – Supporting Multiple Communities



ArcGIS is being infused with AI technologies

Advancing geospatial tools, techniques and science

Intelligent
Application
Experiences

Stronger
Geospatial
Capabilities



Applying general advancements in AI to the benefit of the geospatial community

ArcGIS as an Enterprise Platform

A system of systems



Enterprise GIS - Common Patterns of Use

Uniquely Positioned Across Missions and Systems

Mapping & Visualization



Understand locations and relationships with maps and visual representations

Data Management



Collect, organize, and maintain accurate locations and details about assets and resources

Field Mobility



Manage and enable a mobile workforce to collect and access information in the field

Monitoring



Track, manage, and monitor assets and resources in real-time

Analytics



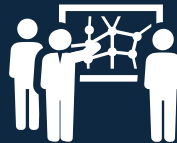
Discover, quantify, and predict trends and patterns to improve outcomes

Design & Planning



Evaluate alternative solutions and create optimal designs

Decision Support



Gain situational awareness, and enable information-driven decision making

Constituent Engagement



Communicate and collaborate with citizens and external communities of interest

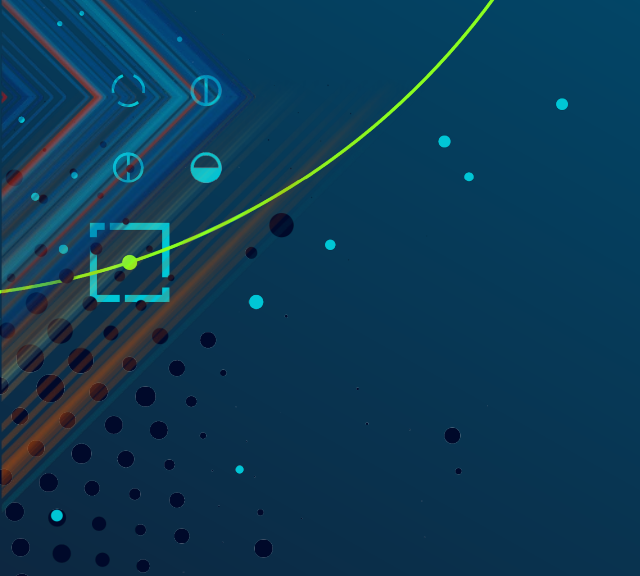
Sharing & Collaboration



Empower everyone to easily discover, use, make, and share geographic information

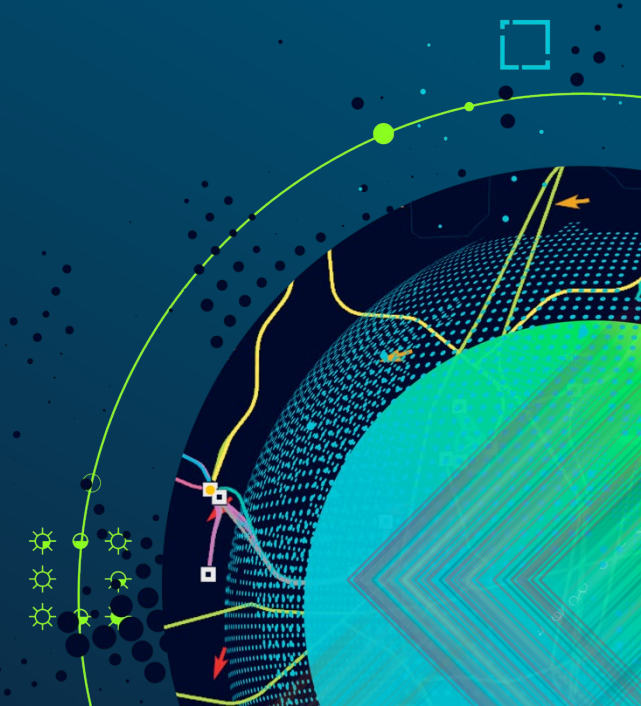


Demonstration



ArcGIS and Web GIS

The backbone of modern GIS



ArcGIS System

A Comprehensive Geospatial Platform

Data Platform

Data Analysis

Data Visualization

Data Governance

Data Engineering

AI Assistants

ArcGIS Enterprise

On-network Server
Software

ArcGIS Online

SaaS and globally
available

ArcGIS Pro

Desktop Software

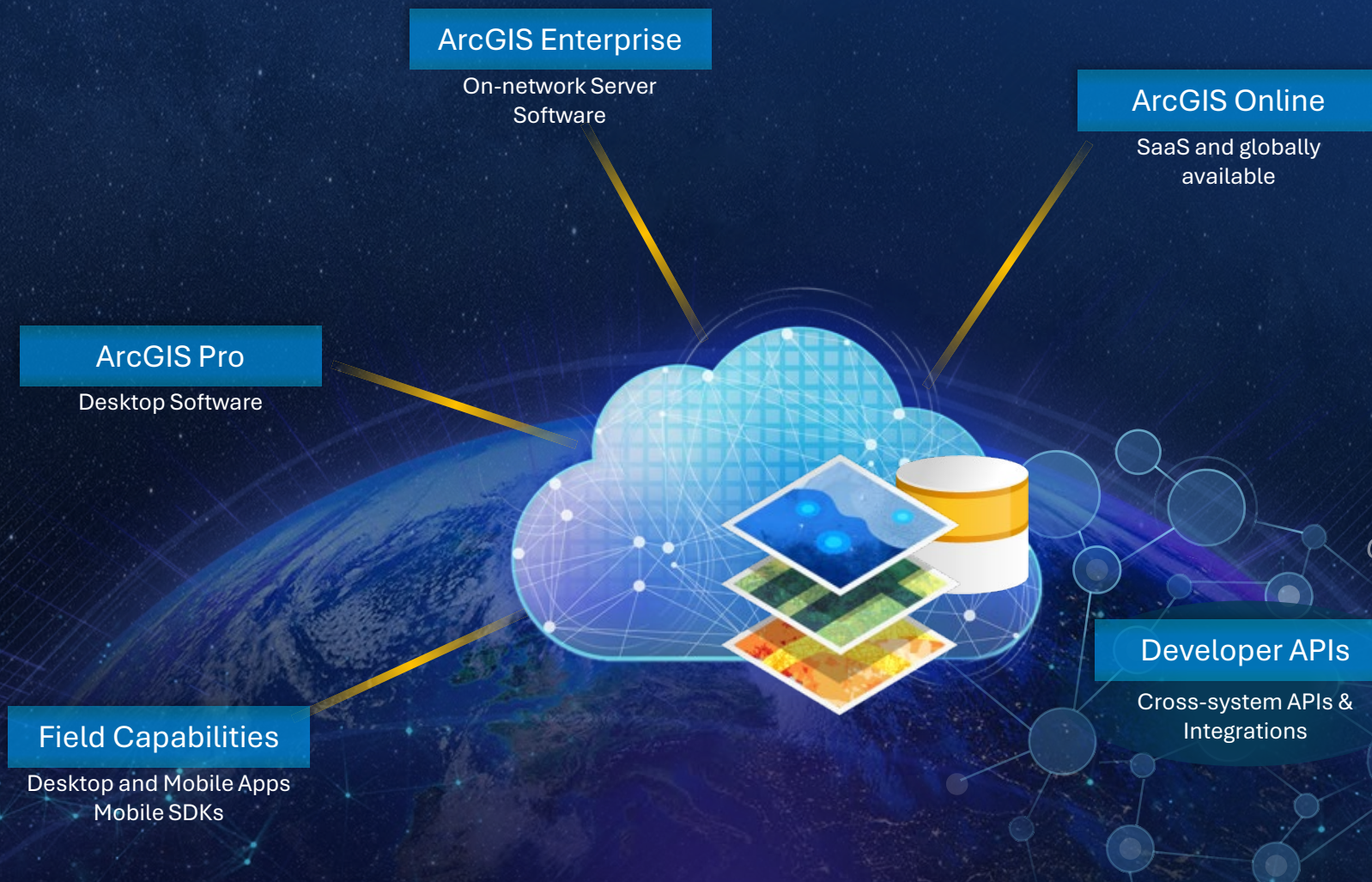
Field Capabilities

Desktop and Mobile Apps
Mobile SDKs

Developer APIs

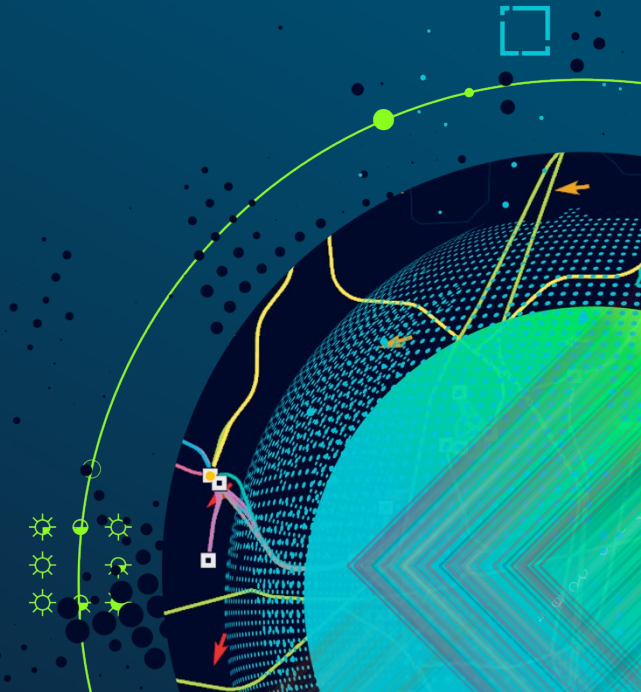
Cross-system APIs &
Integrations

Open APIs





ArcGIS Online vs ArcGIS Enterprise



ArcGIS System - ArcGIS Online vs Enterprise

ArcGIS Online

Esri's Cloud Environment (SaaS)

ArcGIS Enterprise

On your infrastructure (software)



ArcGIS System - ArcGIS Online vs Enterprise

ArcGIS Online

Esri's Cloud Environment (SaaS)

Infrastructure scaled & maintained by Esri

ArcGIS Enterprise

On your infrastructure (software)

You manage the infrastructure & software



ArcGIS System - ArcGIS Online vs Enterprise

ArcGIS Online

Esri's Cloud Environment (SaaS)

Infrastructure scaled & maintained by Esri

Cloud Environment handles processing & load
(credit cost associated w/ analysis)

ArcGIS Enterprise

On your infrastructure (software)

You manage the infrastructure & software

Your infrastructure handles processing & load
(need to load test & ensure availability & scalability)



ArcGIS System - ArcGIS Online vs Enterprise

ArcGIS Online

Esri's Cloud Environment (SaaS)

Infrastructure scaled & maintained by Esri

Cloud Environment handles processing & load
(credit cost associated w/ analysis)

Data hosted in the cloud

(credit cost associated w/ data storage)

ArcGIS Enterprise

On your infrastructure (software)

You manage the infrastructure & software

Your infrastructure handles processing & load
(need to load test & ensure availability & scalability)

Data hosted on your system

(can include relational databases, file stores, cloud warehouses)



ArcGIS System - ArcGIS Online vs Enterprise

ArcGIS Online

Esri's Cloud Environment (SaaS)

Infrastructure scaled & maintained by Esri

Cloud Environment handles processing & load
(credit cost associated w/ analysis)

Data hosted in the cloud
(credit cost associated w/ data storage)

Infrastructure Security managed by Esri

ArcGIS Enterprise

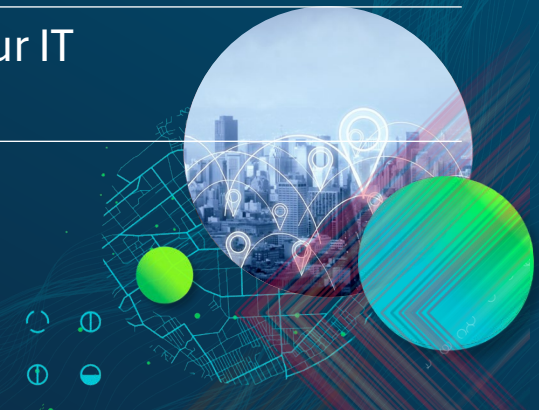
On your infrastructure (software)

You manage the infrastructure & software

Your infrastructure handles processing & load
(need to load test & ensure availability & scalability)

Data hosted on your system
(can include relational databases, file stores, cloud warehouses)

Infrastructure Security managed by your IT



ArcGIS System - ArcGIS Online vs Enterprise

ArcGIS Online

Esri's Cloud Environment (SaaS)

Infrastructure scaled & maintained by Esri

Cloud Environment handles processing & load
(credit cost associated w/ analysis)

Data hosted in the cloud
(credit cost associated w/ data storage)

Infrastructure Security managed by Esri

ArcGIS Enterprise

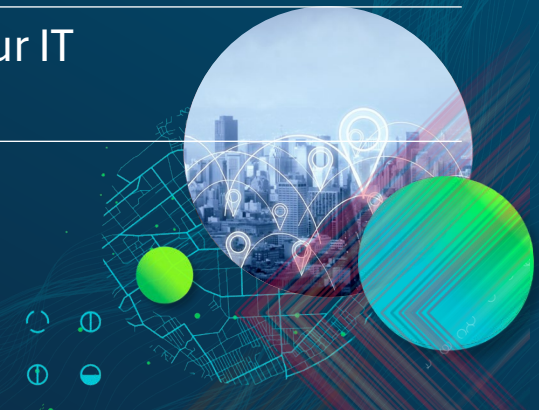
On your infrastructure (software)

You manage the infrastructure & software

Your infrastructure handles processing & load
(need to load test & ensure availability & scalability)

Data hosted on your system
(can include relational databases, file stores, cloud warehouses)

Infrastructure Security managed by your IT



ArcGIS System - ArcGIS Online vs Enterprise

ArcGIS Online

Esri's Cloud Environment (SaaS)

Infrastructure scaled & maintained by Esri

Cloud Environment handles processing & load
(credit cost associated w/ analysis)

Data hosted in the cloud
(credit cost associated w/ data storage)

Infrastructure Security managed by Esri

ArcGIS Enterprise

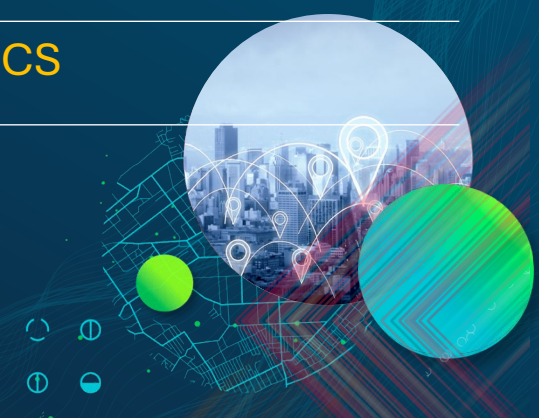
Esri Managed Cloud Services

Esri manages the infrastructure & software

Dedicated, Esri Managed infrastructure handles processing & load
(need to load test & ensure availability & scalability)

Data hosted **on Esri's Managed System**
(can include relational databases, file stores, cloud warehouses)

Infrastructure Security managed by **EMCS**



ArcGIS Online & Enterprise Security

ArcGIS Online

Esri's Cloud Environment (SaaS)

Infrastructure scaled & maintained by Esri

Cloud Environment handles processing & load
(credit cost associated w/ analysis)

Data hosted in the cloud
(credit cost associated w/ data storage)

Infrastructure Security managed by Esri

ArcGIS Enterprise

On your infrastructure (software)

You manage the infrastructure & software

Your infrastructure handles processing & load
(need to load test & ensure availability & scalability)

Data hosted on your system
(can include relational databases, file stores, cloud warehouses)

Infrastructure Security managed by your IT

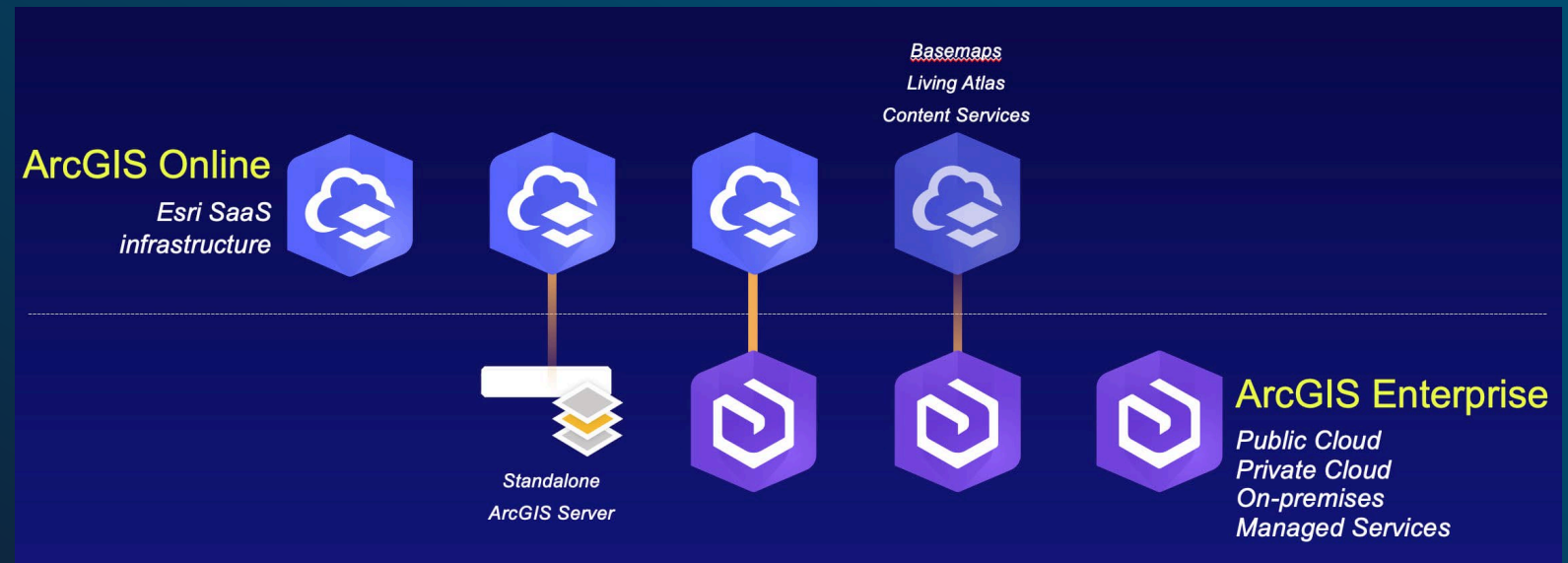
✓ Authorized FedRAMP
Moderate

✓ Configure to your
requirements



ArcGIS Online + ArcGIS Enterprise: Better Together

- Hybrid GIS Strategy = Flexibility + Control
- Share content securely across platforms
- Support diverse workflows: internal, public, field
- Leverage strengths of both environments
- Future-proof your GIS investments

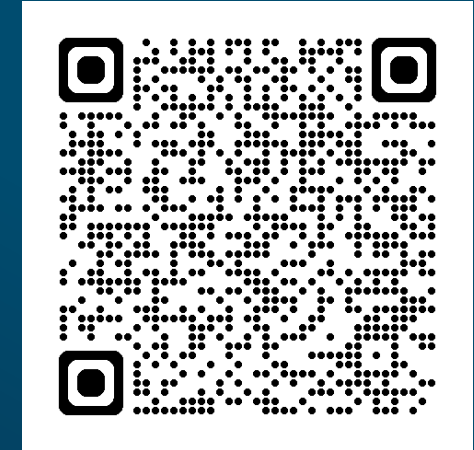


There is a spectrum of deployment patterns for using ArcGIS Enterprise and ArcGIS Online.

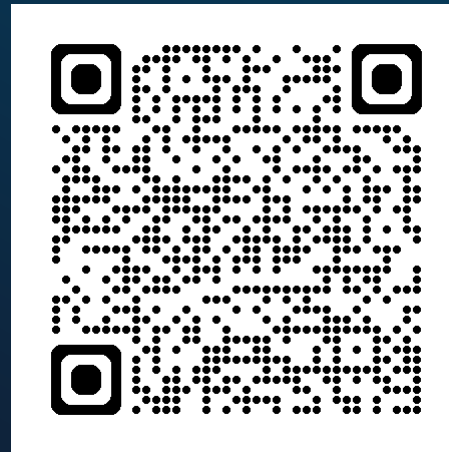
Quick Start Resources for ArcGIS Online and Enterprise

Visit our booth

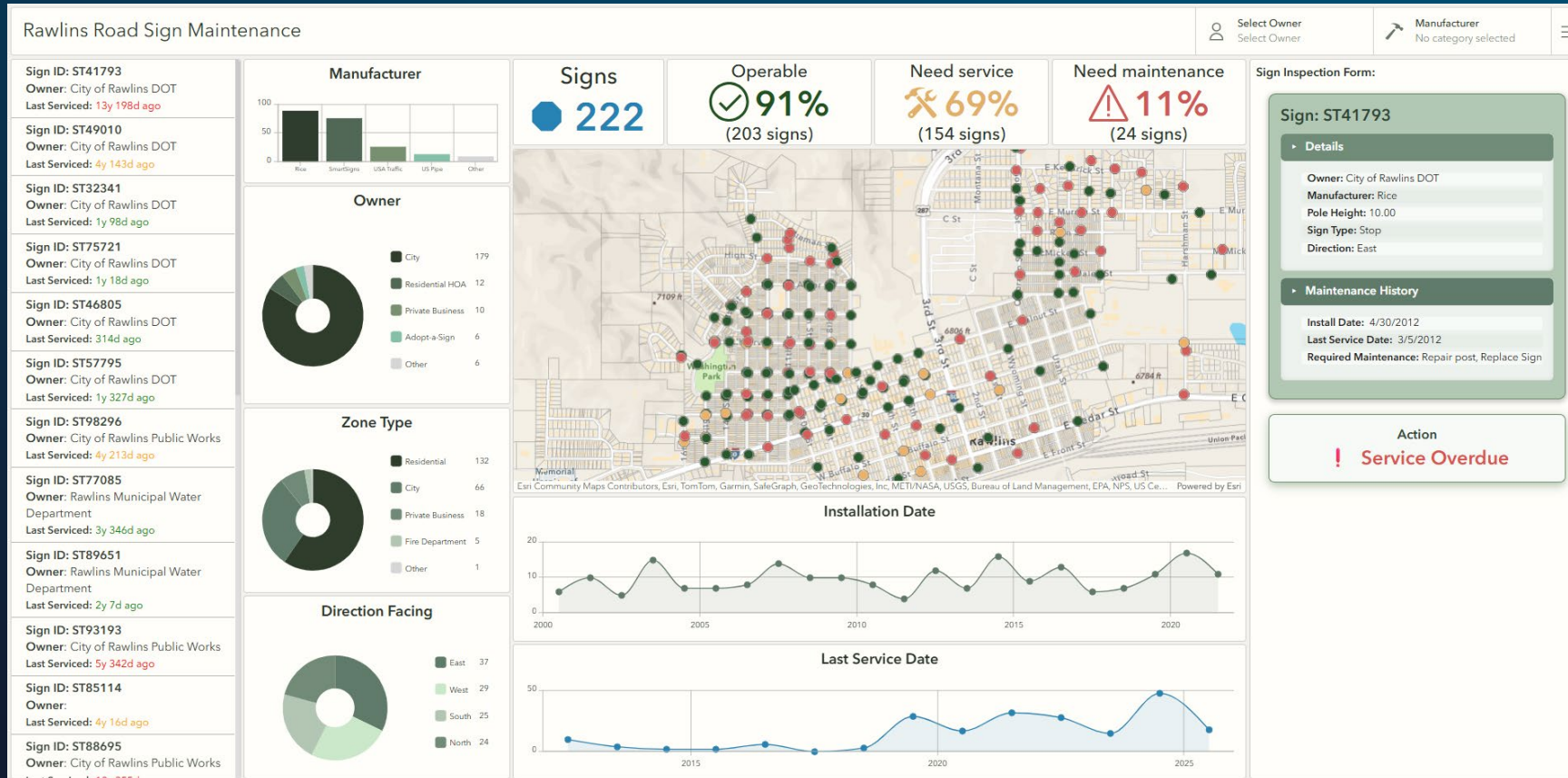
ArcGIS Enterprise
Quick Start Guide

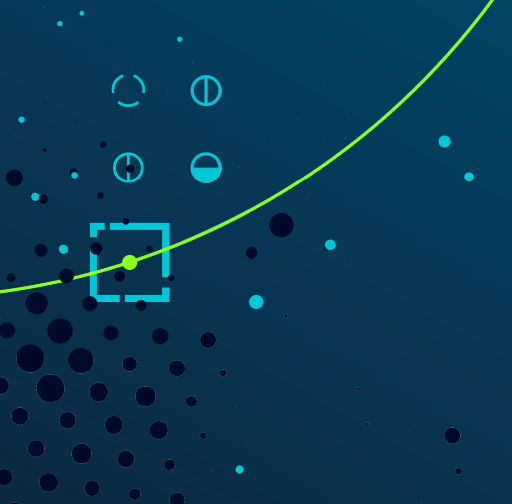


Get Started with ArcGIS
Online



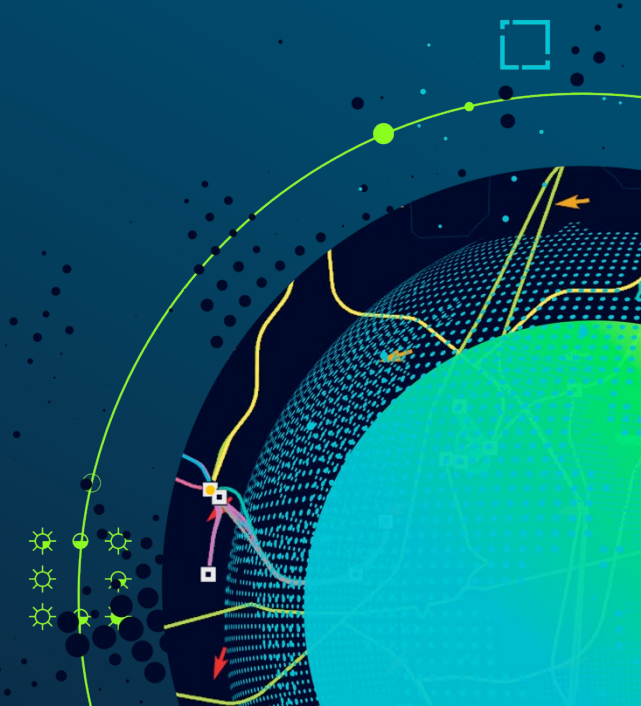
Demonstration: Inspections & GeoAI





Department of the Interior Enterprise Licensing Agreement & Tribes

No-Cost and Discounts to Esri Core Software, Training, Technical Support, and more



Esri & Dept. of Interior Enterprise Agreement (EA)

Overview	Includes	Not Included
• Established in 2003 • Streamlines software acquisition • Based on Esri GSA • Covers • All of DOI • Federally Recognized Tribes, through Bureau of Indian Affairs (BIA)	✓ ArcGIS Pro (Desktop Software) ✓ ArcGIS Enterprise & Portal ✓ Most Extensions ✓ Some Server Roles ✓ Developer APIs ✓ Technical Support ✓ Discounts ✓ Maintenance Training	- X ArcGIS Online* - X ArcGIS Indoors* - X ArcGIS Drone2Map*/Site Scan* - X Some Server Roles* - X Instructor led classes*

Esri & Dept. of Interior Enterprise Agreement (EA)

Overview	Includes	Not Included
- Established in 2003 - Streamlines software acquisition - Based on Esri GSA - Covers - All of DOI - Federally Recognized Tribes, through Bureau of Indian Affairs (BIA)	✓ ArcGIS Pro (Desktop Software) ✓ ArcGIS Enterprise & Portal ✓ Most Extensions ✓ Some Server Roles ✓ Developer APIs ✓ Technical Support ✓ Discounts ✓ Maintenance Training	- X ArcGIS Online* - X ArcGIS Indoors* - X ArcGIS Drone2Map*/Site Scan* - X Some Server Roles* - X Instructor led classes*

Esri & Dept. of Interior Enterprise Agreement (EA)

Overview	Includes	Not Included
- Established in 2003 - Streamlines software acquisition - Based on Esri GSA - Covers - All of DOI - Federally Recognized Tribes, through Bureau of Indian Affairs (BIA)	✓ ArcGIS Pro (Desktop Software) ✓ ArcGIS Enterprise & Portal ✓ Most Extensions ✓ Some Server Roles ✓ Developer APIs ✓ Technical Support ✓ Discounts ✓ Maintenance Training	- X ArcGIS Online* - X ArcGIS Indoors* - X ArcGIS Drone2Map*/Site Scan* - X Some Server Roles* - X Instructor led classes*

*Discount

Esri & Dept. of Interior Enterprise Agreement (EA)

Overview	Includes	Not Included
- Established in 2003 - Streamlines software acquisition - Based on Esri GSA - Covers - All of DOI - Federally Recognized Tribes, through Bureau of Indian Affairs (BIA)	✓ ArcGIS Pro (Desktop Software) ✓ ArcGIS Enterprise & Portal ✓ Most Extensions ✓ Some Server Roles ✓ Developer APIs ✓ Technical Support ✓ Discounts ✓ Maintenance Training	- X ArcGIS Online* - X ArcGIS Indoors* - X ArcGIS Drone2Map*/Site Scan* - X Some Server Roles* - X Instructor led classes*

Start by applying through the BIA Branch of Geospatial Support

Unlocking Tribal Access to ArcGIS: Tools Self Determination and Safety

- **Empowering Tribal Communities:**

- Save \$100s to \$1,000s with no-cost & discounted licensing



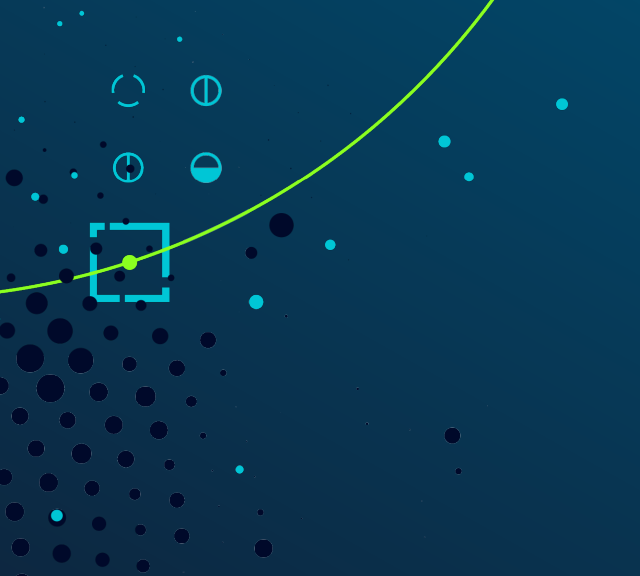
- **Why it Matters for Transportation:**

- Plan and manage infrastructure
- Map and analyze networks and assets
- Analyze traffic and safety data
- Respond to emergencies faster
- Enhanced staff and public safety



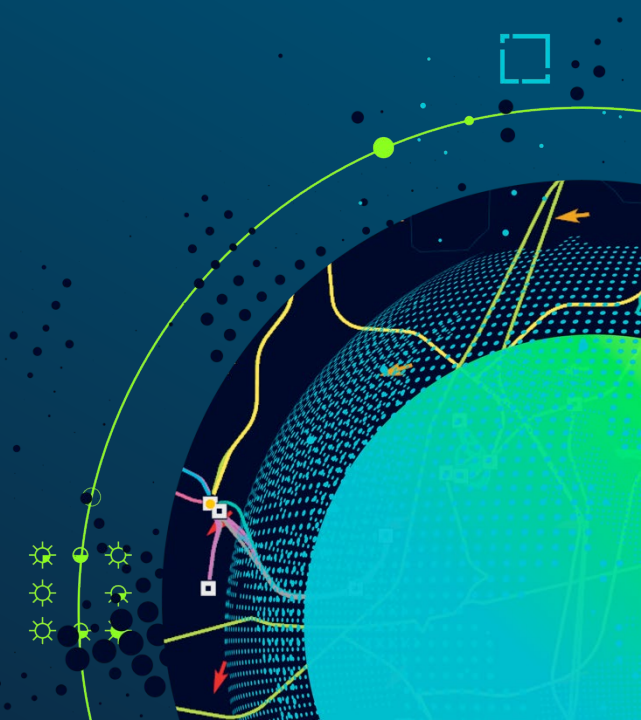
**Start by applying
through the BIA Branch
of Geospatial Support**

Questions?



Quick Start Resources

Getting Started & Path to Success



Accelerate . . .

Be Engaged –
You are your best advocate

Leverage a Framework for
Understanding and Applying
Knowledge



Familiarize Yourself with GIS & GIS Systems

Understand BIA & ArcGIS Access Options

Explore Ready to Use ArcGIS Solutions

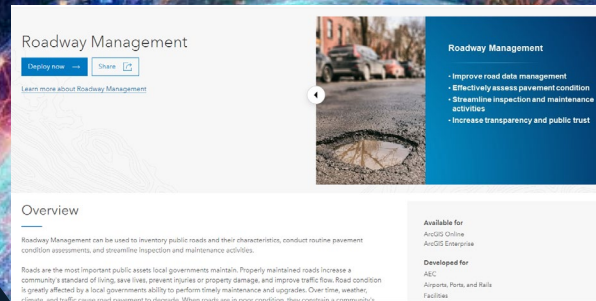
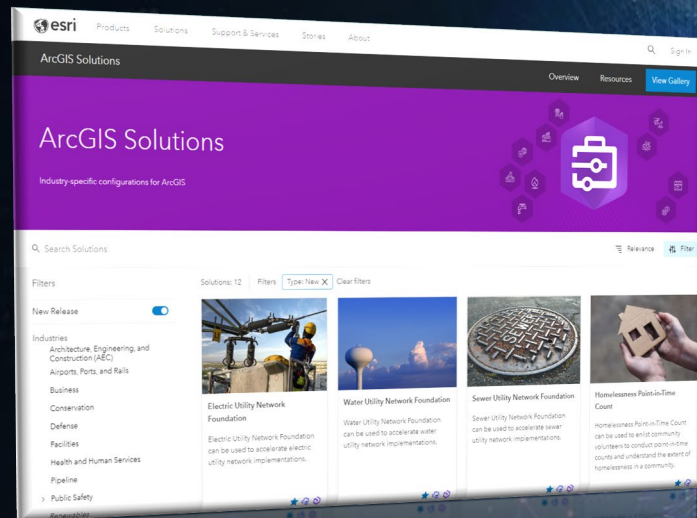
Know Your Esri Native Nations Team

Assess Organization & Workforce Needs

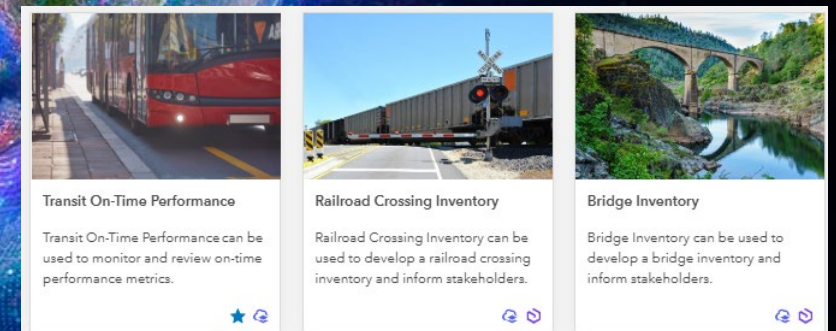
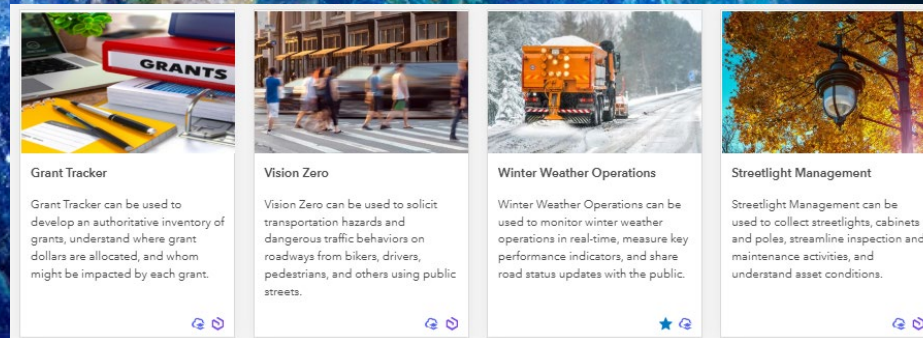
Plan for Action - Realize Success

You are NOT alone – Reach out for guidance and support. . .

Explore Ready to Use ArcGIS Solutions



TRANSPORTATION
30+ Solutions & growing

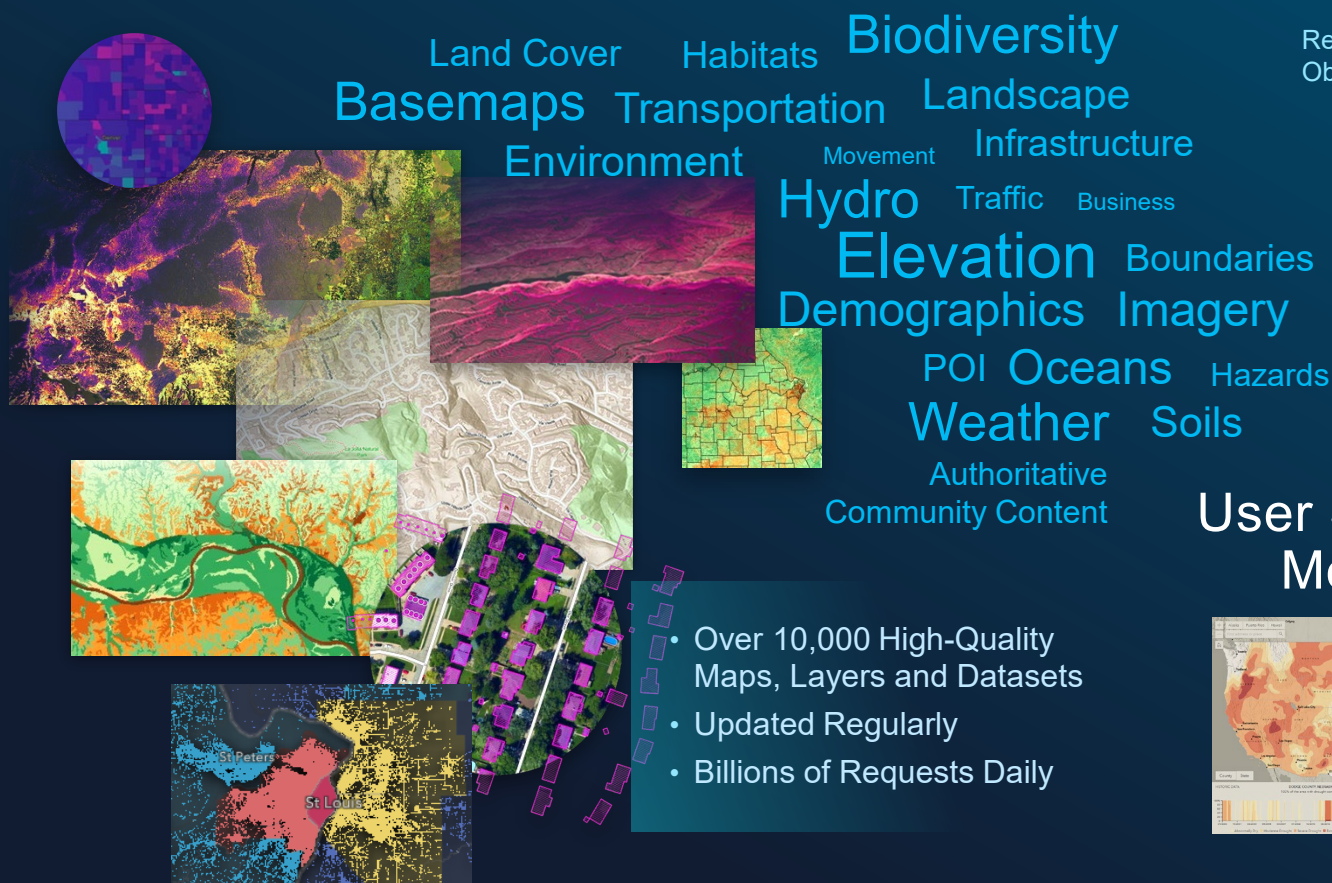


- **Built for real-world transportation needs**
- **Faster deployment, lower risk**
- **Built with and by subject matter experts**

... License your software.... Identify a Solution.... Deploy...

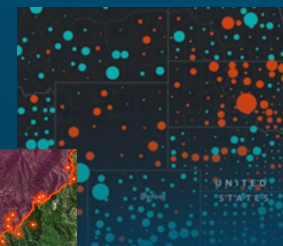
Getting Started - ArcGIS Living Atlas

Petabytes of Basemaps, Imagery, Demographics and Thematic Content . . .

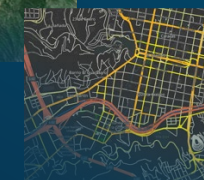
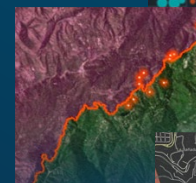


- Over 10,000 High-Quality Maps, Layers and Datasets
- Updated Regularly
- Billions of Requests Daily

Monthly Unemployment Statistics (BLS)

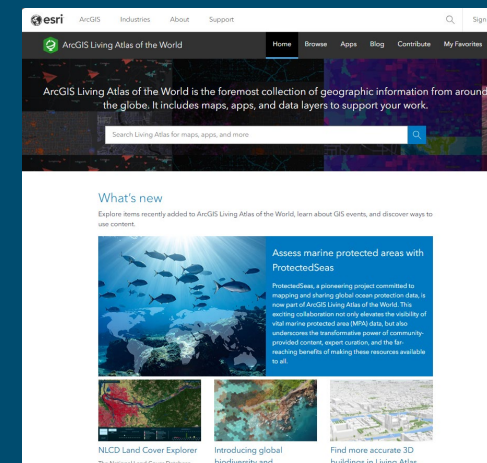
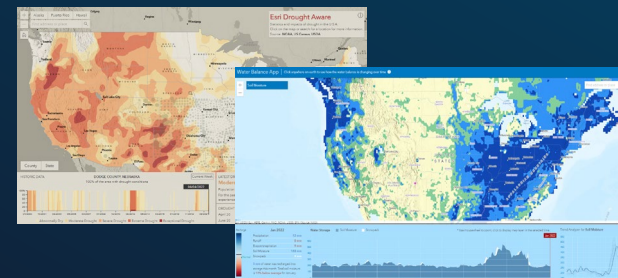


Real-Time Observations



OpenStreetMap Layers

User Shared Maps, Models, Apps & Data



- Enhanced OSM Offerings
- Analysis-Ready Imagery
- Census 2020 Data Layers
- New Content
 - NAIP Imagery
 - Land Cover
 - Deep Learning Models
 - 2050 Land Cover Projections
 - FEMA National Risk Index
 - Drought Conditions
 - Biodiversity
 - Air Quality
 - Global River Flow
 - Wildfire Risk
 - . . . and Many More

Demos



Demonstration: AI/ML Image Detection

Drones / UAV

Pavement Crack Detection

Agua Caliente Park Cracks

Search

OID	Class	Status
1	Crack	Accepted
2	Crack	Accepted
3	Crack	Accepted
4	Crack	Accepted

Total: 402 | Selection: 0

Editor

Settings

Edit features

Select

Create features

Agua Caliente Park Cracks

Agua Caliente Park Cracks

Instructions

- Select a crack feature using the table above or using the select widget in the top left corner.
- Edit the crack if the feature doesn't include the entire crack.
- Inspect crack feature to see if it should be accepted or rejected.
 - Rejected - is not a crack (should be deleted)
 - Accepted - is a crack

Transportation Road Crack Detection

Reshape

Append

Subtract

Create features

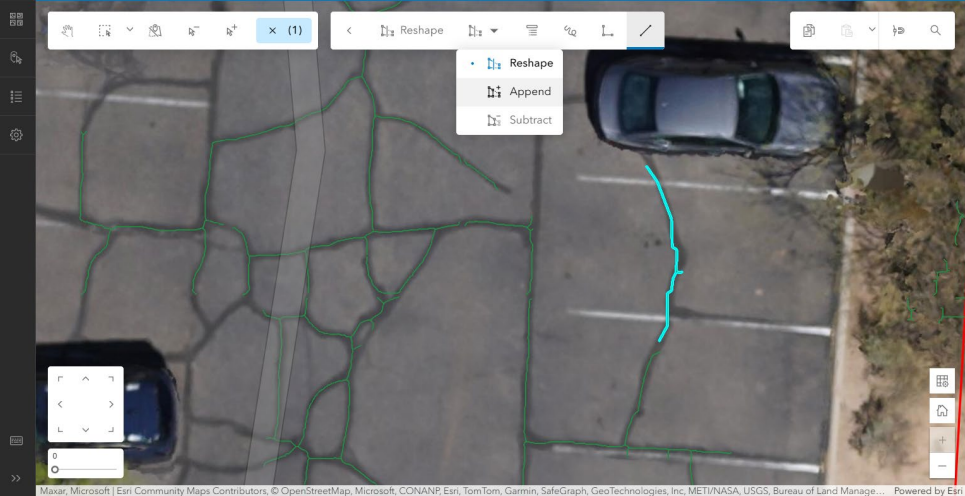
Filter types

Agua Caliente Park Cracks

Agua Caliente Park Cracks

Agua Caliente Cracks AOI

AOI

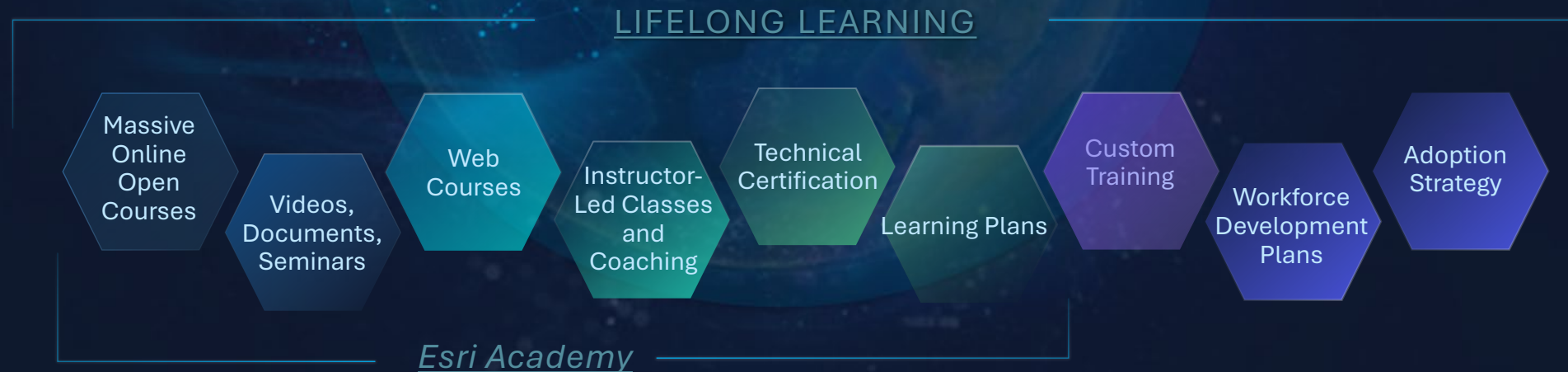


Training

DOI EL Resource

Esri Education Services

Develop the workforce through education and training

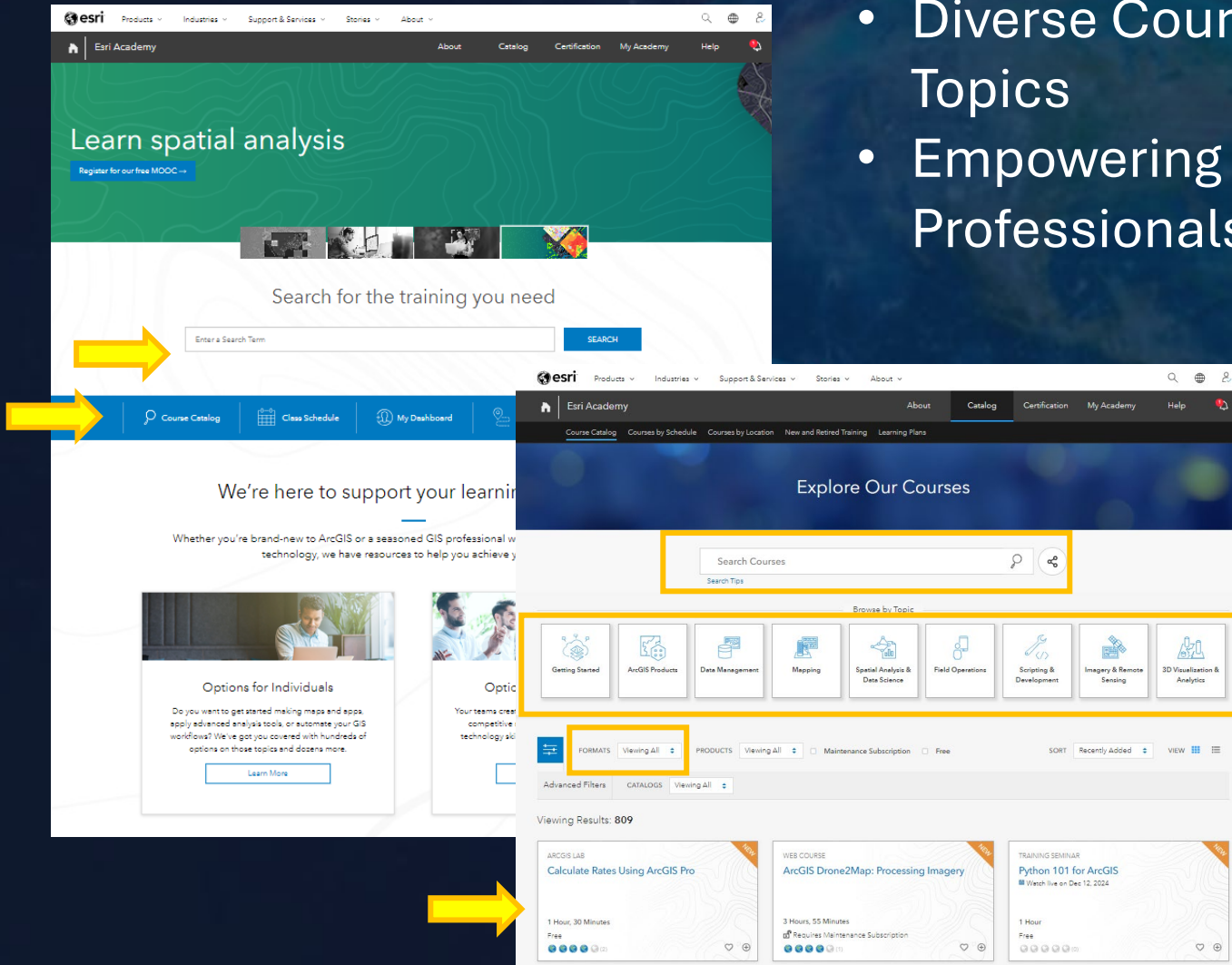


Getting Started with Esri Academy

- Diverse Course Topics
- Empowering Tribal Professionals

- Flexible Learning Options
 - Self-paced courses
 - Instructor led
 - Webinars
 - Etc.

- Preconfigured Training Plans
 - Basics to advanced
 - General GIS to industry specific



Your Esri Native Nations Team - TribalGovernment@esri.com



Dolores Buljevic
Sr. Sales Manager



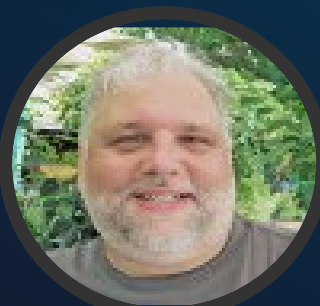
Heston Smith**
Account Manager



Chris Goh**
Account Manager



Cynthia Porter
Training Consultant



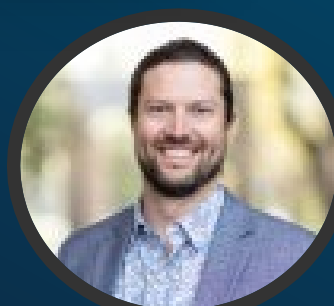
Peter Eredics
Professional Services



Paulina Mnev
Solution Engineer



Chris Pearce
Inside Sales



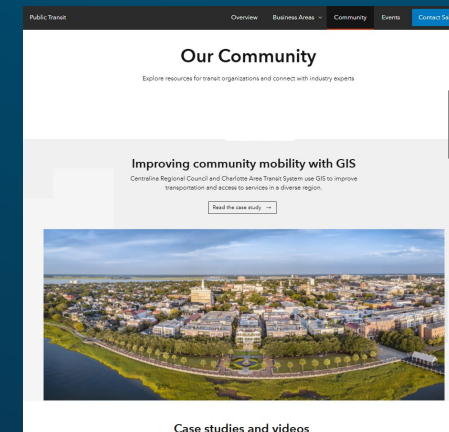
Devin Hougardy
BIA Account Manager

Customer Service
Non-Profit
Education
Technical Support
Events & Marketing
Esri Distributors
Partner Manager
Contracts
... more...

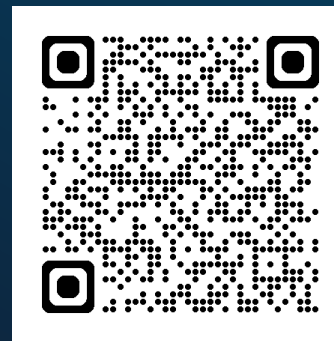
**** Primary Points of Contact**

Esri & The Transportation Community

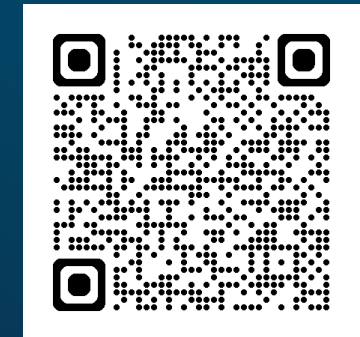
- Monthly DOI & Tribes Application Builder (ABC) Calls
- Esri Public Transit Community Page & Hub
- Esri annual User Conference (UC)
- Esri annual Native Nations Summit
- Esri Events & Webinars
 - Roads & Highway
 - North American GIS Rail Summit
 - Airports and Aviation
 - And more



Public Transit Hub



User Conference
(UC)



Native Nation
Summit

Thank you



Step 1: Apply the geographic approach.

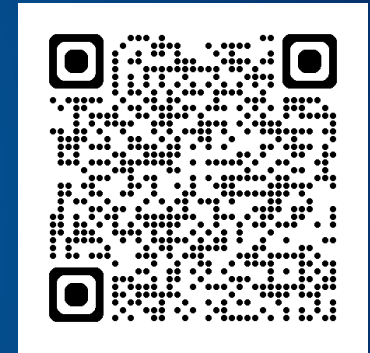
Step 2: Get access.

Step 2: Get training.

Step 3: Start mapping and integrating

You don't have to do this alone or start from scratch

Questions?



GIS
Assessment
Survey

TribalGovernment@esri.com