

Top Trends Counties Need to Know about GIS



Richard Leadbeater, Esri

Geographic information system (GIS) technology found its way into our living rooms through county briefings and dashboards on the COVID-19 pandemic. This phenomenon/spotlight resulted in a massive expansion of GIS use for economic recovery, increased transparency, vaccine distribution, addressing equity, broadband development, safer streets, parks and recreation management, civic engagement, and advancements in self-service government.

But what is next?

How are counties continuing to modernize their services through GIS?



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Government Trade Association

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The Central Problem of Our Time

Our Lack of *Understanding* . . .
and Failure to Collaborate . . .

Challenging Our Sustainability
And Threatening Our Future

A New Data Infrastructure Is Emerging Rapidly

...and it requires location intelligence.

A System for Access, Sharing & Collaboration

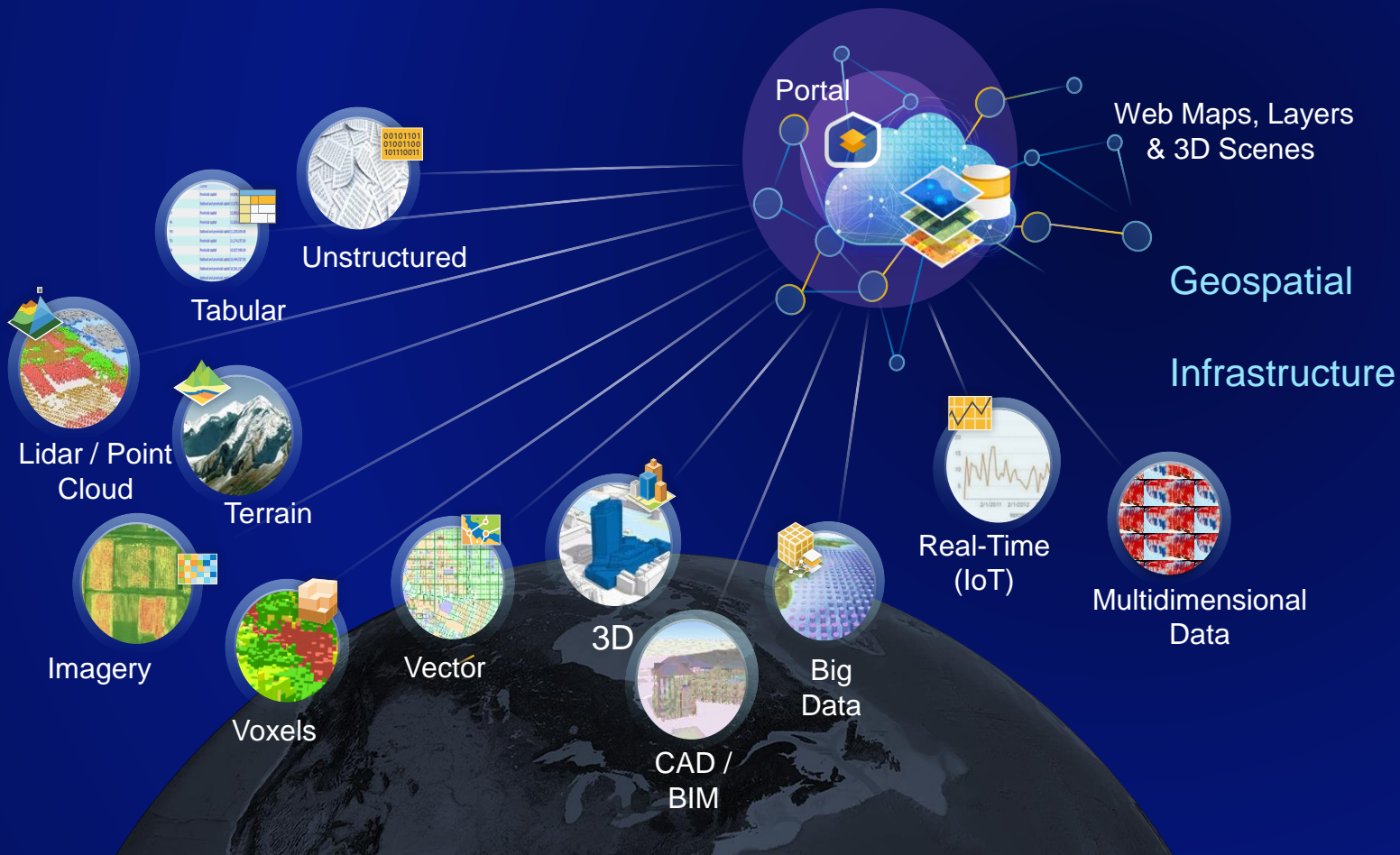


*Interconnecting and Empowering GIS Professionals . . .
Helping Them Work Together in New and Important Ways*

The Data that Feeds GIS is Advancing

Integrating Every Type and Format of Data

... Making Them Directly Usable as Services



Pop Quiz



Mapping

. . . and The Geographic Approach

Are Powerful Means for . . .

Creating Understanding . . .

Exploring Alternatives . . .

Finding Solutions . . .

and Reaching Agreement

DATA



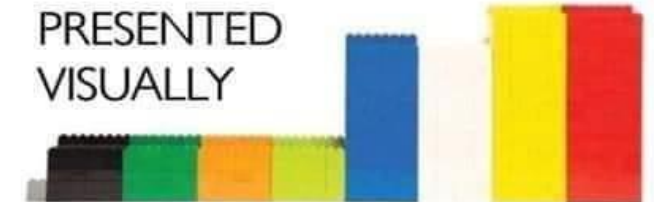
SORTED



ARRANGED



PRESENTED
VISUALLY



EXPLAINED
WITH A STORY



IT & GIS Professionals

Have Important Responsibilities . . .
Facilitating the Creation of Common Ground

Seeing What's Needed and Wanted

Supporting
Community Engagement
and Collaboration

Connecting Data & Science to
Decision Making

Enabling Holistic Approaches

Maintaining the Public Trust

Listening, Understanding, Resolving Conflict and Creating Solutions



Mapping

. . . and The Geographic Approach

Are Powerful Means for . . .

Creating Understanding . . .

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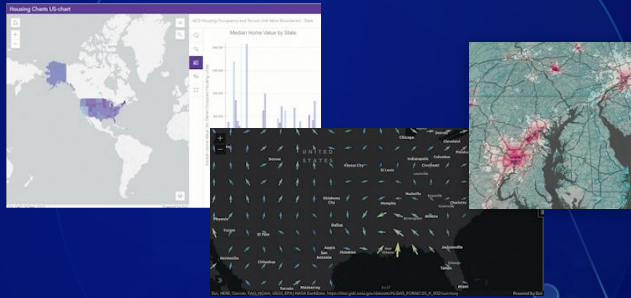
and Reaching Agreement



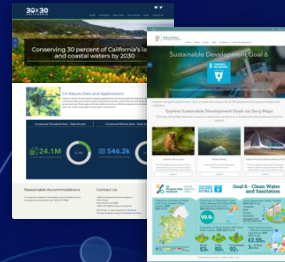
Innovations

Are Advancing Our Collective Ability To Understand, Communicate and Create Solutions . . .

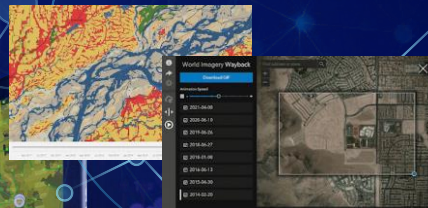
Interactive &
Real-Time Maps



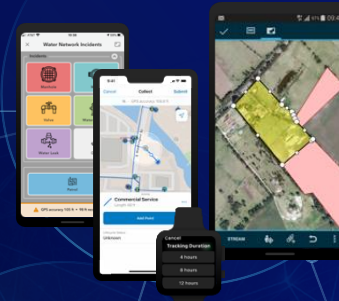
GeoCollaboration Hubs



Imagery & Remote
Sensing



Pervasive &
Connected Apps



Geodesign



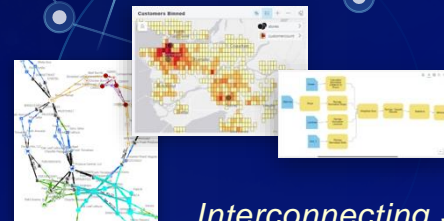
Reporting &
Storytelling



3D Visualization



Analytics



Cloud Computing



*Interconnecting Systems – Enabling Geospatial Infrastructure
Opening and Extending the Application of GIS*

Mapping Is a Fundamental Language

For Telling Stories About Our World . . .

Helping Us Understand and Collaborate

Visualizing
Organizing
Abstracting
Communicating
Planning
Envisioning
Analyzing
Problem Solving
Evaluating
Acting



Mapping . . .



What Is

What Could Be

. . . Advancing Civilization

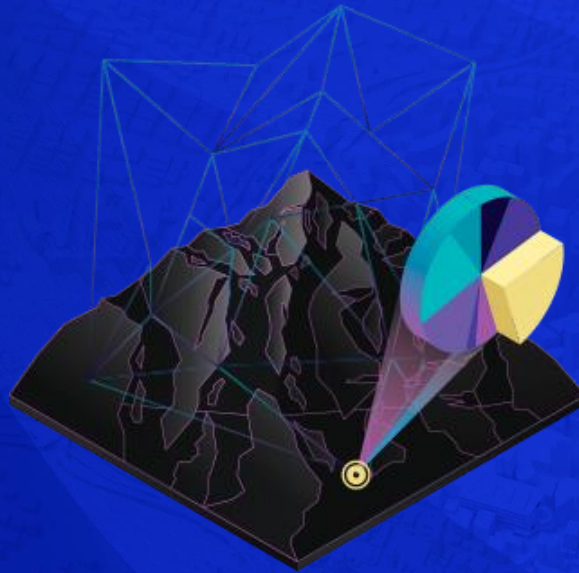


The Many Roles of GIS...



Data

GIS integrates many different kinds of data through spatial location.



Spatial Analysis

Location provides new perspectives to your insight and decision-making.



Apps

Apps provide focused user experiences.

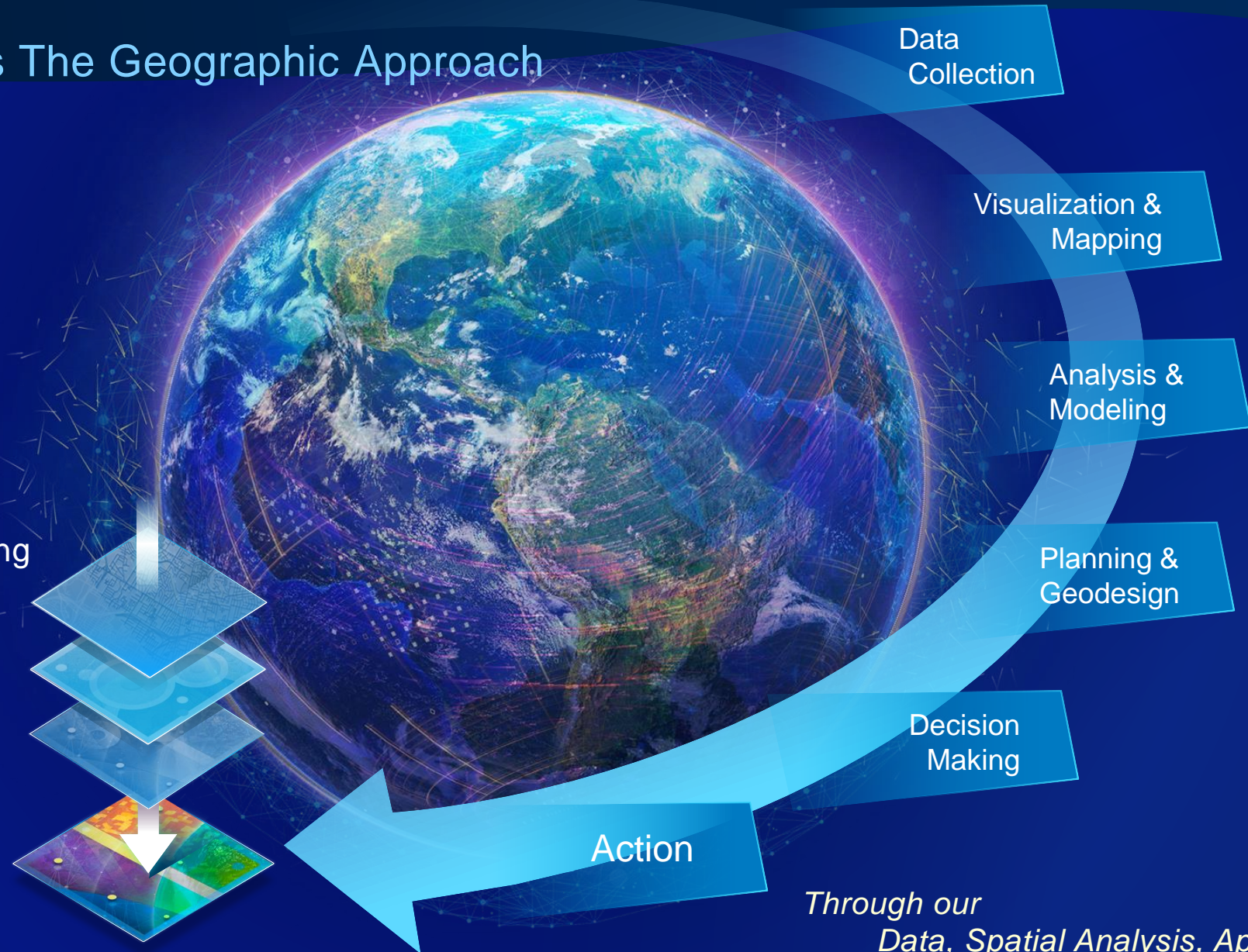


Maps

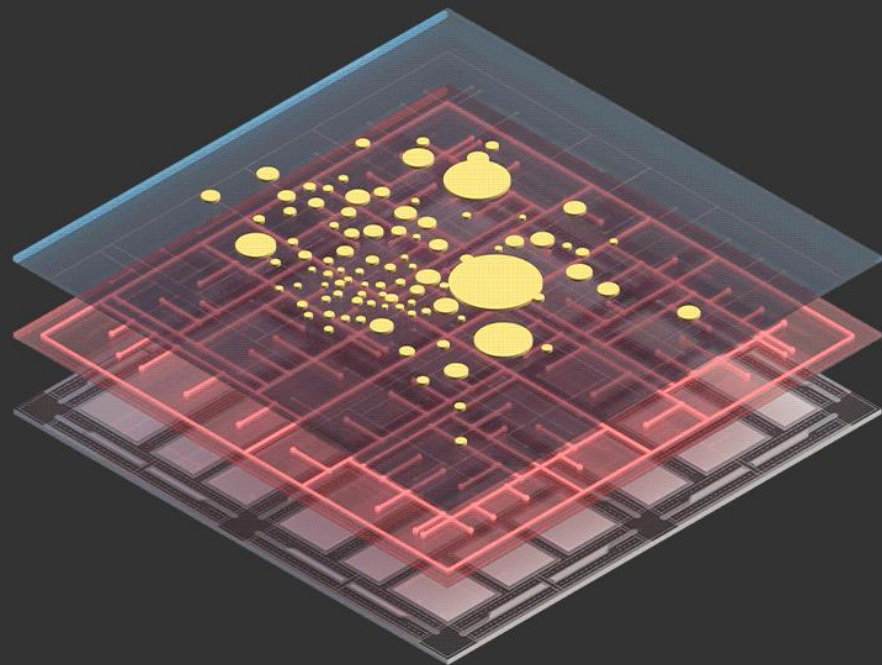
Maps are the geographic container.

GIS Enables The Geographic Approach

A Process for
Creating Understanding
& Facilitating
Collaboration



*Through our
Data, Spatial Analysis, Apps, and Maps.*



But...
What do County
Leaders Want?

It Starts With Identifying Priorities...

Rebuild, Rethink, & Reimagine

Broadband Build-out
Building for the Future
Transportation & Mobility
Preparing for Infrastructure Investments

A Well Run Community

Vision Zero
Digital Twin
Real-Time Awareness
Data-Driven Decision Making

Achieving Equity & Inclusion

Economic Mobility
Affordable Housing
Civic Engagement
Equitable Budgeting

Improved Sustainability & Resiliency

Climate Impacts
Situational Awareness
Effective Disaster Response
Disaster Management & Resiliency

Humans in Crisis

Substance Misuse
Healthy Communities
Access to Care & Services
Homelessness & Housing



SOLVING *for a* **CRISIS**

*With repeatable
patterns*

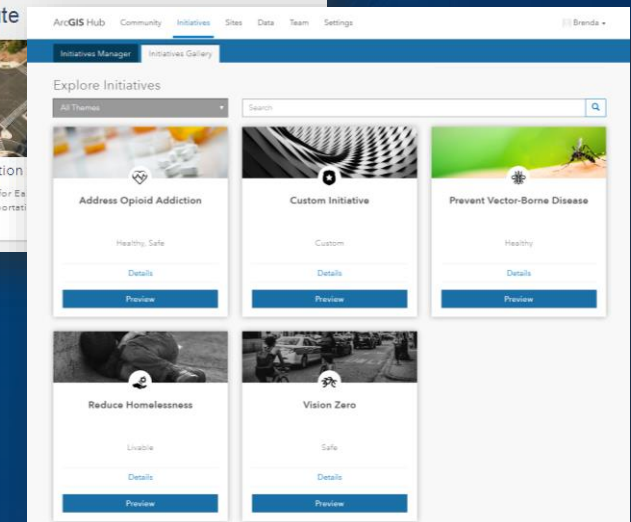


*Based on Esri Customers' History. . .
in Responding to Crises*

1 | Organize Existing Data

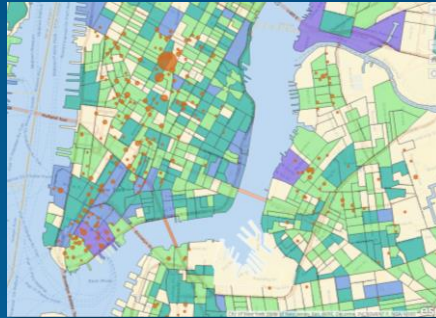
Leverage open data that is ready to be used

Take advantage of different data sources across departments



2 | Collect New Data

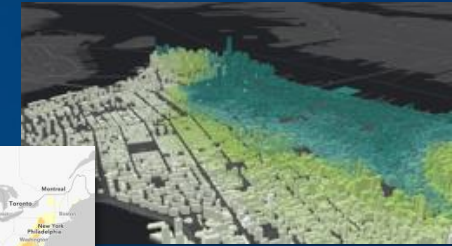
- Supplement existing data with geoenriched data, analysis, and crowdsourced information
- Analyze information in a variety of ways:
 - ArcGIS Maps for Office
 - Geoenrichment
 - Big Data Analysis Tools



Demographic Data



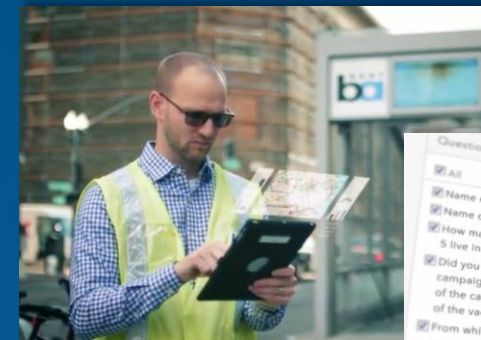
Drought Monitor



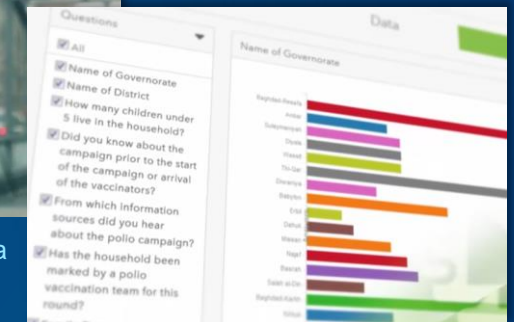
Media Household Income



Drone Imagery



Field or Crowdsourced Data

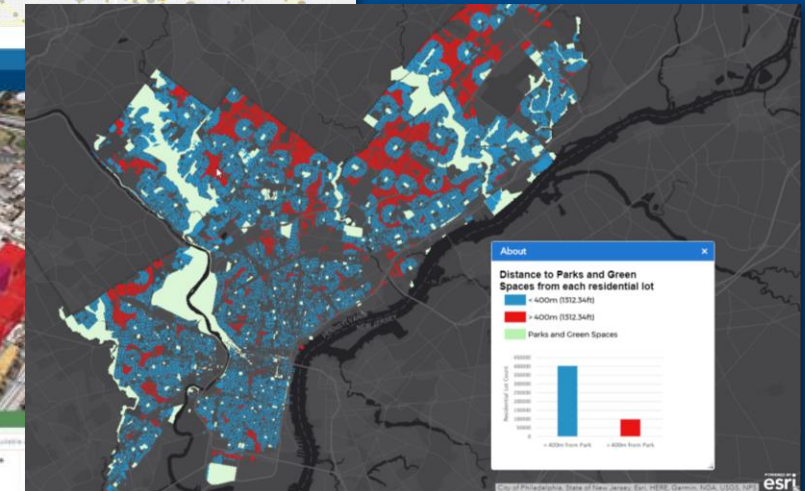
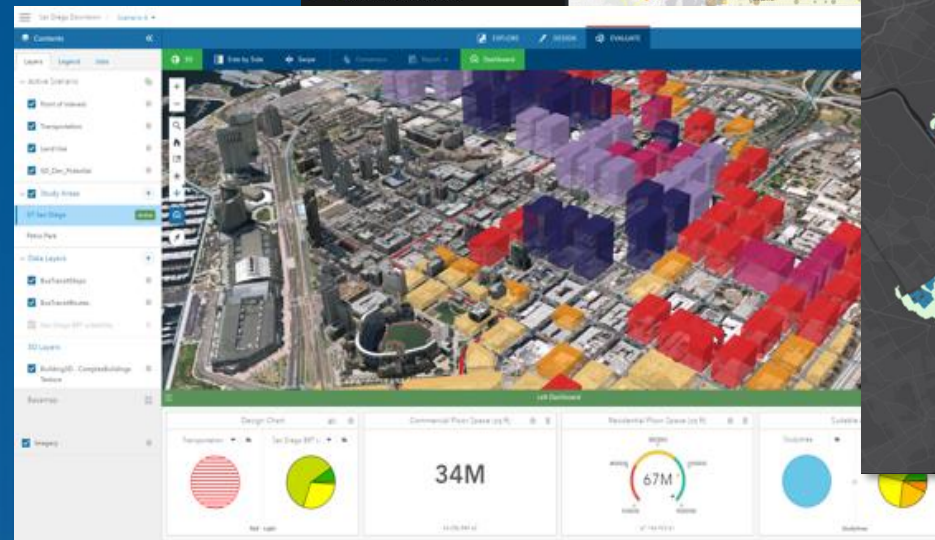
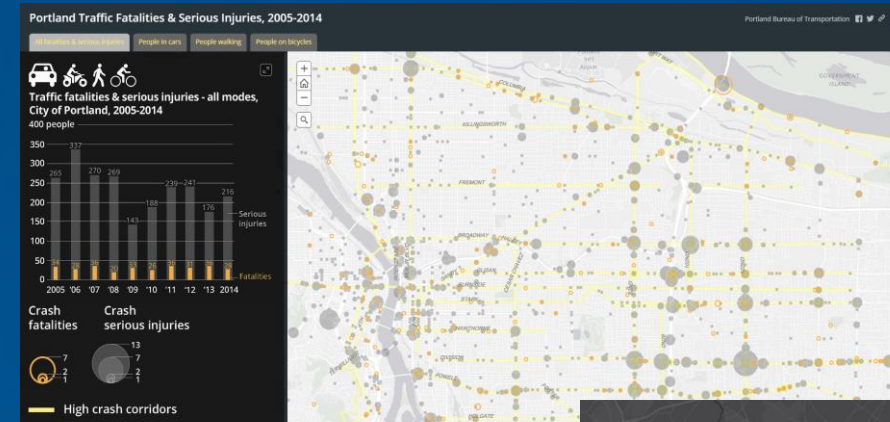


3 | Communicate Your Findings

Ensure your organization, decision makers, and the public are aware of the situation and fully understand the problem



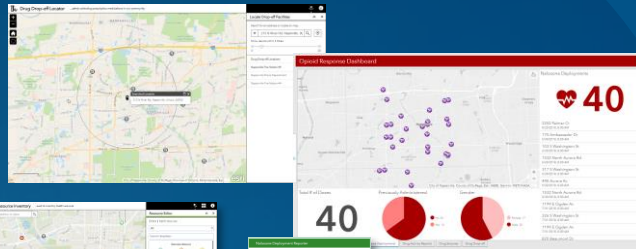
Portland, Oregon – Traffic Fatalities



4 | Deploy Tactics

Opioid Crisis

Prescription Drop-Off Locator



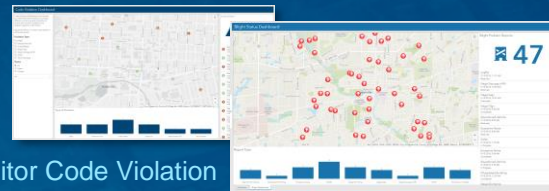
Inventory Health Resources

Report Drug Activity or Naloxone Deployment

Monitor Opioid Response

Blight

Monitor Code Violation



Property Condition Survey

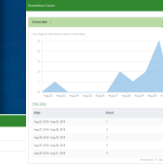


Homelessness

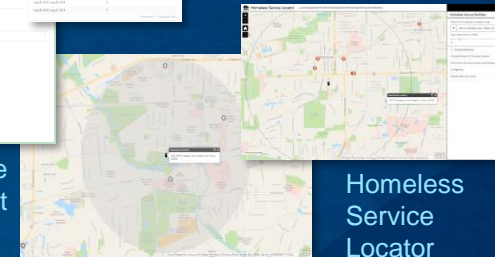
Homeless Dashboard



Homeless Count



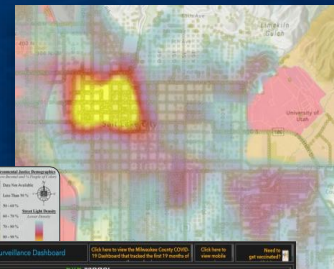
Point-in-Time Count



Service Locator

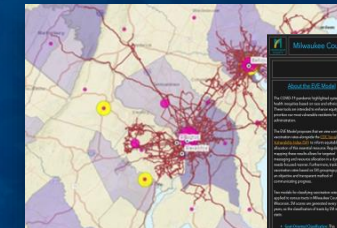
Homeless Service Locator

Streetlight Density & Environmental Justice

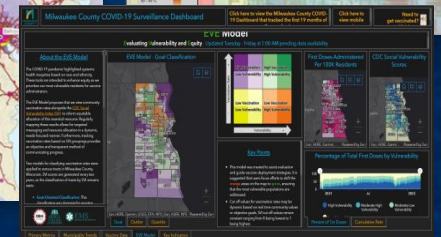


Equity

Transit Access for Socially Vulnerable Communities



Evaluating Vulnerability and Equity Model

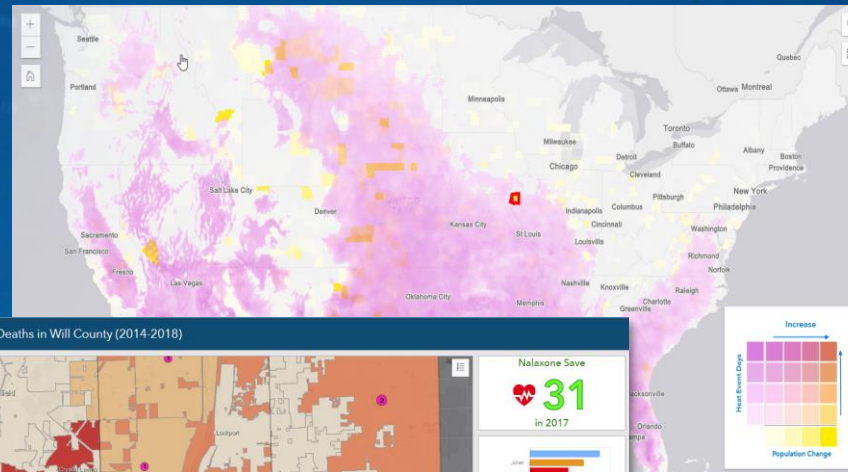


And more...

5 | Inform Decision Makers

Acting on actionable intelligence in real-time

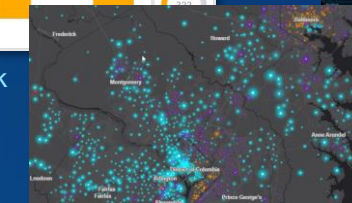
Dashboards and reports allow for iterative policy making



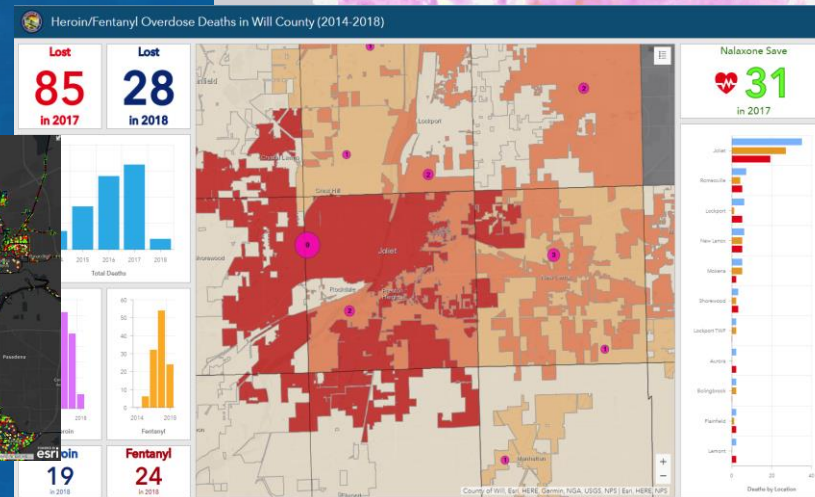
Water Risk



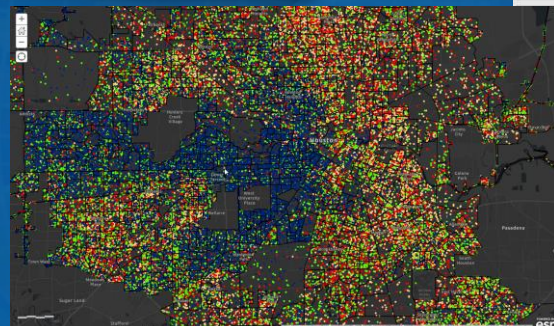
Water Quality



Income Explorer



Heroin/Fentanyl Overdoses



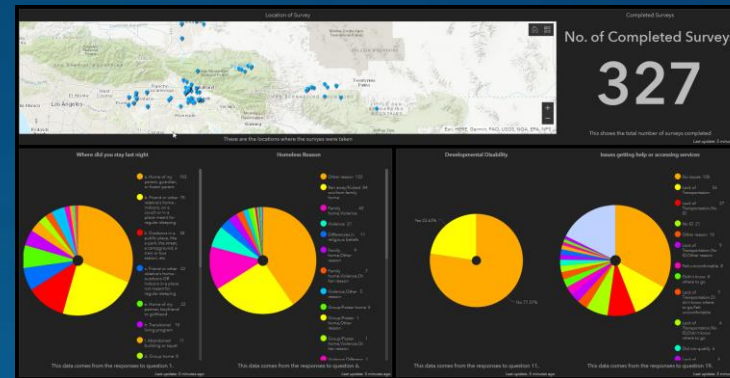
Educational Attainment

Future Heat Events

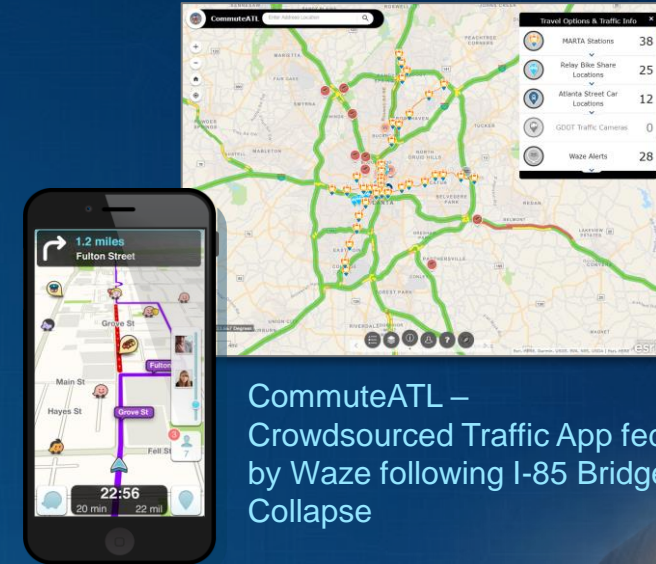


6 | Engage with Citizens

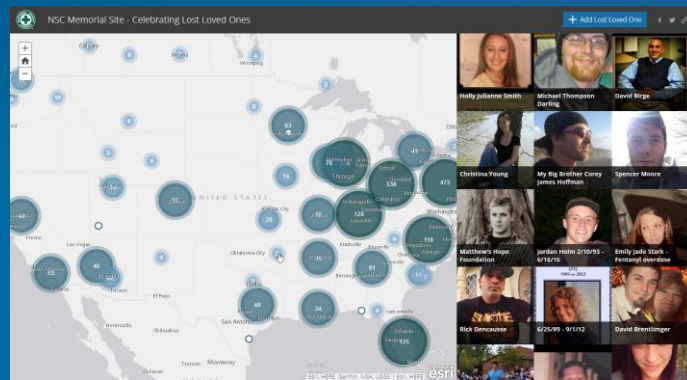
Crowdsourcing, Educating, and Connecting



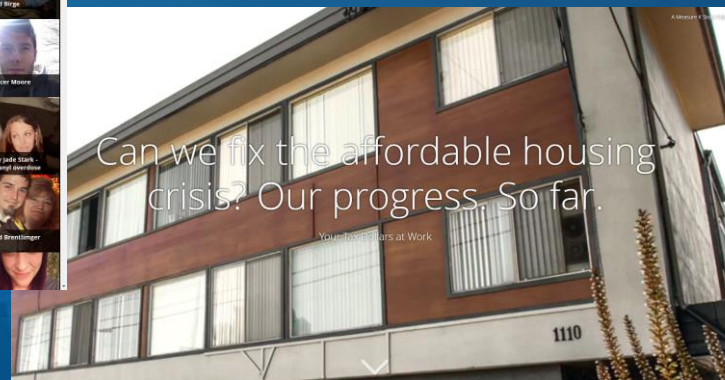
Unaccompanied Youth – Volunteer Survey Project



CommuteATL –
Crowdsourced Traffic App fed
by Waze following I-85 Bridge
Collapse



Celebrating Lost Loved Ones
Crowdsourced Story Map



Your Tax Dollars at Work – County of San Mateo, CA

CREATING OPPORTUNITIES FOR INTERVENTION

Simple steps you can take today...



Seek out your
GIS staff

Generate maps and
data that start the
conversation

Set up a
cross-departmental
task force

Leverage the newly
discovered insight

Deploy tactics that
address problem areas

Measure

Adjust

Moving from Policy to Action...





Housing & Homelessness

This Is Happening Across
Departments

Substance Misuse



Sustainability & Resiliency

County
Government

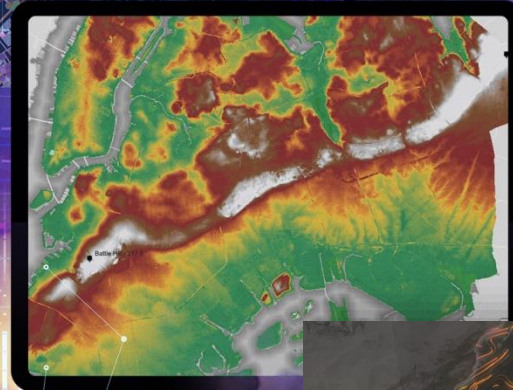
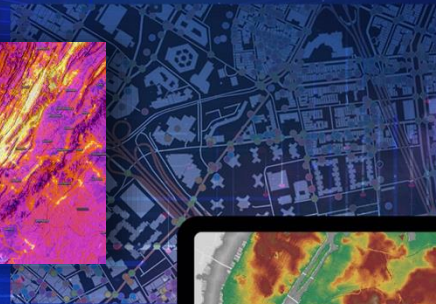
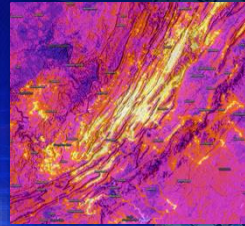
Top Trends *or* Patterns of Use

Achieve Equity & Inclusion

Address Humans in Crisis

Improve Sustainability & Resiliency

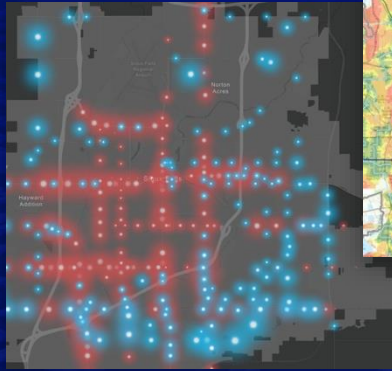
Rebuild, Rethink & Reimagine Infrastructure



Rebuild, Rethink & Reimagine Infrastructure

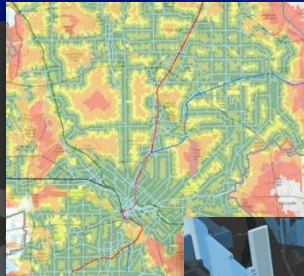
Transportation & Mobility

Traffic Count Change



City of Sioux Falls
South Dakota

Access to Bus Networks



DART
Dallas, Texas

EV Charging
Stations Accessibility



Los Angeles, California



Traffic Volume

Wyandotte County
Kansas City, Kansas

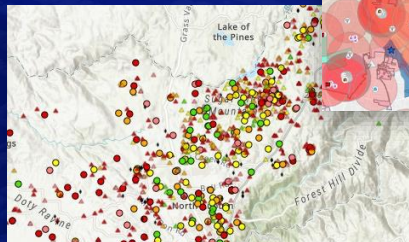
Broadband

Internet Speeds



Platte River Analytics
Ohio

Rural Broadband
Survey



County of Placer
California

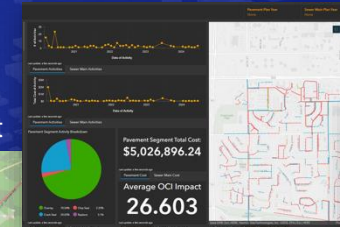
Network Planning



City of Albuquerque
New Mexico

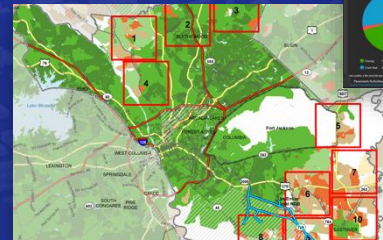
Prioritization of Projects

Pavement Maintenance



West Des Moines, Iowa

Targeting
Infrastructure Investment



Columbia, South Carolina

Construction Management



San Francisco
Int'l Airport
California

Subsurface
Asset Management



Preparing for Infrastructure Needs

Managing Wastewater Facility



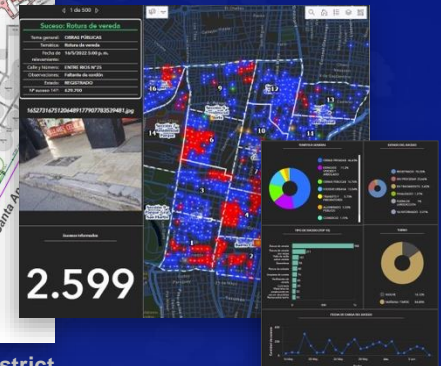
Orange County Sanitation District
California

Monitoring Water Consumption



Palm Beach County Water
Utilities Department
Florida

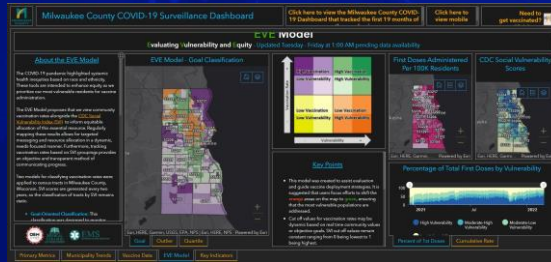
Monitoring Urban
Infrastructure



Achieve Equity & Inclusion

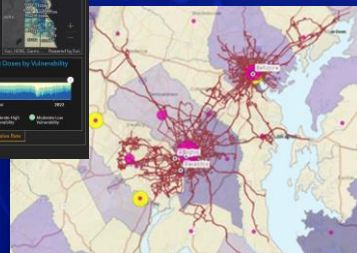
Identify Vulnerable Populations

Evaluating Vulnerability and Equity Model



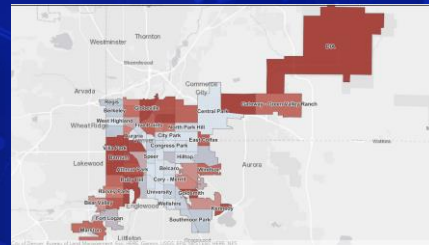
County of Milwaukee
Wisconsin

Transit Access for Socially Vulnerable Communities



USDOT
Washington, DC Region

Food Deserts



City and County of Denver
Colorado

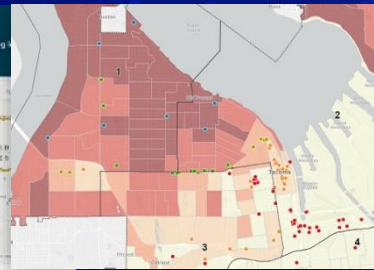
Equitable Budgeting

Budgeting Portal



US Bureau of Reclamation
US

Grant / Loan Applications & Equity



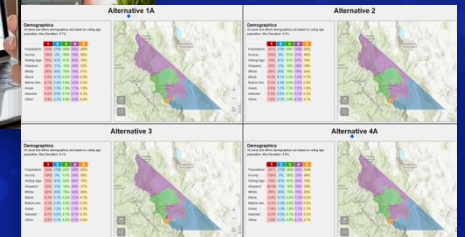
City of Tacoma
Washington

Civic Engagement

Citizen Surveys



Redistricting



Mono County
California



Douglas County
Government
Colorado

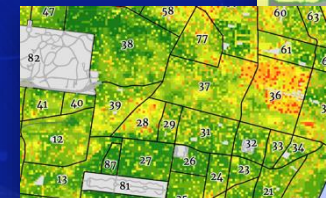
Environmental Justice

Power Plant Emissions & Environmental Justice



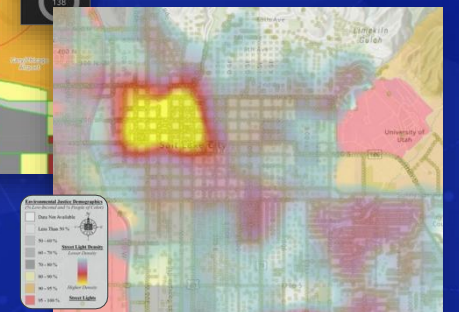
US EPA
US

Prioritizing Urban Tree Planting



City of St. Louis
Missouri

Streetlight Density & Environmental Justice



Salt Lake City Department
of Public Utilities
Utah

Improve Sustainability & Resiliency

Climate Impacts

Hurricane Tracking & Assessment

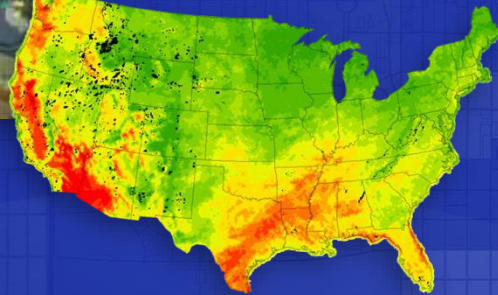


Sea Level Rise



Texas | Louisiana | Mississippi

Drought & Wildfires



Effective Land Use

Land Use & Transit Planning

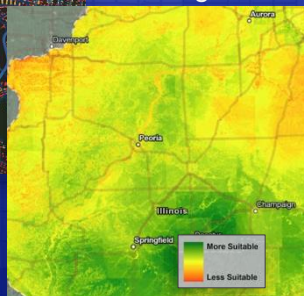


Columbia
South Carolina

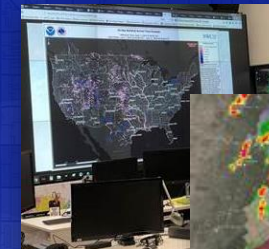
Urban Solar Potential



Suitability for Lease Farm Agriculture

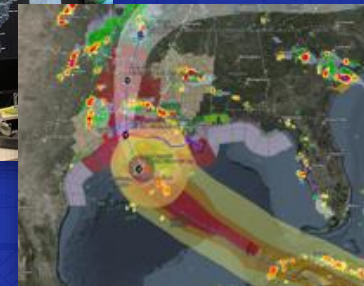


Real-Time Flood Inundation Mapping

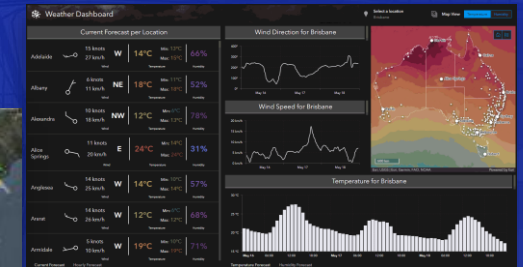


NOAA | NWC

Hurricane Tracking & Assessment



Real-Time Weather Dashboard



Flood Modeling



Economic Stability

Affordable Housing Programs

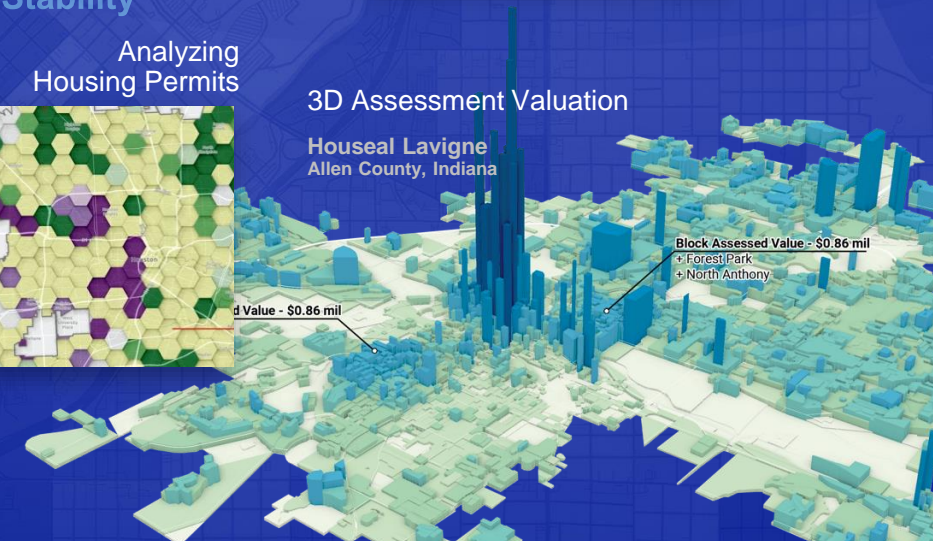


Analyzing Housing Permits



3D Assessment Valuation

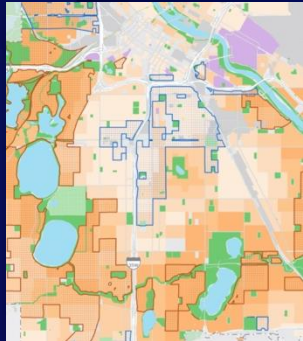
Houseal Lavigne
Allen County, Indiana



Address Humans in Crisis

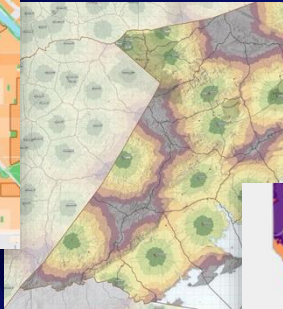
Access to Services

Park Accessibility and Equity

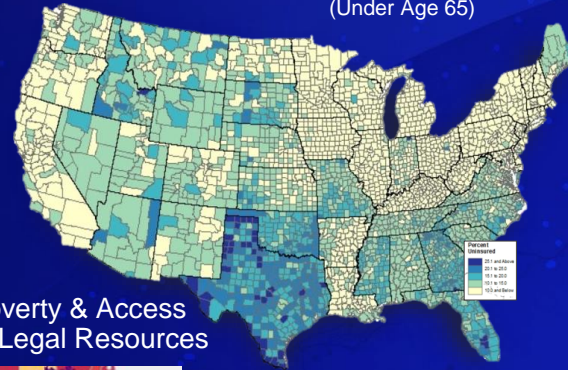


The Trust for Public Land Minnesota

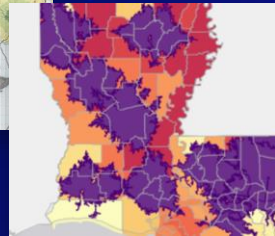
Access to Health Facilities



Percent Uninsured (Under Age 65)



Poverty & Access to Legal Resources



US Census Bureau US

Disease Outbreaks

COVID-19 Tracking



COVID-19 Vaccinometer



Mental Health

Mental Health Analysis



County of Riverside California

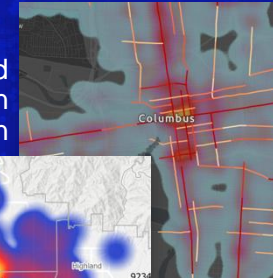
Homelessness

Monitoring Populations Experiencing Homelessness

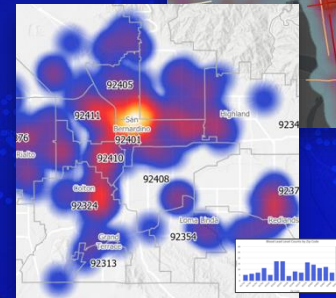


San Bernardino County California

Mapping Road Crash Data



High Lead Levels in Children



San Bernardino County California

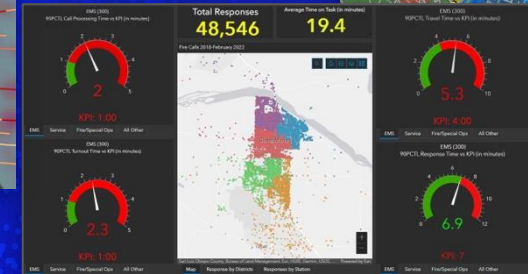
Public Safety

911 Dispatching



Butler County Sheriff's Office Ohio

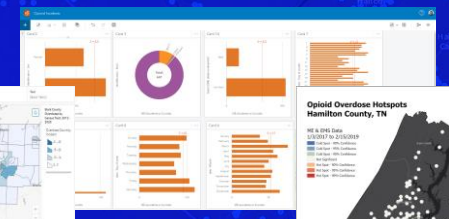
Fire Response Dashboard



City of Santa Maria California

Substance Misuse

Opioid Overdoses



Hamilton County Tennessee

Overdoses in Real-Time



Stark County Ohio

Stimulus Programs & Funding Opportunities

Remember Federal Priorities & Administration Initiatives



Understand Climate Impact



Leverage “Decision-Making Tools”



Address Aging Infrastructure



Broadband Expansion to Address Digital Divide



Adhere to Equity, Environmental and Resiliency Requirements (i.e., Justice40)



Ensure Strategic Investment

Stimulus Programs & Funding Opportunities

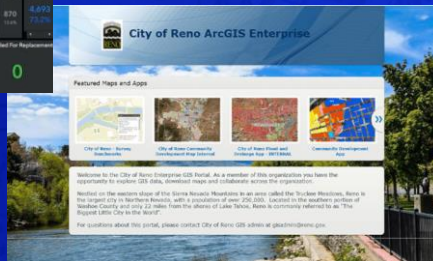
Progressing Your Communities with GIS

Replacing Lead Water Pipes



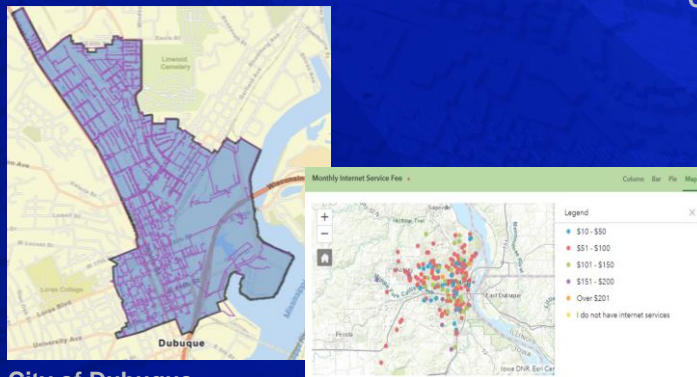
City of Oconomowoc
Wisconsin

Purchasing Software through the CARES Act



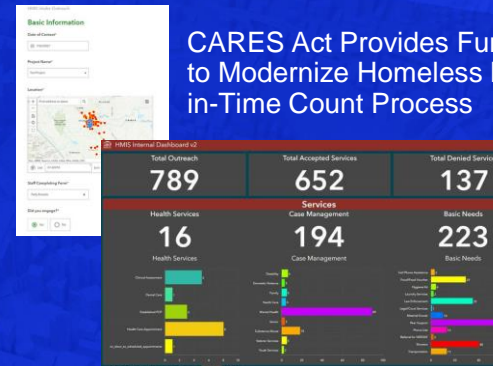
City of Reno
Nevada

Leveraging GIS to Apply for NTIA Broadband Grants



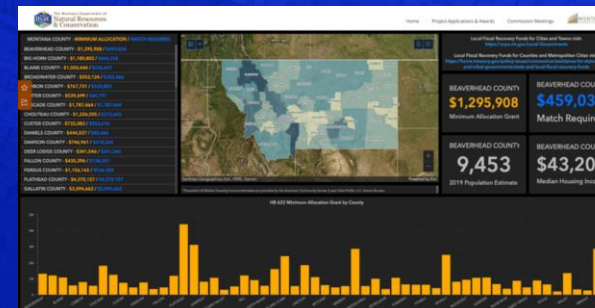
City of Dubuque
Iowa

CARES Act Provides Funding to Modernize Homeless Point- in-Time Count Process



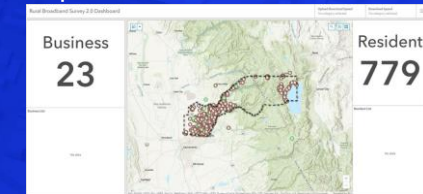
City of Modesto
California

Managing Equitable Distribution of \$900M in ARPA Grants for Water and Sewer Infrastructure



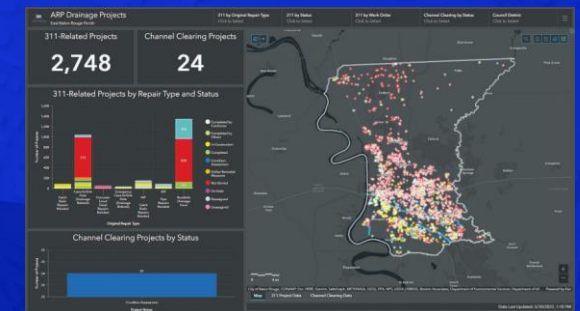
State of Montana

\$10M from ARPA Helps Expand Broadband Access



Placer County
California

Manage Allocation of \$40M in ARPA Funds to Address Drainage Improvements



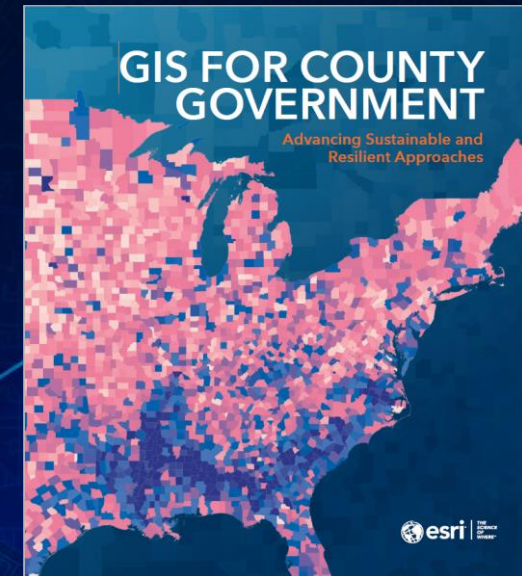
Parish of East Baton Rouge
Louisiana



Save the Dates

December 2022 – Virtual CIO Forum

Spring 2023 – Esri Public Sector CIO Summit in Redlands, CA



Available Soon



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