Driving Smarter Utility Operations with The Science of Where

Daniel Johns, GISP | GIS Manager

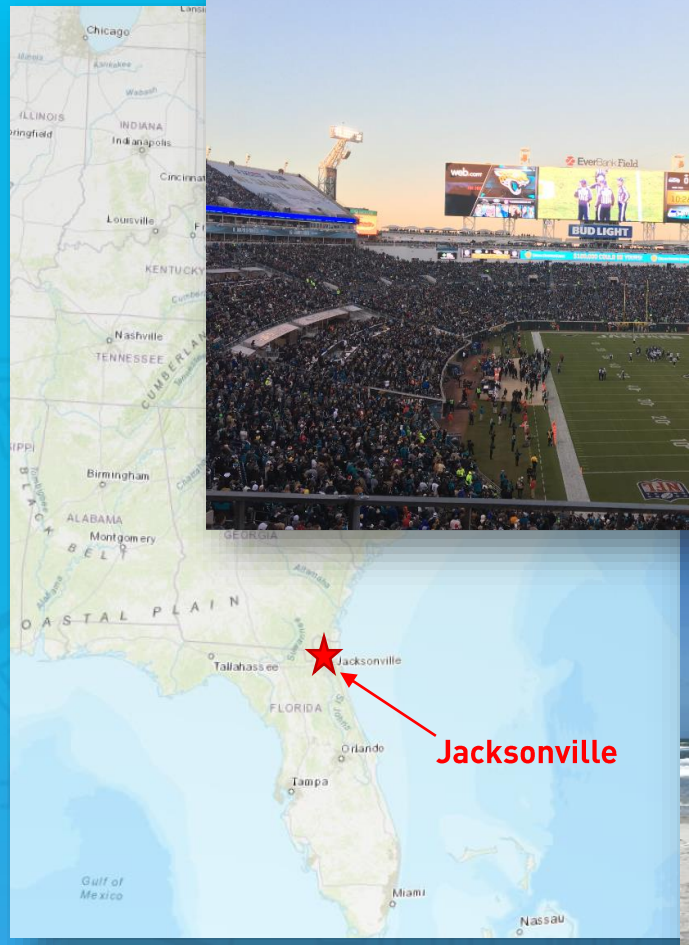
Clay County Utility Authority, Middleburg, FL

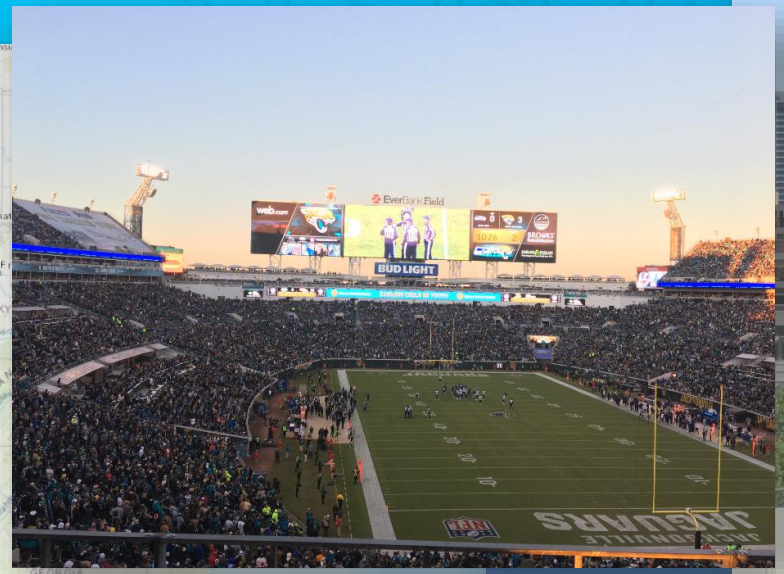
PRESENTER

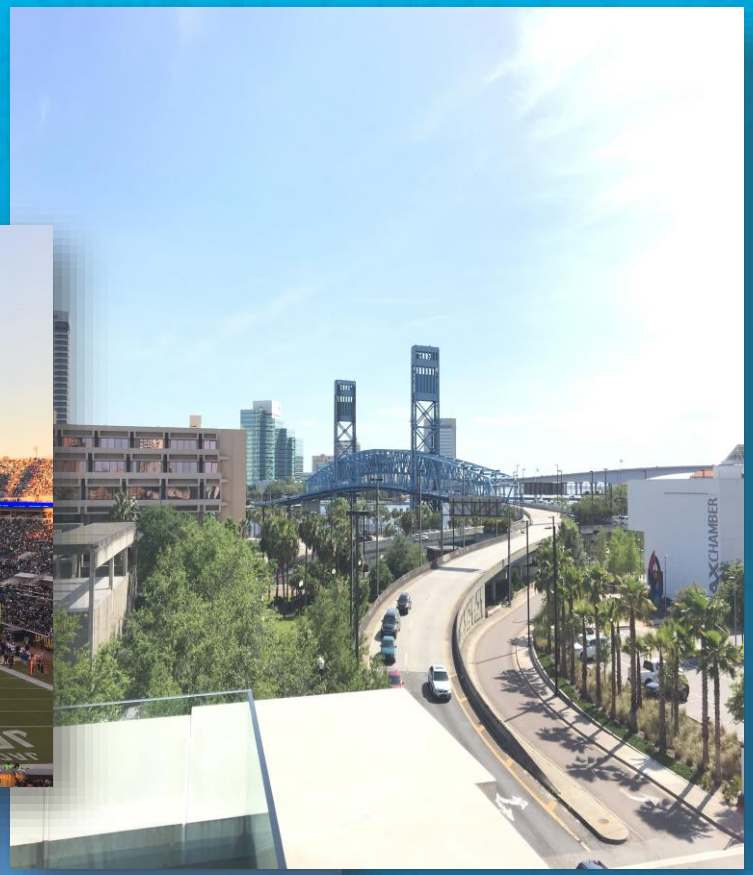
Daniel Johns

- GIS manager for a local utility organization
- Specializes in water, wastewater, and reclaimed water
- CCUA employee for over 15 years
- Esri customer for over 15 years
- GISP since 2011

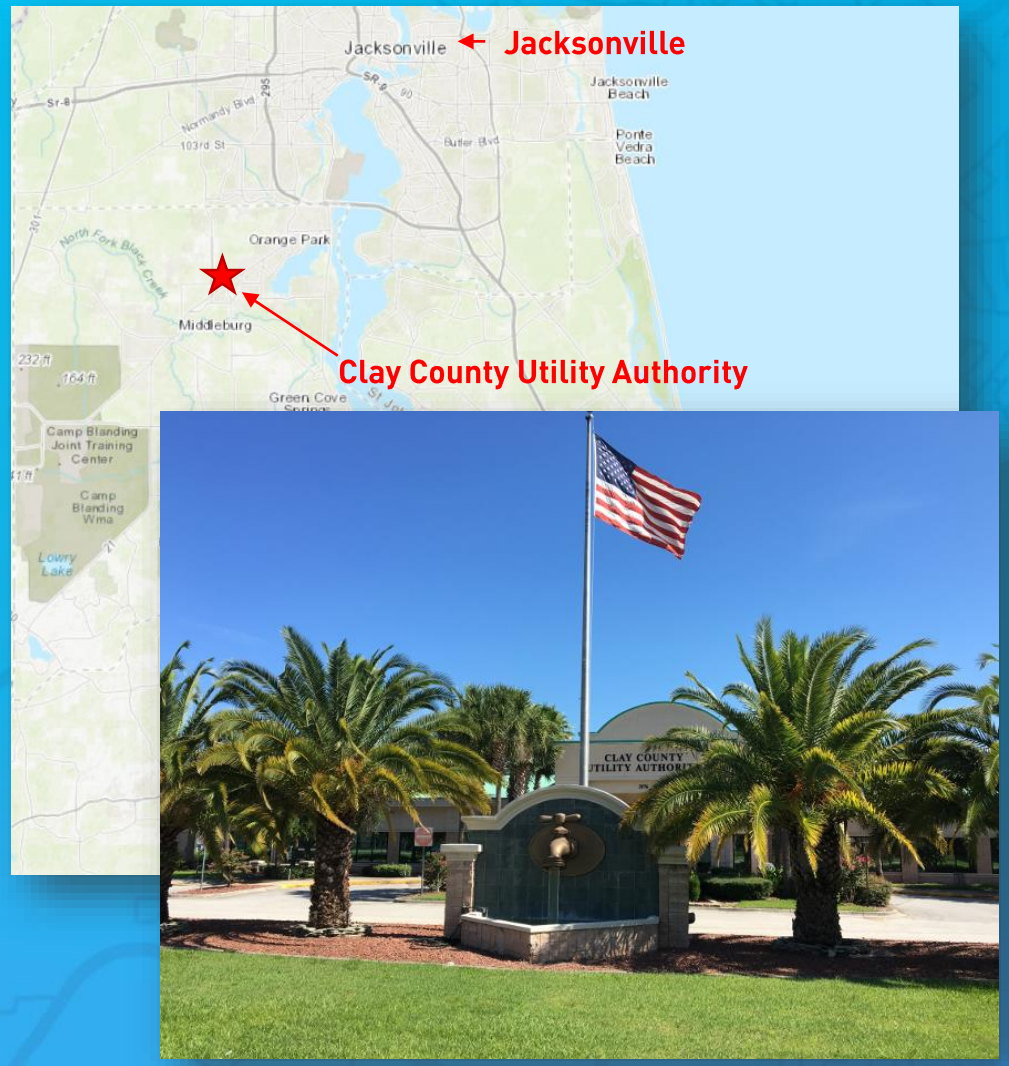
Jacksonville, Florida







Middleburg, Florida (CCUA)



- 200,000 residents in Clay County
- 53,000 customers
- 1,500 miles of utility infrastructure
- 160 employees

Timeline

2014

- Fleet GPS Rollout
- Sewer Inspections w\ GIS Implemented
- Joined Esri's Enterprise License Agreement (ELA) Program

2015

- Non-Vehicle GPS Rollout
- Started Surveying and GPS Data Collection

2016

- Joined Esri's Enterprise Assistance (EEAP) Program
- Converted to the Industry Model for Water Utilities

2017

- Portal for ArcGIS Rollout
- Deployed over 100 tablets
- Cartegraph Asset Management System (AMS) Rollout
- Introduced Public Facing GIS

2018

- Integrated Portal and AMS
- Integrated Portal and Sewer Inspections
- Portal Homepage Re-design
- Operations Dashboard and Enterprise Site Rollout

2019

- Collector for ArcGIS Deployed
- ArcGIS Pro Research and Planning
- Utility Network Migration Research and Planning
- AGOL and Portal Collaboration Connection
- Insights

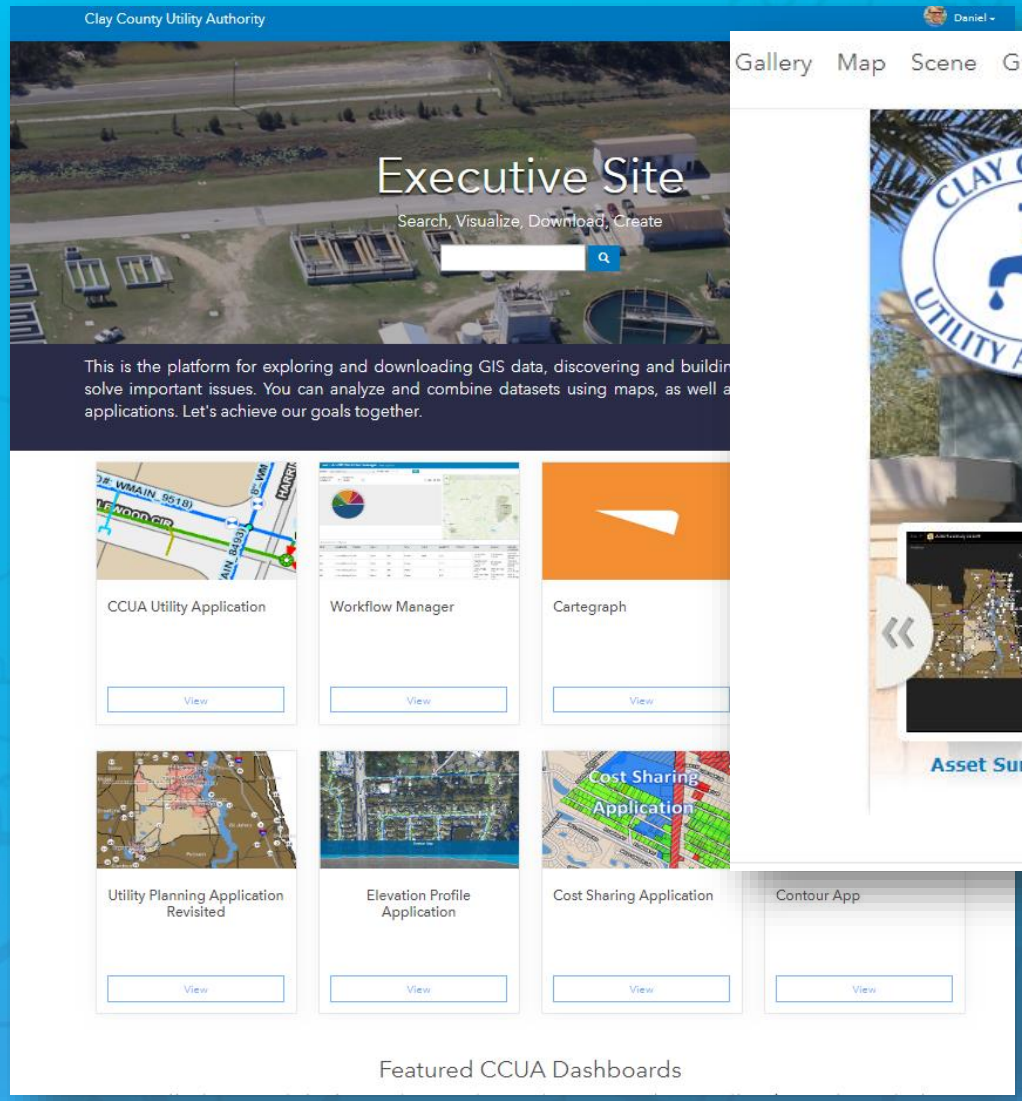
"The Science of Where is the perfect representation of our past, our present, and our future because The Science of Where is, quite simply, what we do. It's what our users do, too, every day."

-Jack Dangermond

What Does It Mean to CCUA?

- Innovation and change
  - The future is now, but we must understand where we started!
  - Identify processes and improve them with technology (geographical or not)
- Staff and customer engagement
  - Be open, be mindful, and be helpful
- Avoid becoming complacent
  - Learn and stay ahead of the curve

Portal and Executive Site

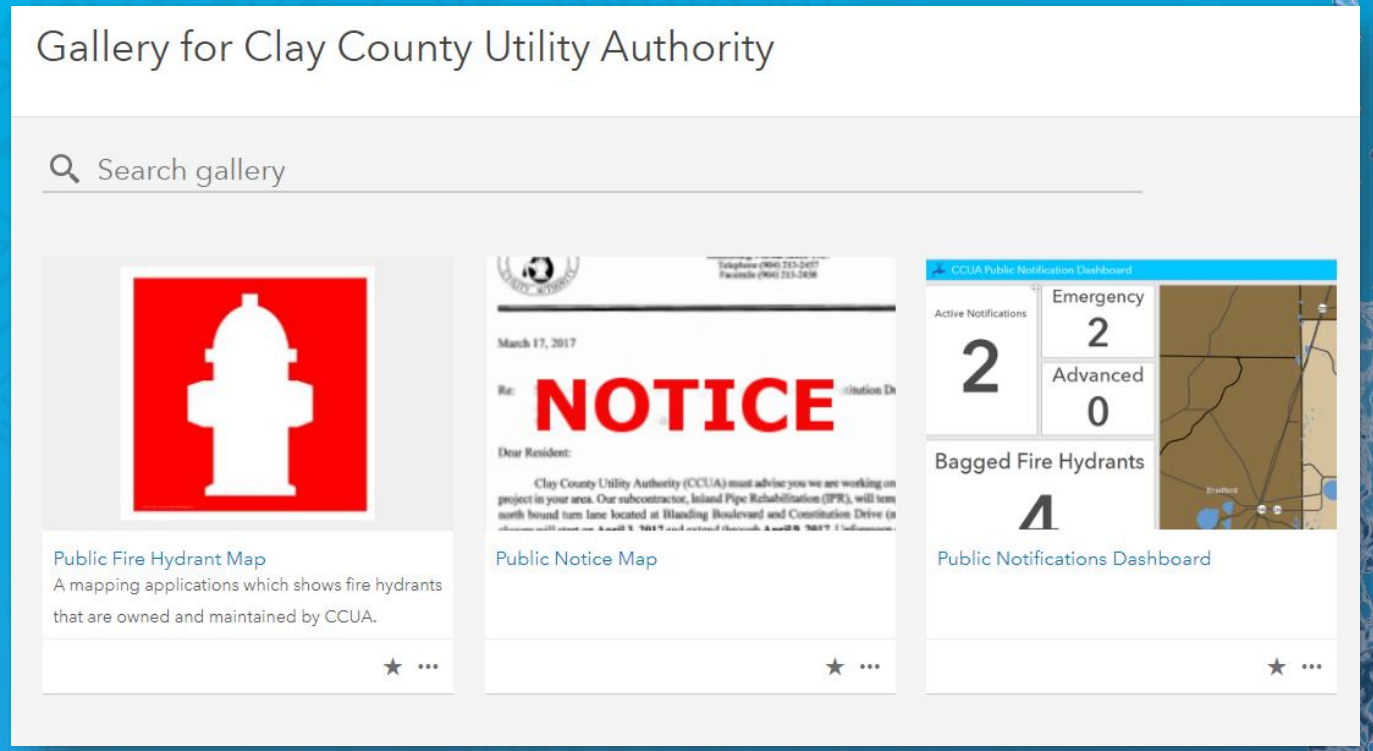


Portal and Executive Site Cont.

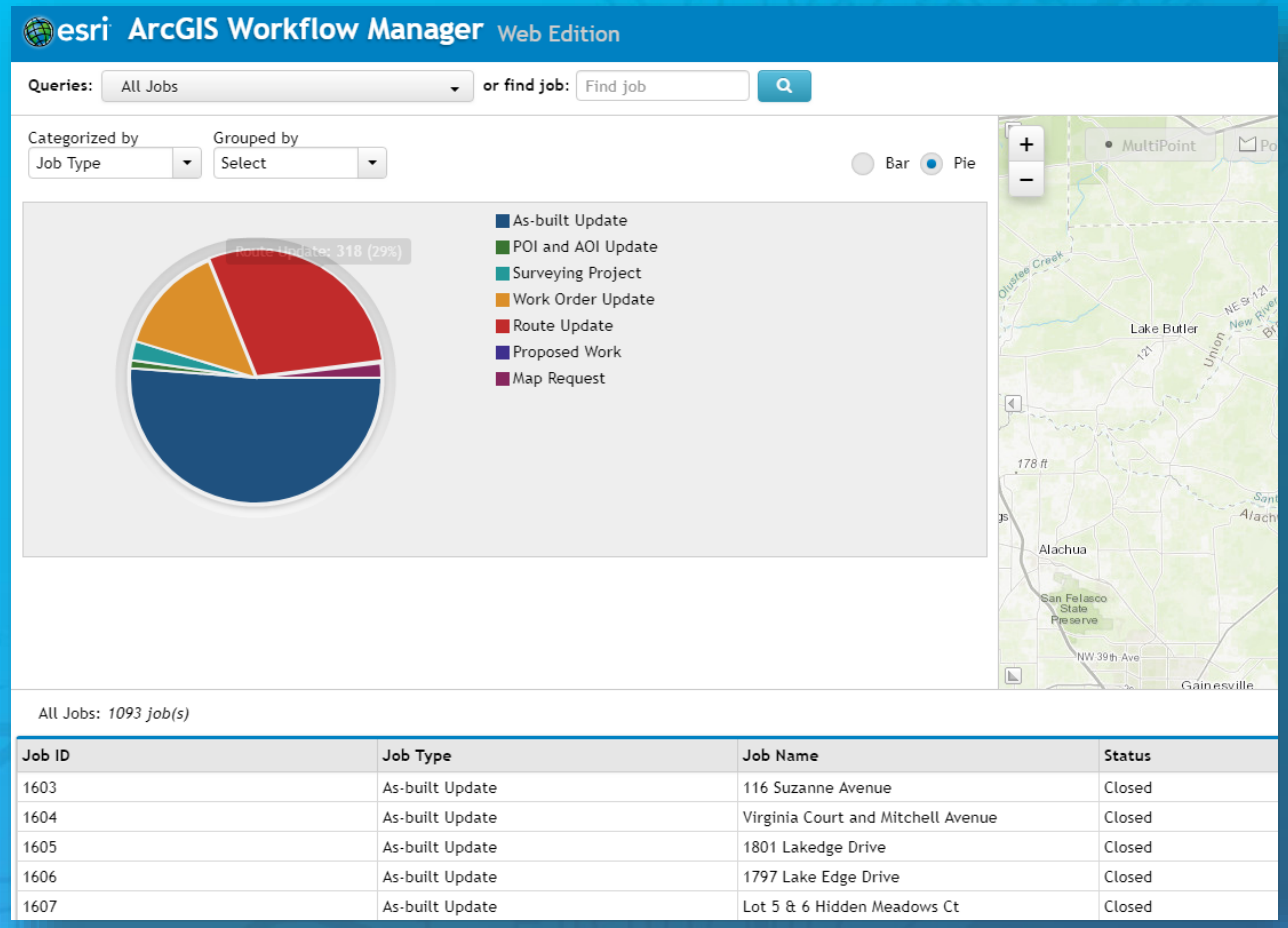
- All content is easily accessible in one location
- Views are customized based on user's permissions
- Dashboards and charts can be added to layout
- Easily search and explore data

Publicly Accessible GIS

- Advisory and Boil Water Notices
- Notification Dashboard
- Fire Hydrant Location Map

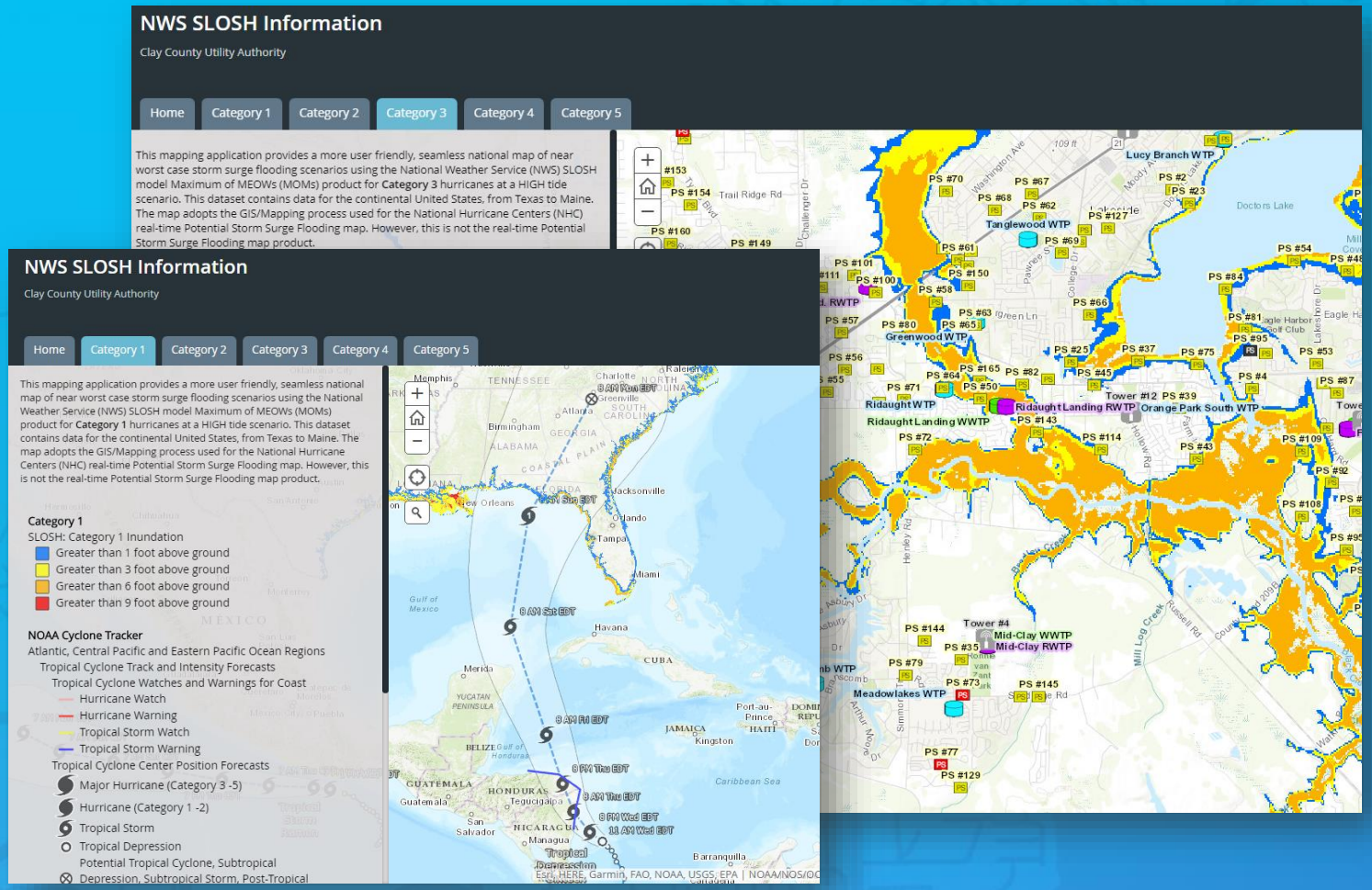


Workflow Management



- Track projects
- Automated workflow
- Email notifications
- Track feature edits

Story Maps: SLOSH

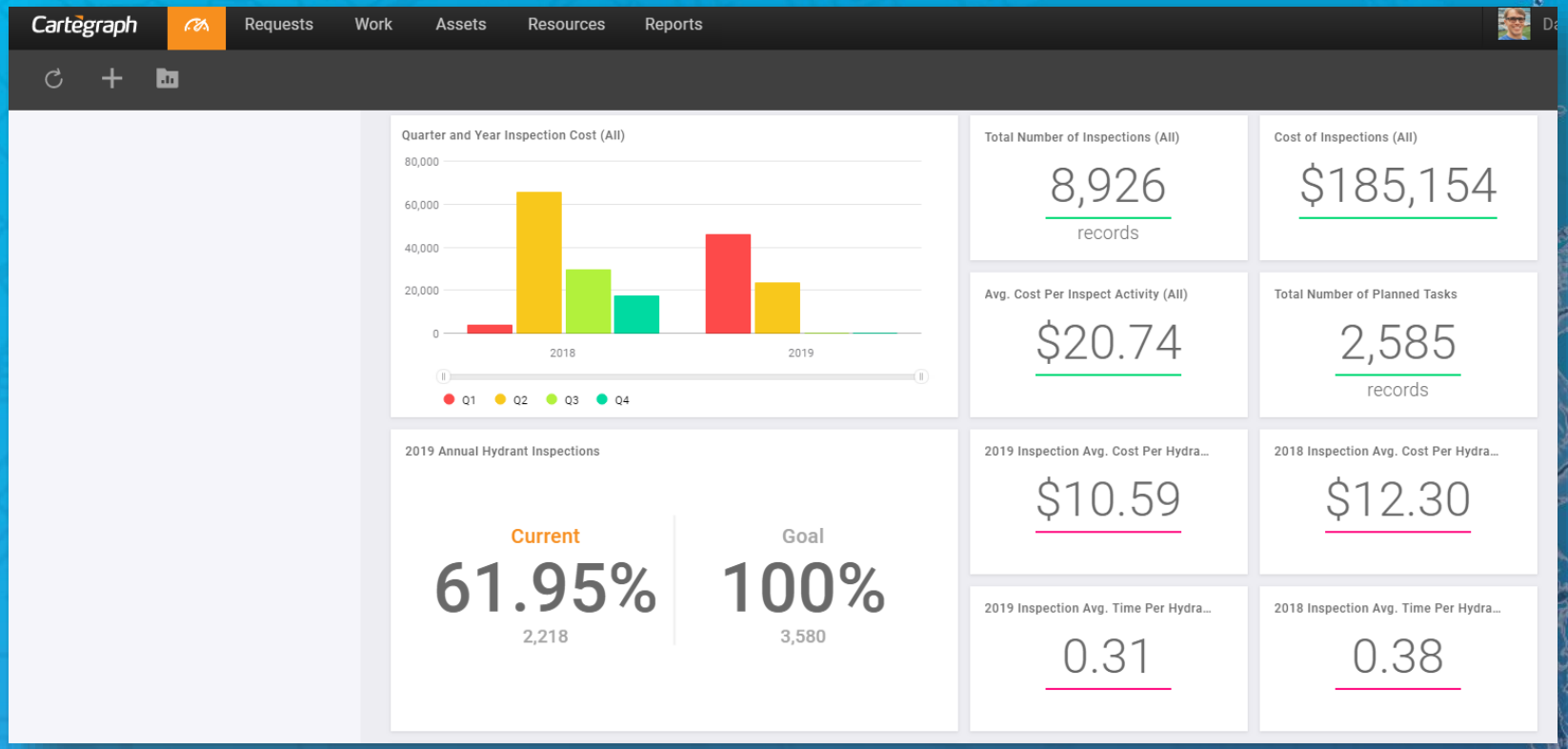


- Displays potential surge based on category
- Shows storm path
- Easy-to-use
- Deployed in 1 hour

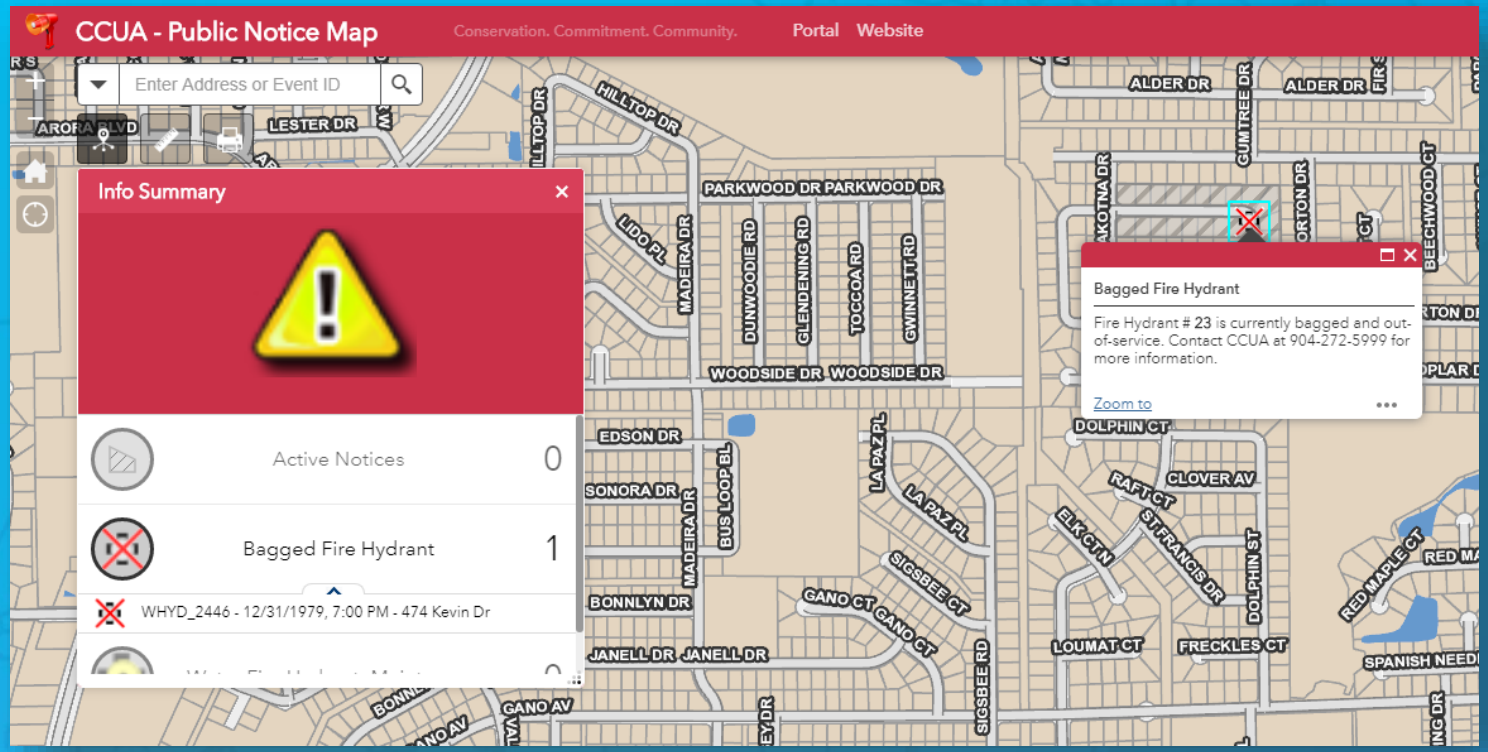
https://www.esri.com/en-us/industries/water/segments/water-utilities/clay-county-case-study

Cartegraph Asset Management System Integration

- GIS attributes are updated through Feature Services
- Two-way sync
- Information viewable in Esri Insights
- Disables out-of-service fire hydrants



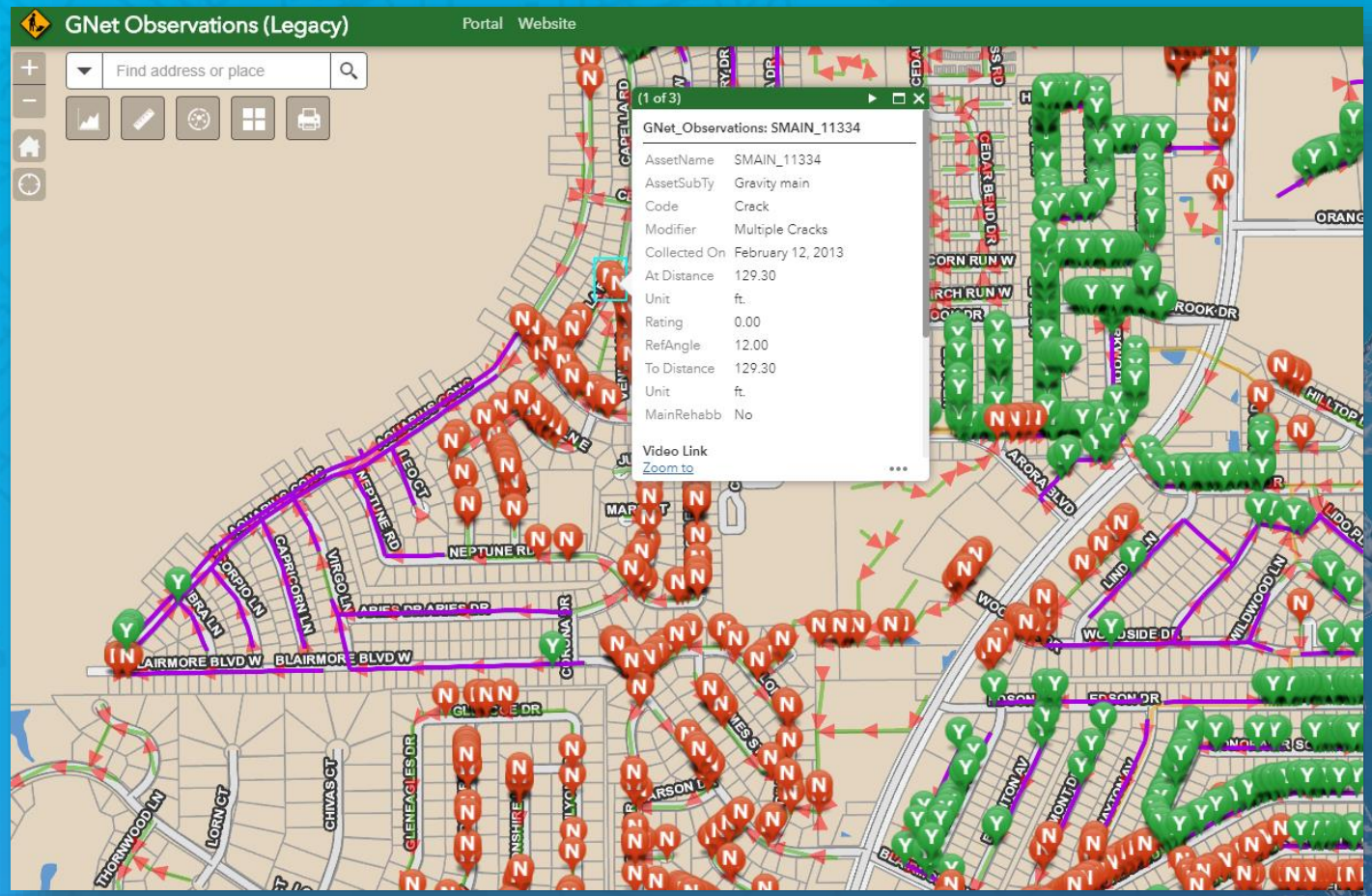
Public Notice Map



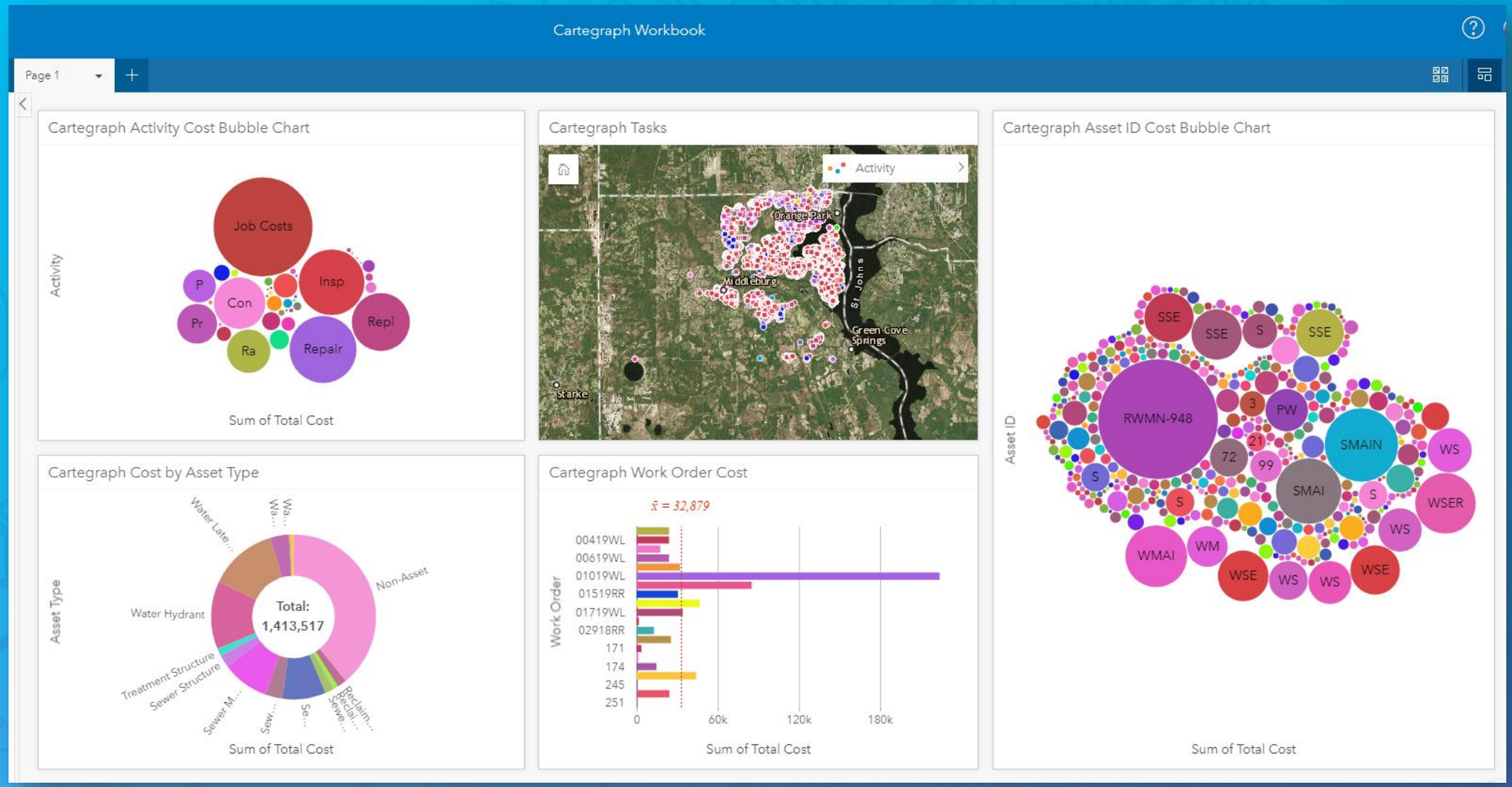
- Displays out-of-service fire hydrants
- Application used by the County's Fire Dept. and citizens
- Automatically updates as repair work is completed

Legacy CCTV Inspections

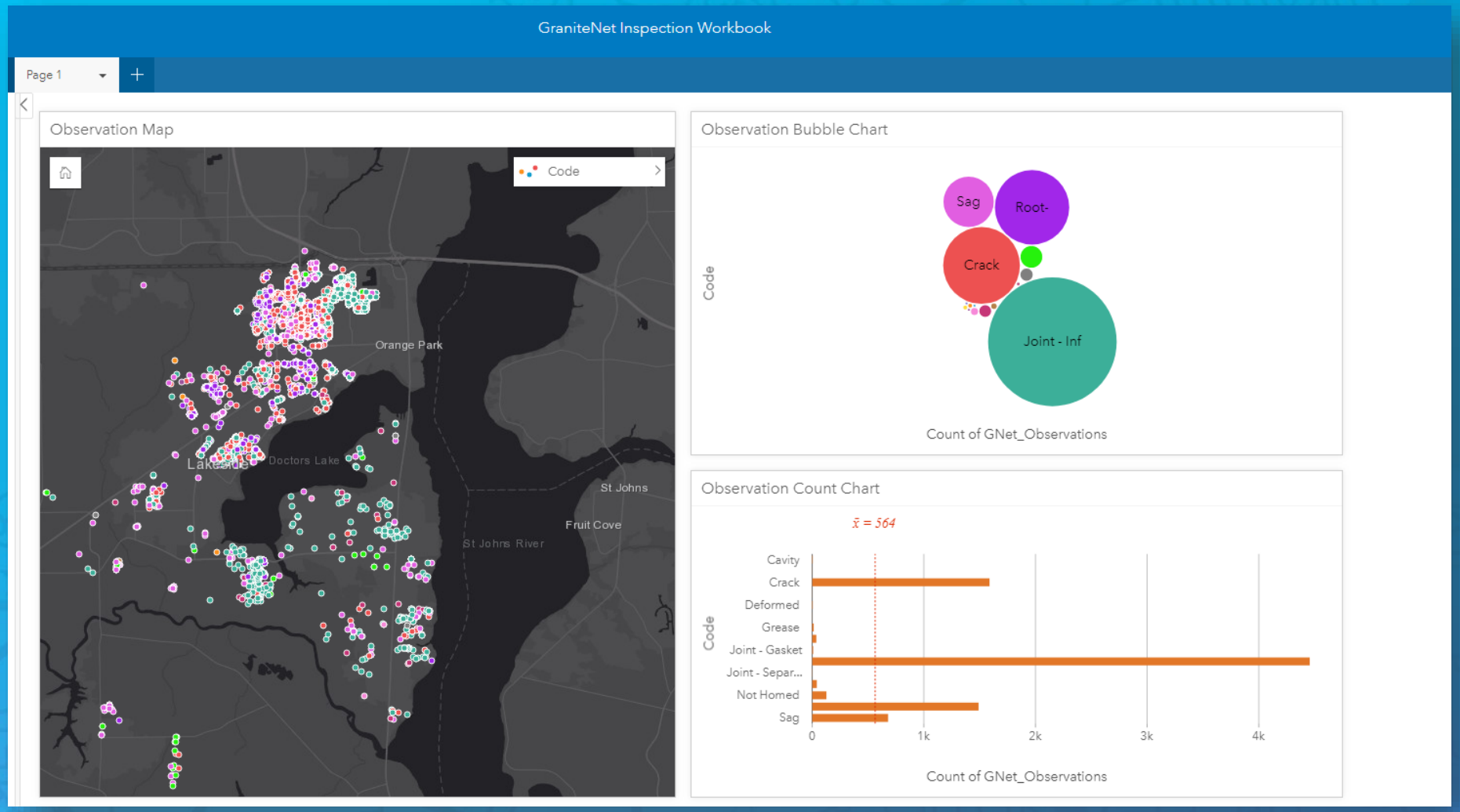
- 13 years of inspection info
- Observations displayed on mapping application
- Observations and deficiencies pushed to Cartegraph
- Info viewable in Esri Insights



Insights


Cartegraph Workbook
Page 1
Cartegraph Activity Cost Bubble Chart
Activity
Job Costs
Insp
P
Con
Repl
Pr
Repair
Ra
Sum of Total Cost
Cartegraph Tasks
Activity
Orange Park
Middleburg
St Johns
Green Cove Springs
Starke
Cartegraph Asset ID Cost Bubble Chart
Asset ID
SSE
SSE
S
SSE
RWMN-948
3
PW
SMAIN
WS
21
72
99
SMAI
S
S
WSER
WS
WMAI
WM
WSE
WS
WS
WSE
Sum of Total Cost
Cartegraph Cost by Asset Type
Asset Type
Water Late...
Wa...
Wa...
Non-Asset
Water Hydrant
Total:
1,413,517
Treatment Structure
Sewer Structure
Sewer M...
Sew...
Se...
Reclaim...
Reclai...
Sewe...
Sum of Total Cost
Cartegraph Work Order Cost
x̄ = 32,879
Work Order
00419WL
00619WL
01019WL
01519RR
01719WL
02918RR
171
174
245
251
0
60k
120k
180k
Sum of Total Cost

Insights Cont.



Improved Operations

- Esri Enterprise enabled staff to do more with the information available
  - The GIS department began cross-training other departments (e.g. map making, dashboards)
- Mapping applications are key for project planning and takeoffs
- Insights and Dashboards presents information for management
- Esri Enterprise Sites organizes content in one layout for staff
  - No more searching through the gallery
- Reduced duplicate or redundant work by integrating information from multiple systems into the organization's enterprise GIS

Thank You!

Questions?

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