

From Desktop to the Cloud: The Evolution of GIS at Walgreens

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My Career

Market Analyst, Market Planning & Research

2005 – 2006

- Site Analysis
- Population Growth Research
- Site Presentations
- Competitive Analysis
- Travel

Sr. Project Analyst and Project Manager, Market Planning & Research

2006 – 2010

- Developed data tools and reports
- Automation/Efficiency
- In Depth studies
- System Management

Project Manager and Manager, GIS

2011 –2016

- Trained 200 GIS Users
- Managed Software Applications:
 - Arc IMS & ArcGIS server
 - Web mapping
 - Competition Tools
 - Real Estate Packet
 - New System Development
 - IT Liason
 - Large Scale Projects/Studies

Sr. Manager/Director, Enterprise Location Intelligence

2016 - present

- Leads 6 person GIS &
- Manages system IT support
- Innovates GIS & BI technology
- Large Scale projects
- M & A
- Client services

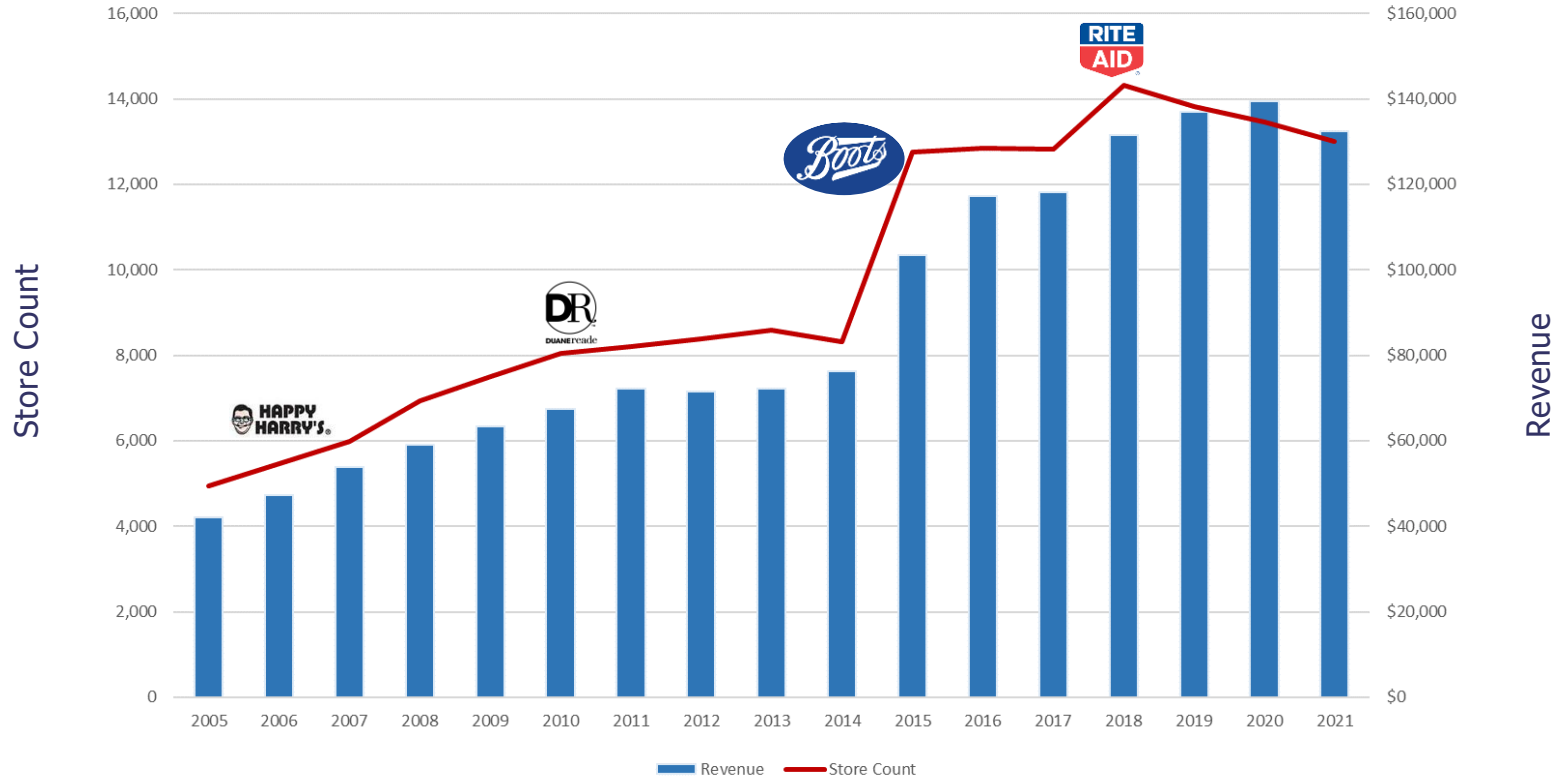
About Walgreens

Charles R. Walgreen, Sr. founded Walgreens with a single store in Chicago in 1901.



Walgreens

Store Growth



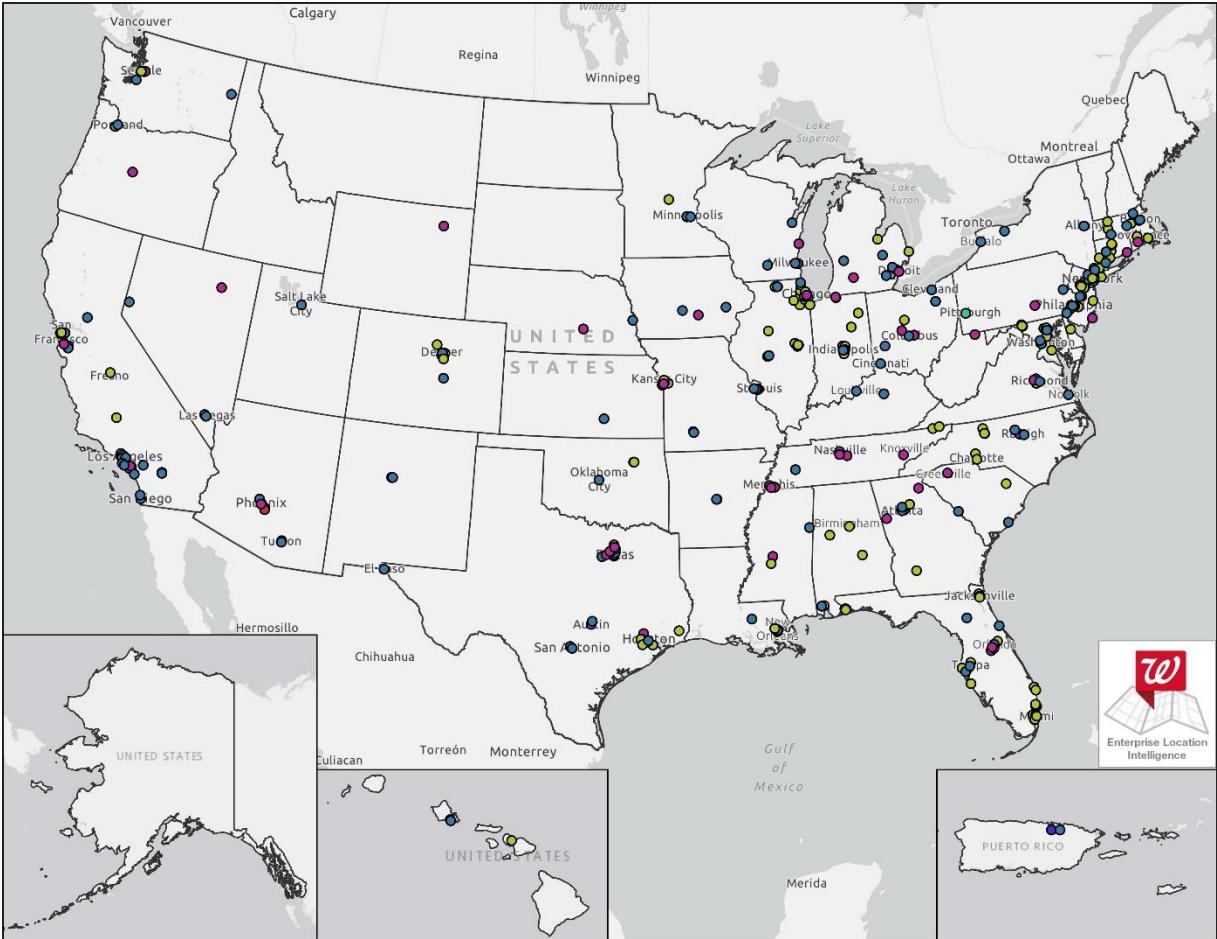
Walgreens U.S. Assets

- As of December 2021 WAG operates 8,916 assets – 97% of which are typical retail locations.
- Health System Pharmacy (HSRx) are pharmacy locations inside of medical office buildings and hospitals.
- Community Pharmacy (CRx) are pharmacy locations that services a distinct community of high touch patients with a need for specialty prescription.

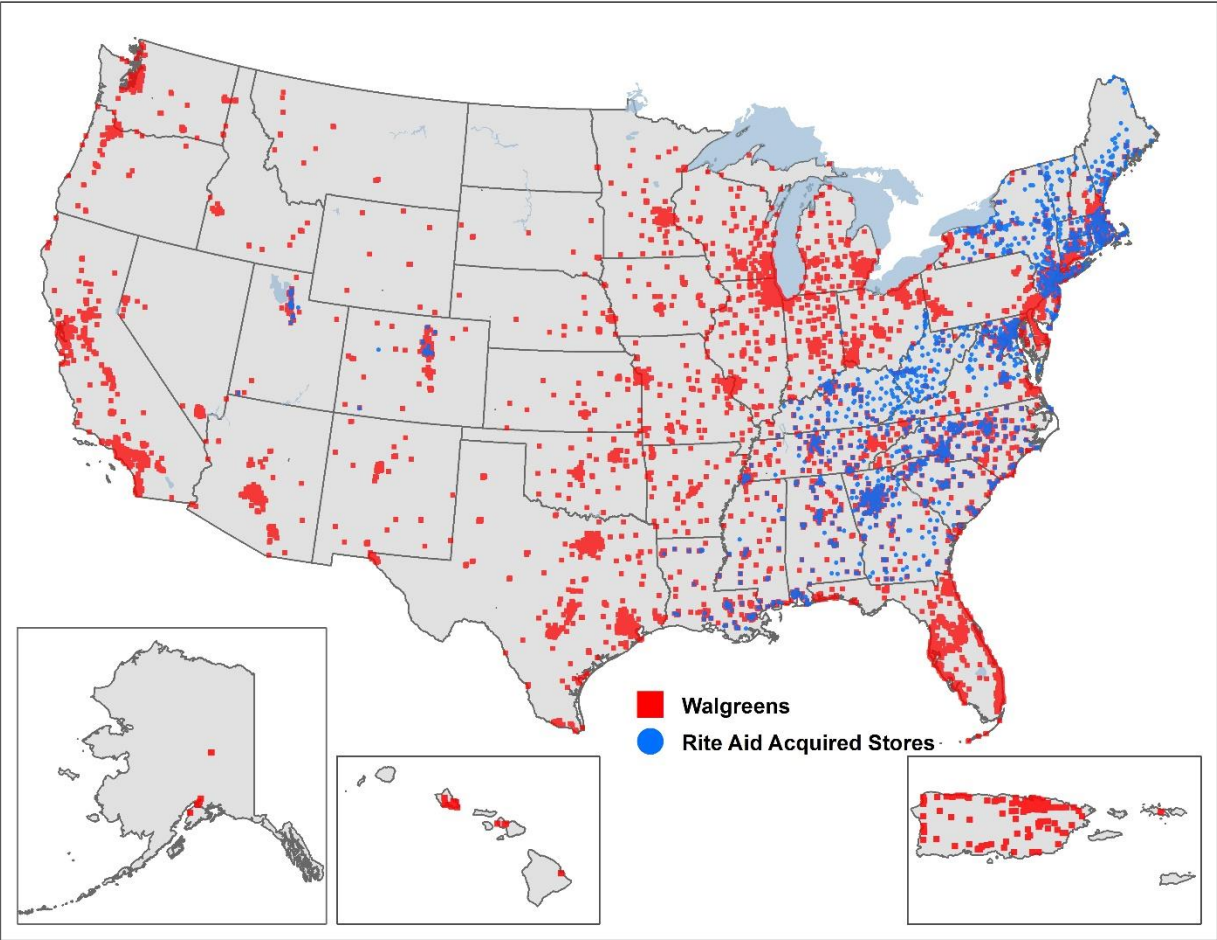
Walgreens Assets		
Store Type:	Store Count:	% Stores:
Regular (Retail)	8,609	97%
Health System Rx	167	2%
Community Rx	140	2%
Grand Total	8,916	100%



Health Services Assets



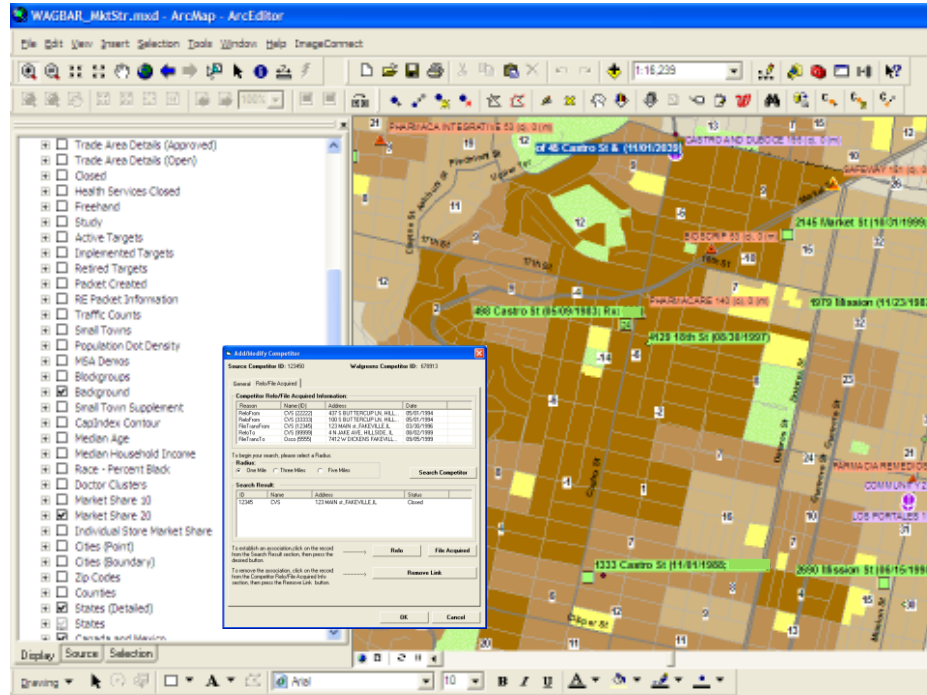
Rite Aid Acquisition



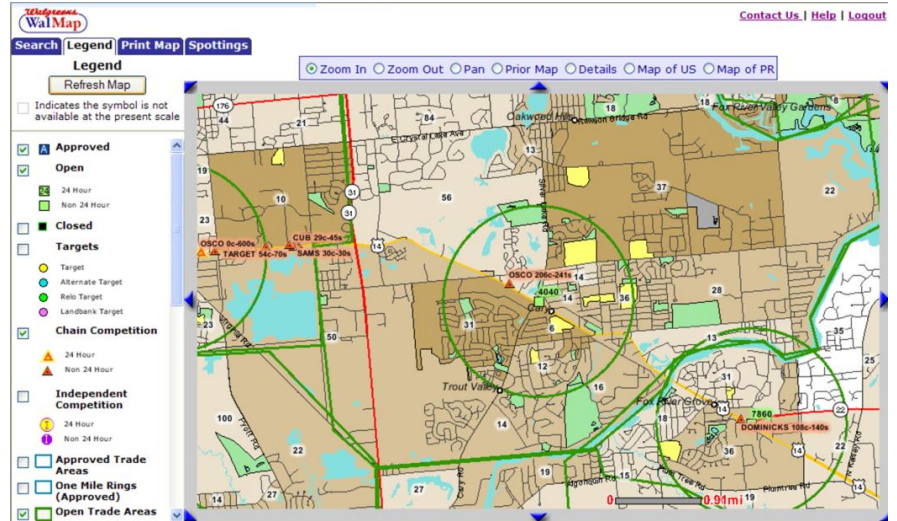
Walgreens

GIS in 2005

Desktop 'ArcObjects' customized tools for data editing - creating points and trade areas

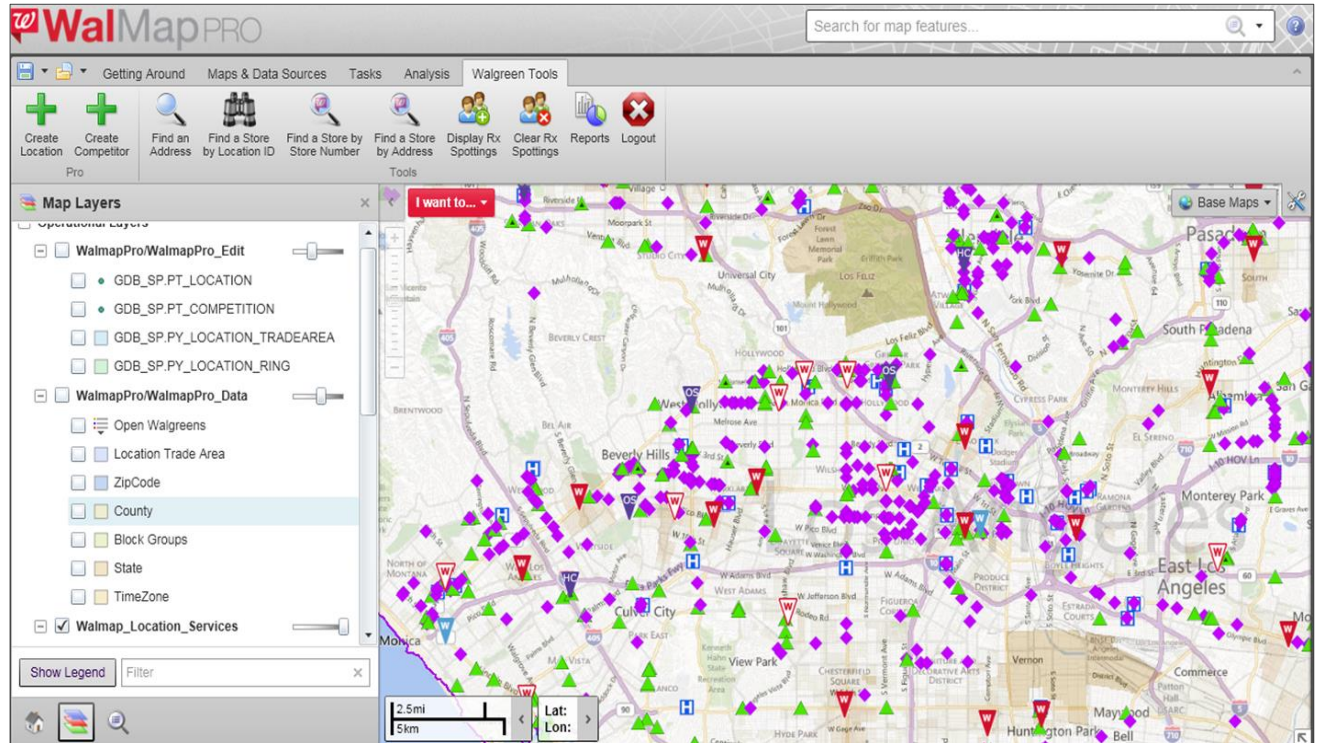


WalMap on 'ArcIMS' – view only



WalMap 2013

- First ArcGIS server implementation
- Moved data editing to the server
- Integration with Real Estate systems





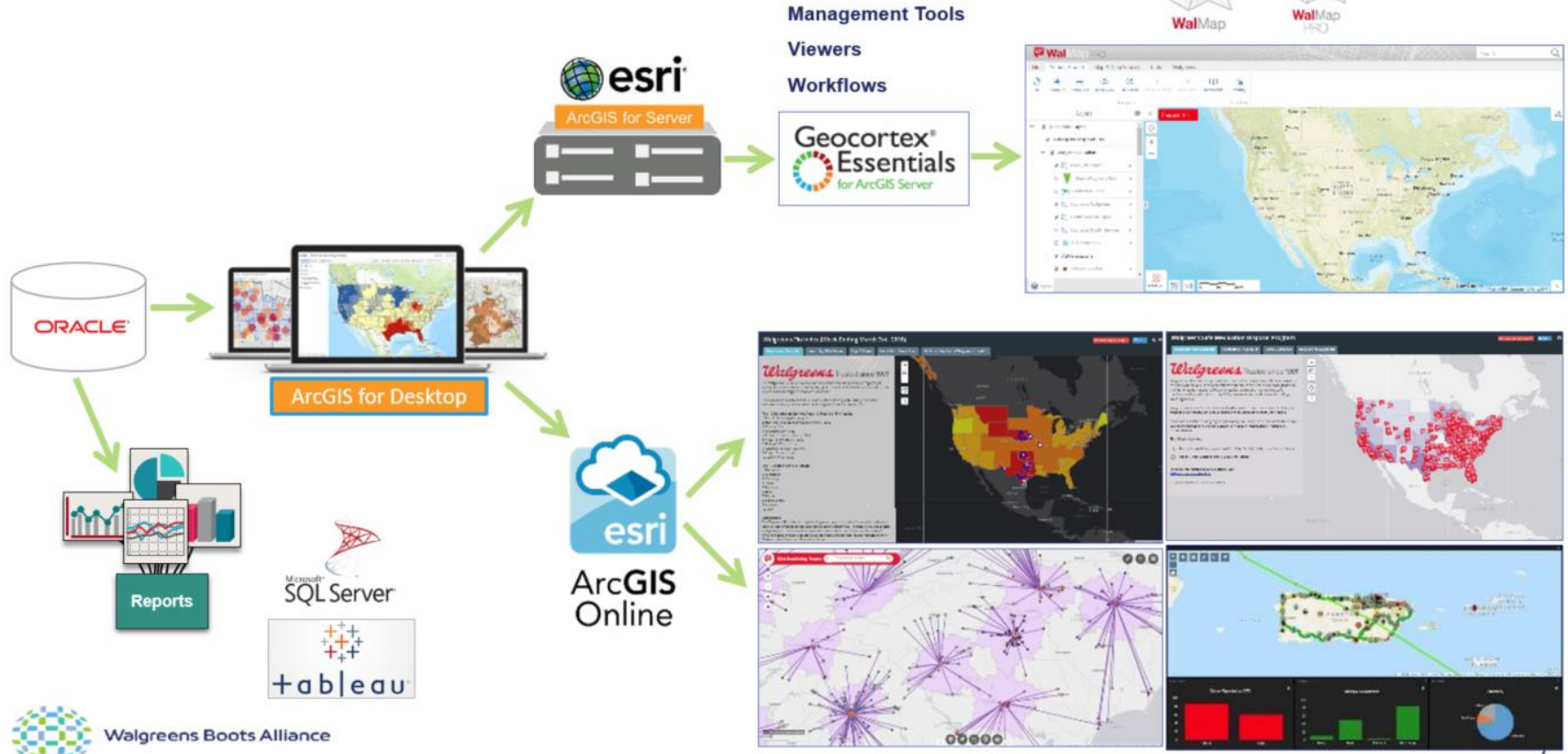
Full Walmap Pro Editing (PC)

- Point Creation/Editing
- Attribute Editing
- Trade Area Creation/Editing
- Advanced Filter/Querying
- Data Exporting
- Customization
- Map Creation

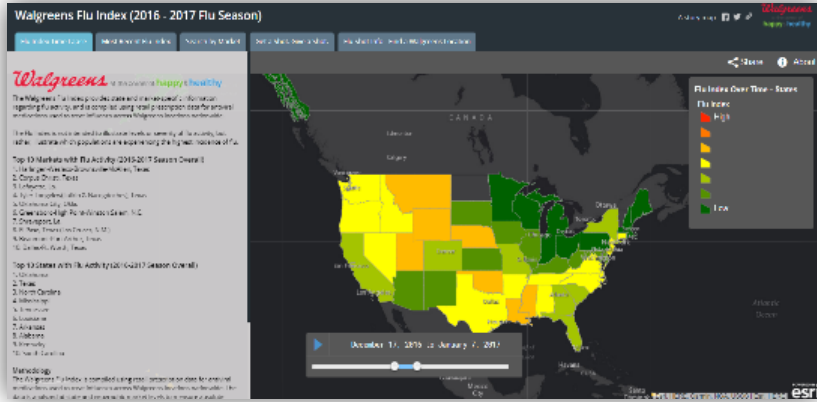
Mobile fieldwork Web Application (HTML 5)

- Inking – Field notes on tablet with stylus
- Point Location Editing (simple moving)
- Walgreens Qualitative Attribute Editing
- Competitor Attribute Editing
- Picture Uploading (link to point locations)
- Audience – Market Planning, Real Estate

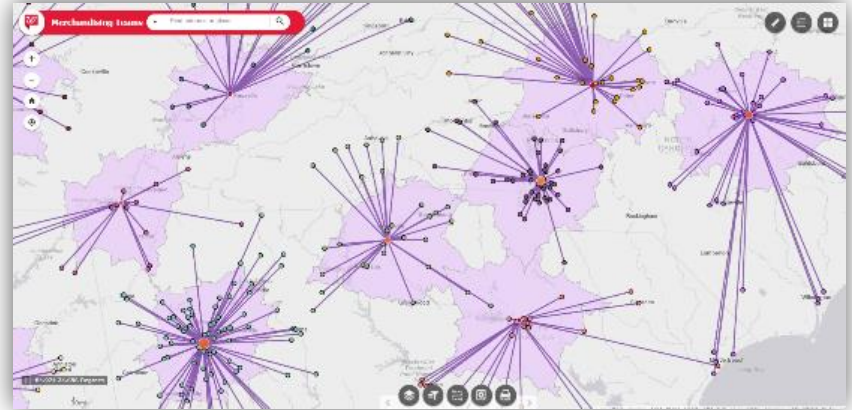
WalMap – 2018-2021



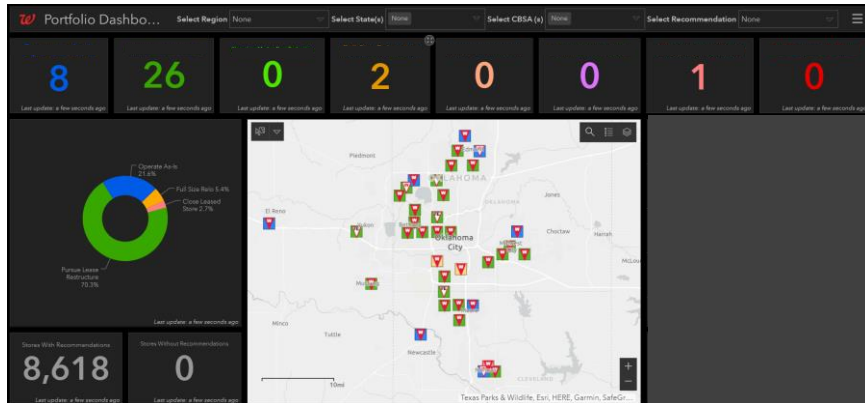
Flu Index



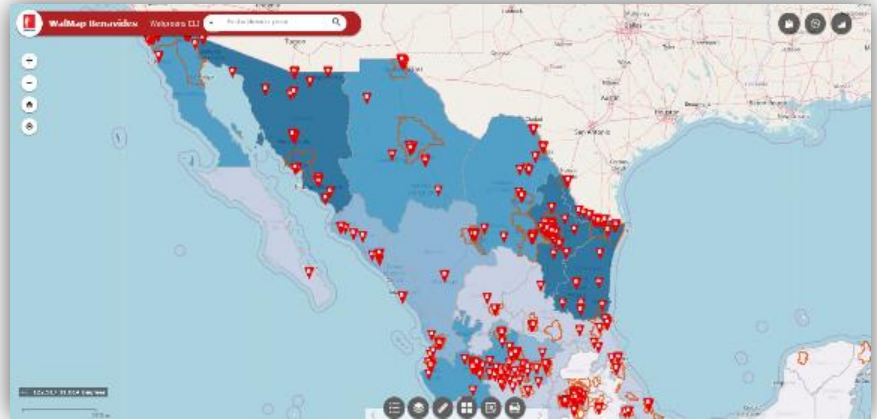
Operations



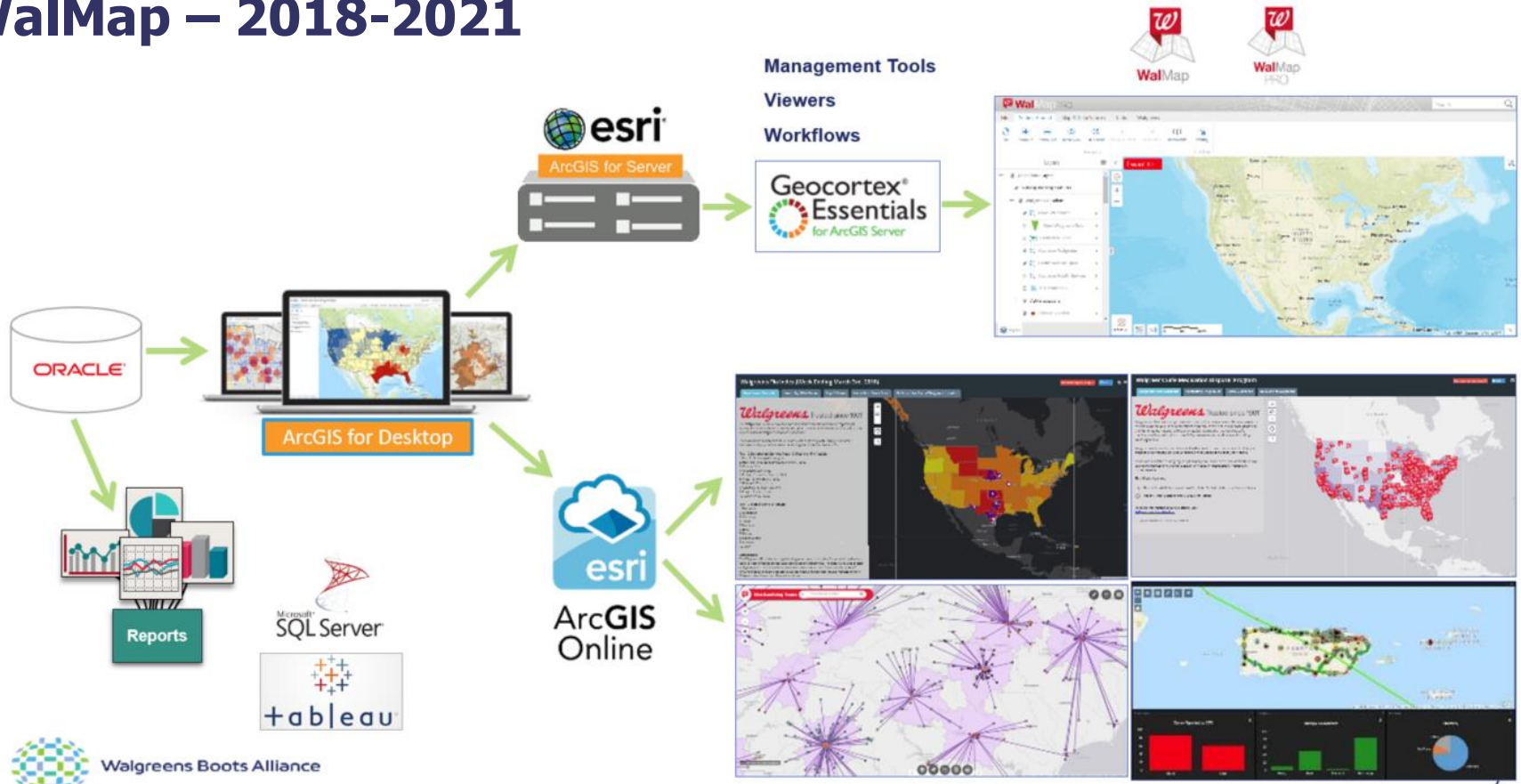
Portfolio Analysis



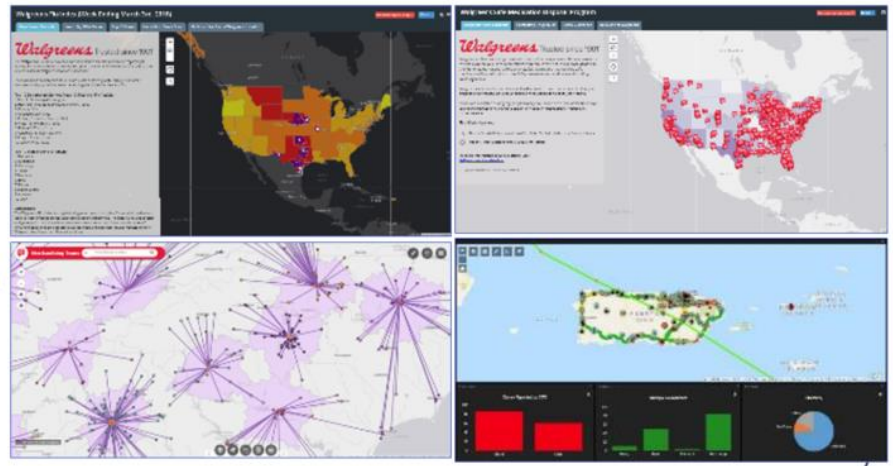
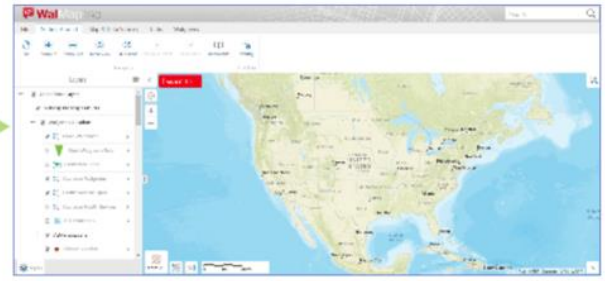
Benavides



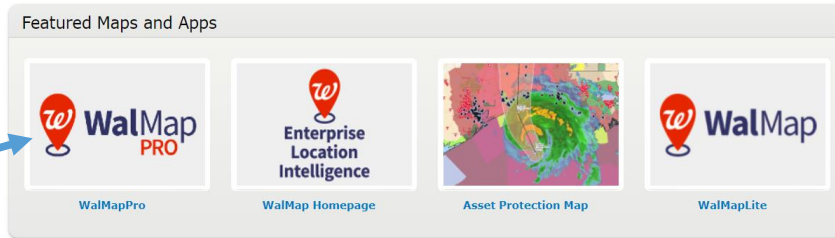
WalMap – 2018-2021



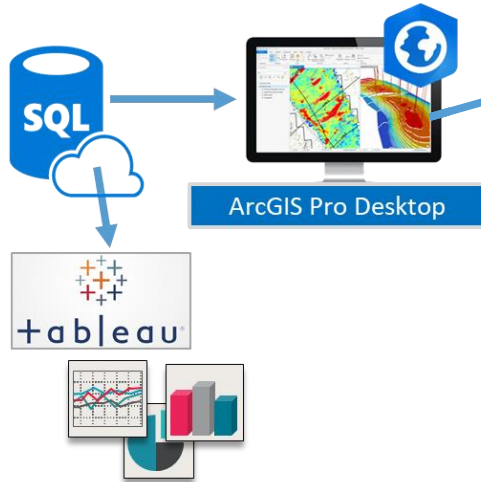
Management Tools
Viewers
Workflows



WalMap - 2021



ArcGIS Enterprise Portal on Azure Cloud



- Centralizes all Walgreens GIS applications in one place on the Azure Platform
- Aligns to Walgreens security protocols and data governance standards
- Re-establish WalMap tools in a more reliable and scalable environment
- Broaden sharing of geospatial data and enable creation of quickly configurable purpose driven mapping applications
- Enable coordination/sharing of data with global WBA partners
- Latest and Greatest versions of ESRI and Geocortex

2021 - WalMap Modernization - Key Changes

WalMap Rebuild

New Tech (javascript 4.x)
Simplifying app
Streamline editing
New comment fields for Walgreens and competitors
Azure Cloud

ArcGIS Portal

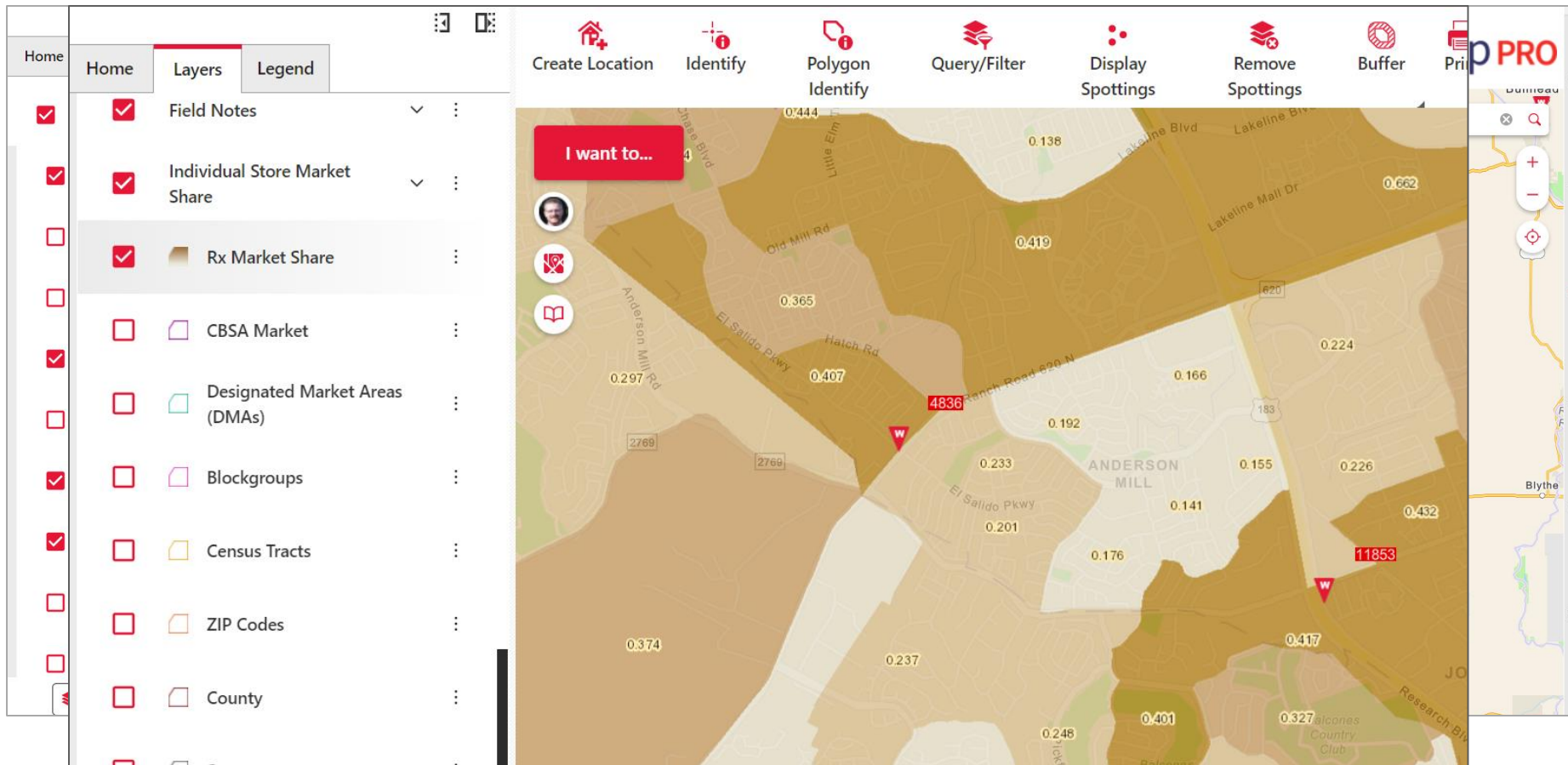
ArcGIS portal replacing ArcGIS online for internal use (**unlimited viewers**)
ArcGIS online continues with minimal licenses for external use

Data

Data Processes Rebuilt
Tableau Table Integration

Operations

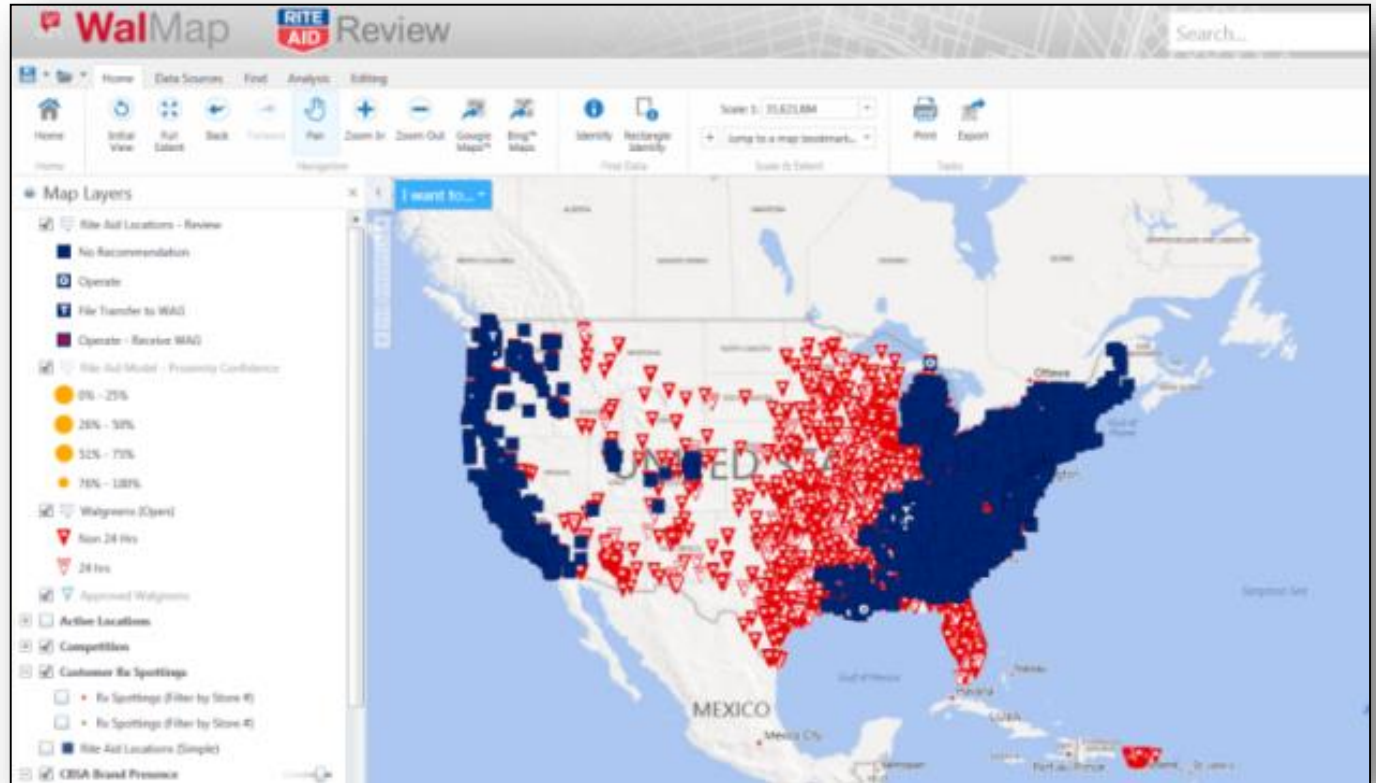
New Support model
VertiGIS supporting with monthly hours purchased
Solidify Data Management
Build enhancement pipeline
ELI team will have more control
Virtual Machines



GIS Analysis

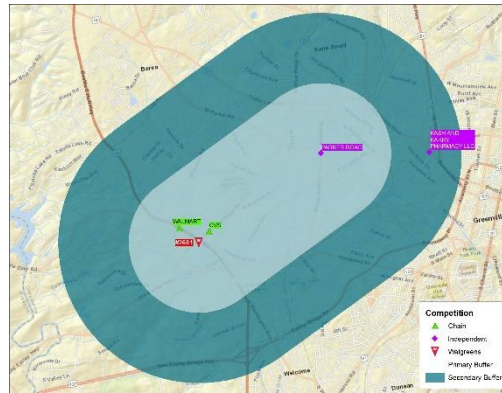
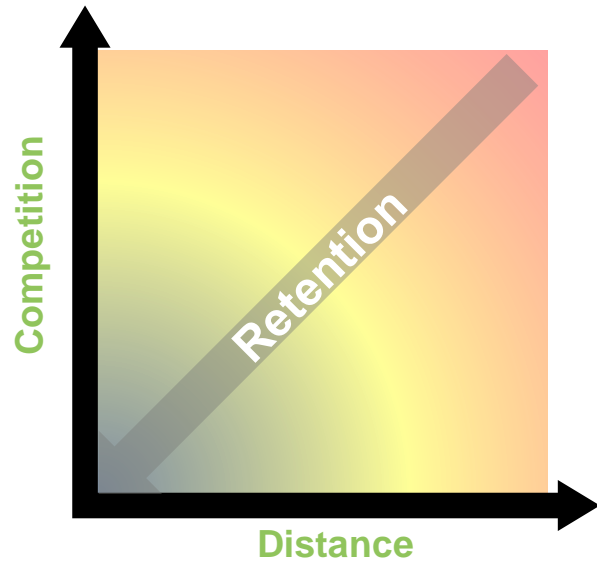
Acquisition Analysis

- Desktop Analyses
- Published to server
- Purpose specific viewer
- User data entry
 - Model Validation
 - Commentary

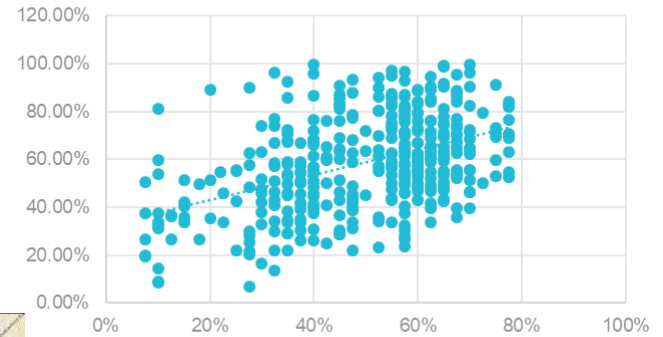


Acquisition Analysis

- Automation of analyses – scalable – python script



Actual vs Modeled



Disaster Support

1

2012-2015

Basic static map reporting

2

2016 – Present

Online Interactive Risk Map

3

2017 – 2021

Hurricane specific ArcGIS online map tool that includes data editing, Infographics, Desktop data feeds

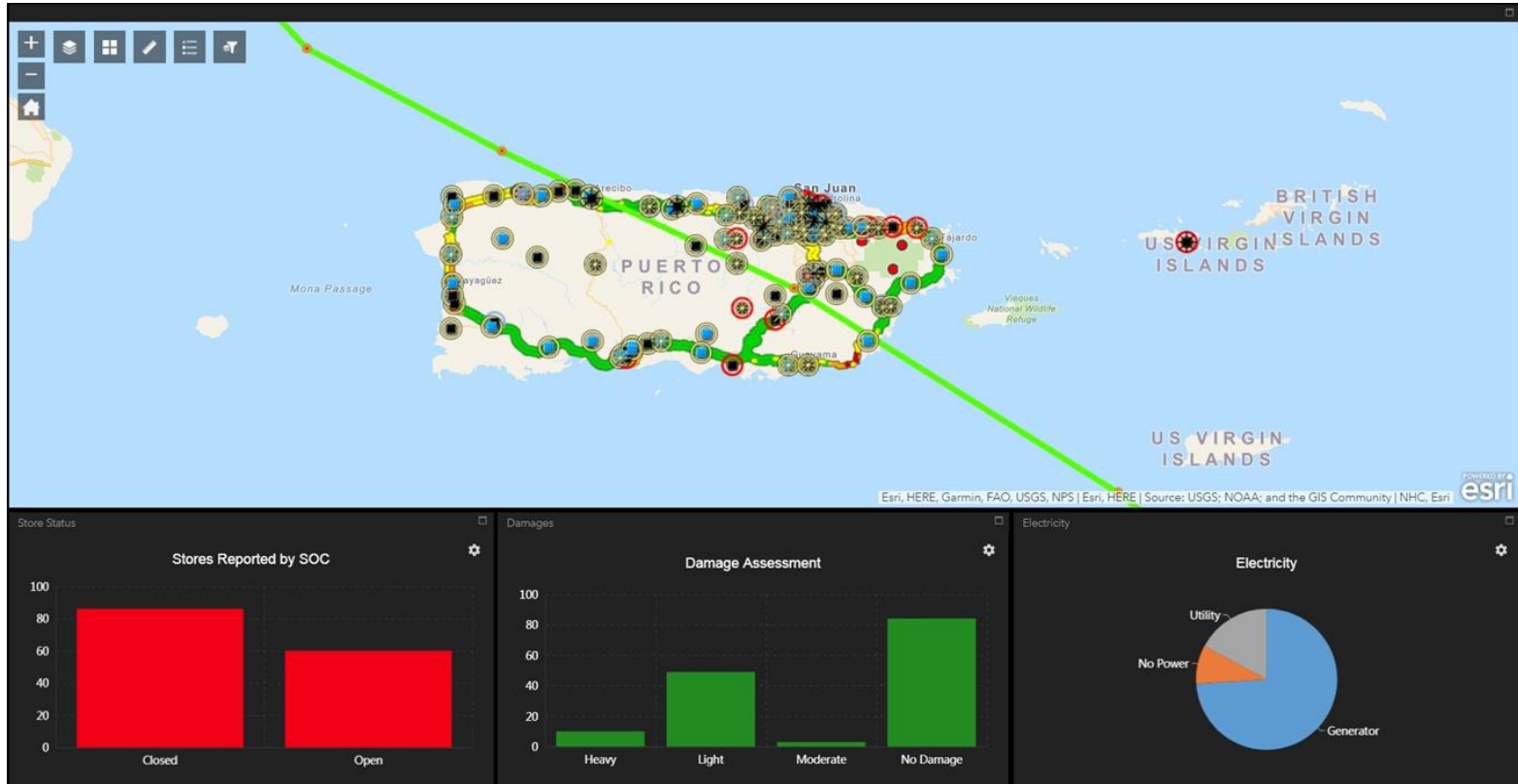
4

2021 – Present

ArcGIS Enterprise map tool that includes data editing, Infographics, dynamic data feeds, wider audience



Disaster Support



- In addition to the main Asset Protection Application, we created an operations dashboard that allowed users to view the counts of open/closed stores, power status, and damage assessments simply by panning the map frame.
- This was used widely by executives and SOC team leads to assess the current situation quickly

Team Member Feedback

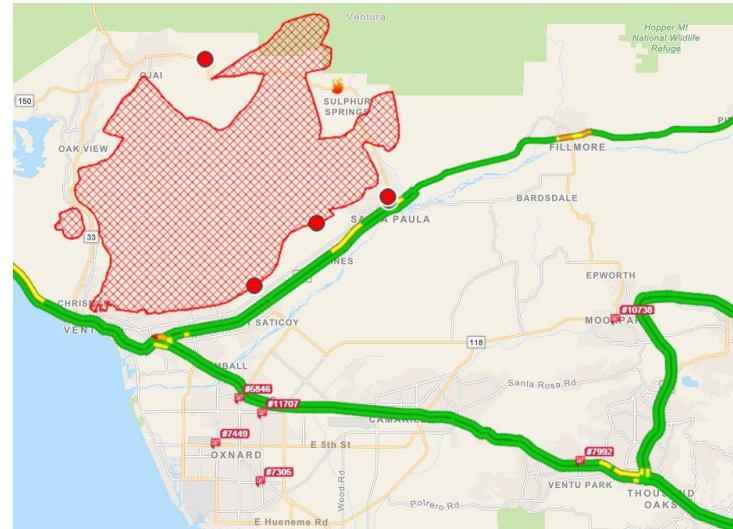
- General Manager Houston DC, Hurricane Harvey

- “During Hurricane Harvey we were forced to shut down the Houston RFC. When we were in the process of reopening it we were struggled to find a path to the RFC so we could assess the condition of the building. The RFC GM Frank Rivera was tried several times to make is way into the building along with some of his team.”
- **“We were able to use the map to guide him via a safe path. Our Transportation Team also used this to get some drivers into the Houston Convention Center to deliver an emergency order for the shelter at the Convention Center.”**

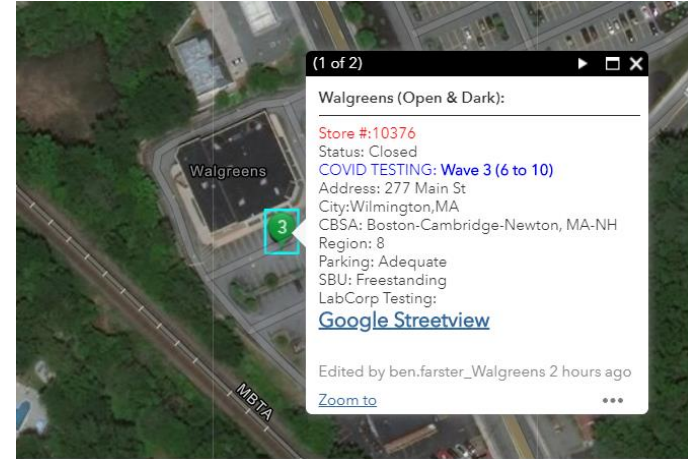


- Asset Protection team - California Wildfires

- “During the fires, it was critical that we understood the geography; where our team members lived; a visual of our locations; exactly where the fires were and potentially where they could go. Complicating this further, more fires broke out in Southern California, at one point having seven different fires.”
- **“The role of the SOC and the team who developed mapping for us was absolutely crucial to our ability to understand the scope of the problem, potential impact on team and assets, and strategize our management of the situation.”**

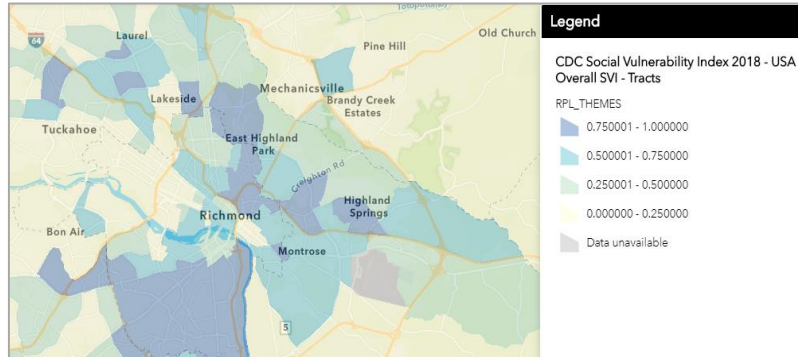


Covid-19 Testing

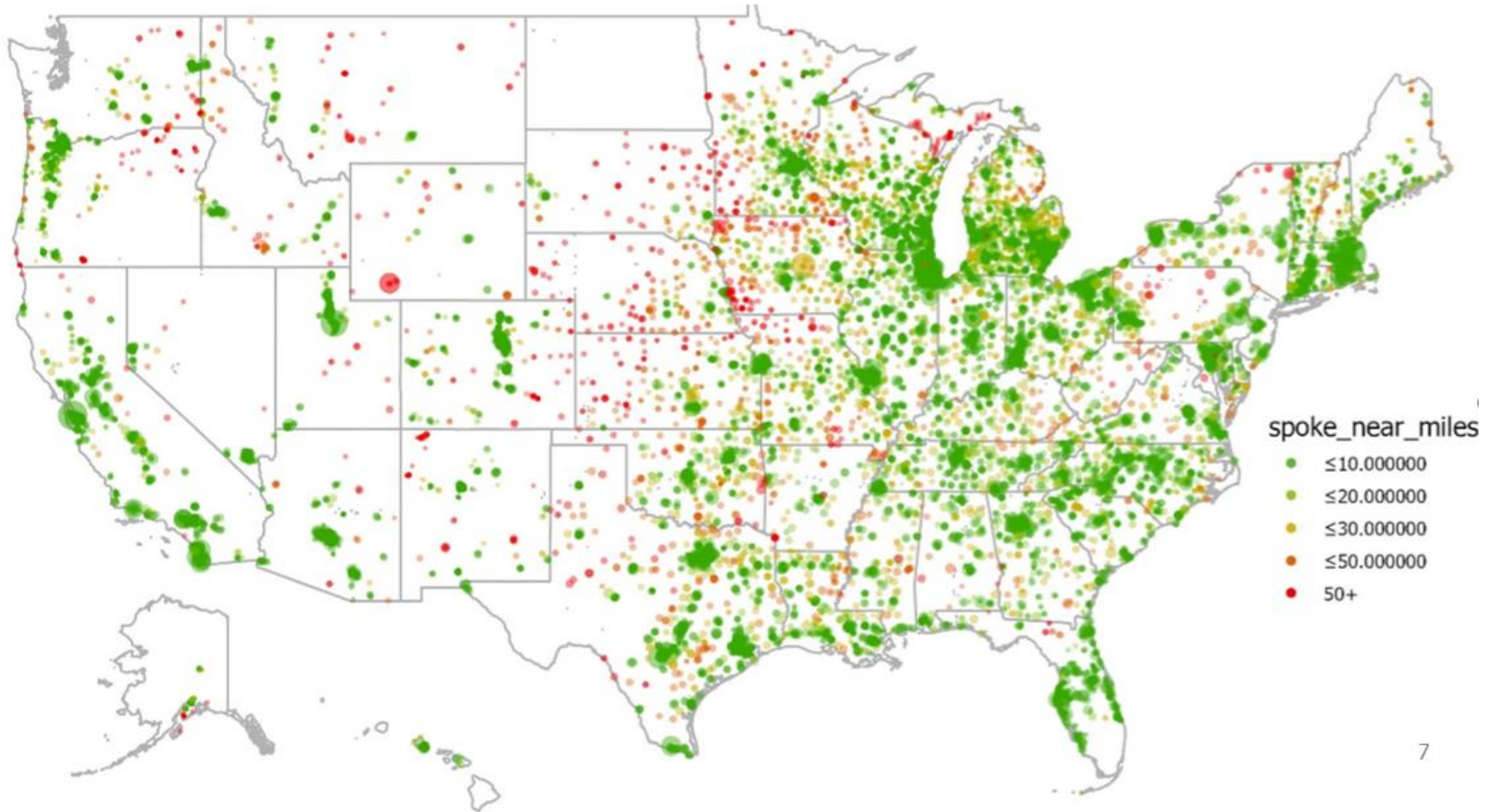


CDC Social Vulnerability Index

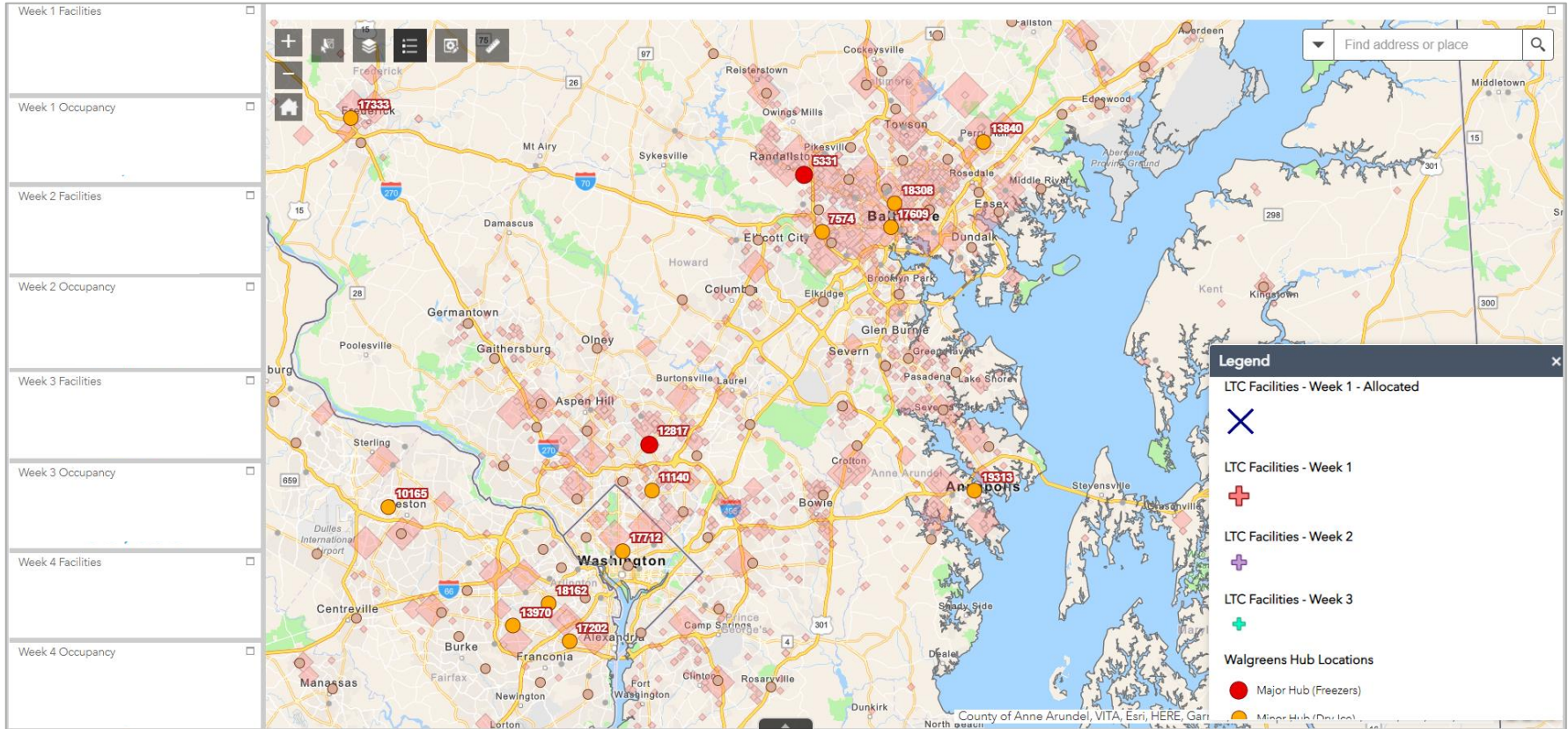
Overall Vulnerability	Socioeconomic Status	Below Poverty
		Unemployed
		Income
	Household Composition & Disability	No High School Diploma
		Aged 65 or Older
		Aged 17 or Younger
		Older than Age 5 with a Disability
	Minority Status & Language	Single-Parent Households
		Minority
	Housing Type & Transportation	Speaks English "Less than Well"
		Multi-Unit Structures
		Mobile Homes
Crowding		
No Vehicle		
Group Quarters		



Covid-19 Vaccination Analysis



Covid-19 Vaccination Analysis



Q & A