CITY PARKS ALLIANCE

WEBINAR

Using Technology to Collect Better Data and Make Better Decisions

Tuesday, April 29, 1-2pm ET

MODERATOR

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SPEAKERS

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R.J. Cardin

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Maricopa County Parks & Recreation
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Leveraging Big Data and Artificial Intelligence (AI) in Parks and Recreation Management

R.J. Cardin

- **Retired Director Maricopa County Parks and Recreation Department (18+ Years)**
- **40 Years of Parks and Rec. Experience**
  - County
  - City and Town
  - State
  - Non-profit
  - Private
  - Professional Associations
  - Academia
  - Consulting

Maricopa County Parks and Recreation

- Regional Open Space and Trails System
- 122,000 Acres
- 13 Regional Parks and Conservation Areas
- 500+ Miles of Trails
- Enterprise System
- Maricopa County Quick Facts
  - Population 4.5 million (4th largest)
  - 9,224 square miles, larger than four U.S. states
  - 24 cities and towns and several unincorporated communities

Introduction

Collecting big data and using AI improves decision making and service delivery.

1. **Helps agencies enhance community impact and visitor experiences.**
2. **Drive revenue.**
3. **Improve efficiency/reduce costs, include staffing, maintenance, capital improvements and marketing.**
4. **Tell your story!**

What is Big Data in Parks and Recreation?

Big data refers to large, complex sets of information that come from many different sources and are analyzed to help make better decisions. When analyzed effectively, this data helps departments understand how parks are used, which services are most popular, and how to better serve the community.

Source: National Recreation and Park Association (NRPA). "2023 Agency Performance Review."

What Is AI?

The science and engineering of making intelligent machines.

Source: Stanford Professor John McCarthy 1955

The use of science and engineering (hardware and software) to replicate human intelligence. Systems that comprehend, learn and synthesize knowledge from vast sources to rapidly solve problems or produce results.

What Can AI Do For You?

New technologies are revolutionizing how urban parks and green spaces are managed …..

But there's a growing need for technologies that go further by helping us understand park use and ensure equitable park investments.

Source: City Parks Alliance. "Parks and Technology."

Provide Real-Time Information From Big Data For Better Decisions.

Maricopa County Data

- Park Visitor Surveys
- General Population Surveys
- Master Plan Polling
- Reservation/Sales Data
- Cell Phone Data (Placer AI)
- Economic Impact
- Social Media
- Secondary Sources (data mining)
- Drone GPS data
- Maintenance Management Systems

Enhancing Customer Service

- Track program participation to identify trends and enhance program delivery.
- Apply predictive maintenance to improve safety and sanitation.
- Analyze GPS and visitor use data to allocate and position capital resources.
- Monitor social media and surveys to gauge satisfaction in real-time.
- Develop and enhance services, facilities and programs for target markets/user groups.

Enhancing Customer Service

➢ Case Study

A question of equity – What services and facilities are most important to a specific ethnic group that is underrepresented in our parks.

Cross Tab Analysis		Q405. Ethnicity						Total
		White	Hispanic	Black	American Indian	Asian	Other	
Q35. How Important Are Playgrounds?	Critical	10.2%	19.9%	19.0%	9.5%	5.3%	18.8%	12.0%
	Very Important	39.7%	58.2%	47.6%	52.4%	52.6%	31.3%	43.0%
	Somewhat Important	20.9%	10.3%	14.3%	14.3%	31.6%	12.5%	19.0%
	Somewhat Unimportant	3.3%	3.4%	4.8%	4.8%	5.3%		3.4%
	Not Important at All	25.7%	7.5%	14.3%	19.0%	5.3%	37.5%	22.3%
	Dont Know/Refused	0.3%	0.7%					0.3%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

		Q408. Income					Total
		$15,000 - $45,000	$45,001 - $75,000	$75,001 - $105,000	$105,001 and greater	Refused	
Q35. Playgrounds?	Critical	15.2%	13.6%	10.6%	8.1%	9.5%	12.0%
	Very Important	45.0%	41.6%	44.4%	47.8%	38.4%	43.0%
	Somewhat Important	16.7%	19.8%	23.9%	16.2%	19.8%	19.0%
	Somewhat Unimportant	3.9%	2.5%	2.1%	4.4%	3.9%	3.4%
	Not Important at All	18.8%	22.2%	19.0%	23.5%	28.0%	22.3%
	Dont Know/Refused	0.4%	0.4%			0.4%	0.3%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Drive Revenue

- Identify in-demand programs, expand and price them appropriately.
- Develop smart pricing based on time and demand.
- Promote underused facilities rental income.
- Personalize marketing to drive participation.
- Stock and expand popular concession items using sales data.
- Prove sponsorship ROI with attendance data.

Improve Efficiency

- Forecast park usage to optimize staffing.
- Automate facility scheduling.
- Use smart irrigation and HVAC to save water and reduce energy costs.
- Predict maintenance needs using AI.
- Analyze customer sentiment from feedback.
- Map equity gaps in access and participation.

Leveraging Data

- **Collecting Data Methods**
- **Big data and AI create smarter, more responsive services.**
- **Departments gain operational efficiency and revenue.**
- **Better experiences for the public and stronger outcomes.**
- **Support equity and long-term sustainability.**
- **<u>Use Data to share your success and demonstrate the Benefits of Parks and Recreation.</u>**

Using Technology to Collect Better Data and Make Better Decisions

Peter Hamma – Data Insights Analyst

Joe Ayers -- GIS Administrator

Minneapolis
Park & Recreation Board

Minneapolis Park and Recreation Board

- 2024 National Gold Medal Award Recipient
- 185 Neighborhood Parks
- 20 Regional Parks
- 7,059 Acres of Land & Water
- 99 % of 430,000 Residents within 10 min walk of a park

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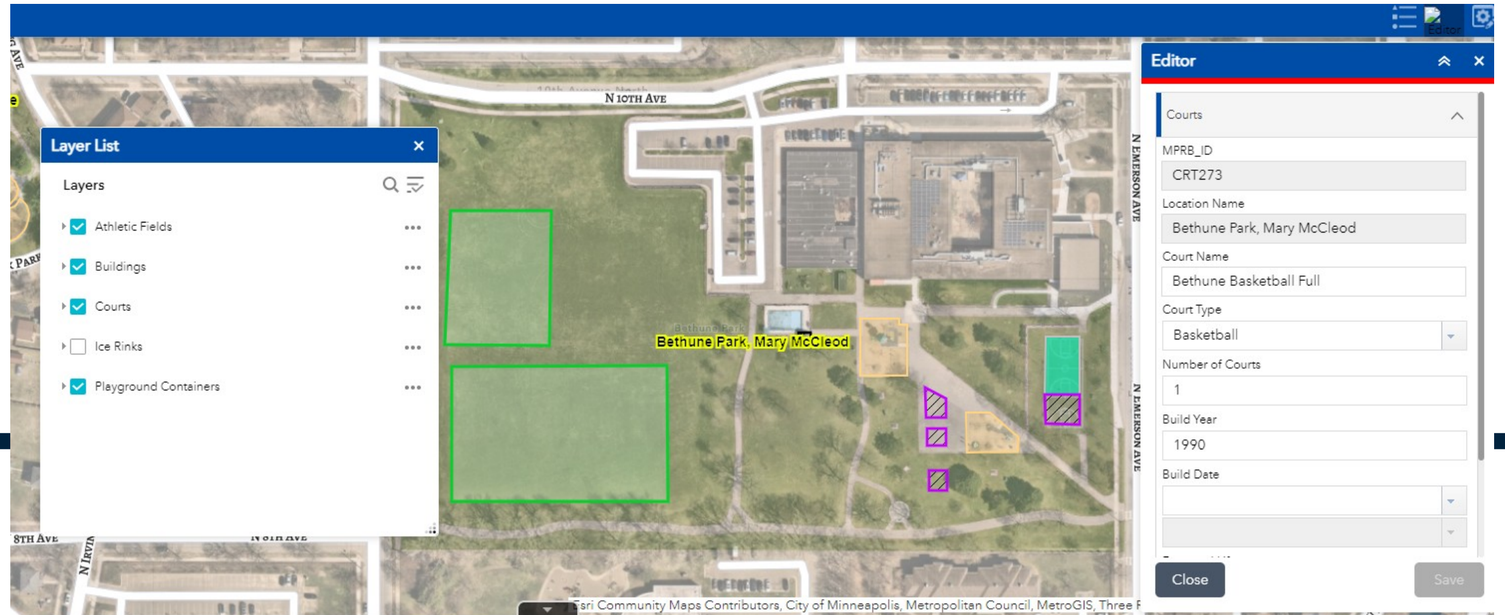
Asset Management Journey

- Prior to Vueworks
  Used Paper/Emails/Phone/Ice reservation system
  Scheduler was used as work communication tool

- Vueworks since 2017
  First Full Asset Management System

- Cartegraph in 2025
  75% implemented with launch in end of May 2025



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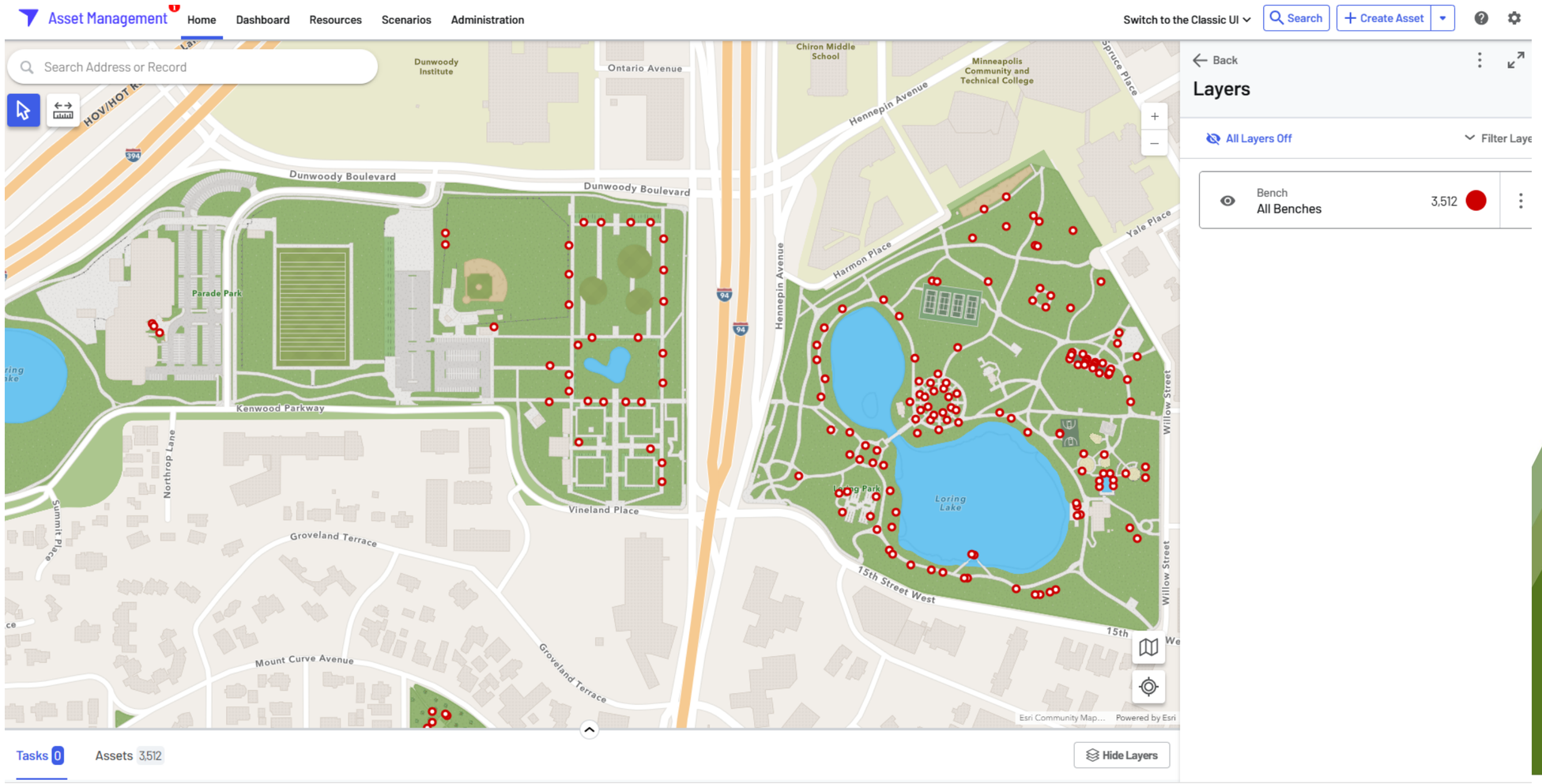
GIS Journey

- First created dedicated GIS position in 2017 for the Vueworks Project Launch
- The original inventory data was collected in 2017. A recollection effort was completed in 2022/23
- Overall demand of GIS started to rise in 2022 (licensing and capability)
- Implemented with ESRI a Small Government Enterprise Agreement

Deciding on Cartegraph

- Multi-Step process to “shop” for new Asset Management Software
- Evaluation team consisted of internal core team of 6 with consultant: Simplar
- Full selection process took about 9 months

Sample of Cartegraph Interface



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Benefits of Cartegraph

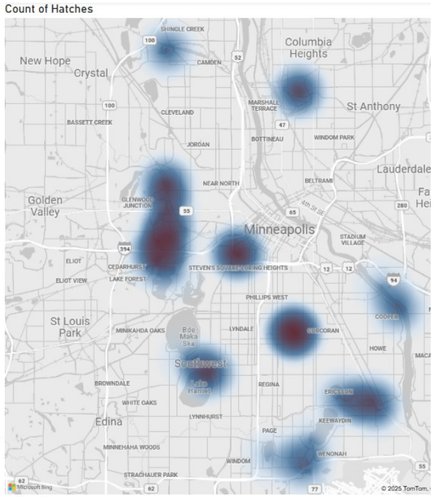
- The GIS integration provides an overall feedback loop. If a bench in GIS is reported broken, Cartegraph allows you to tell someone to fix it, and see that the task was completed.

- You can see how many requests you have in a Service Area.

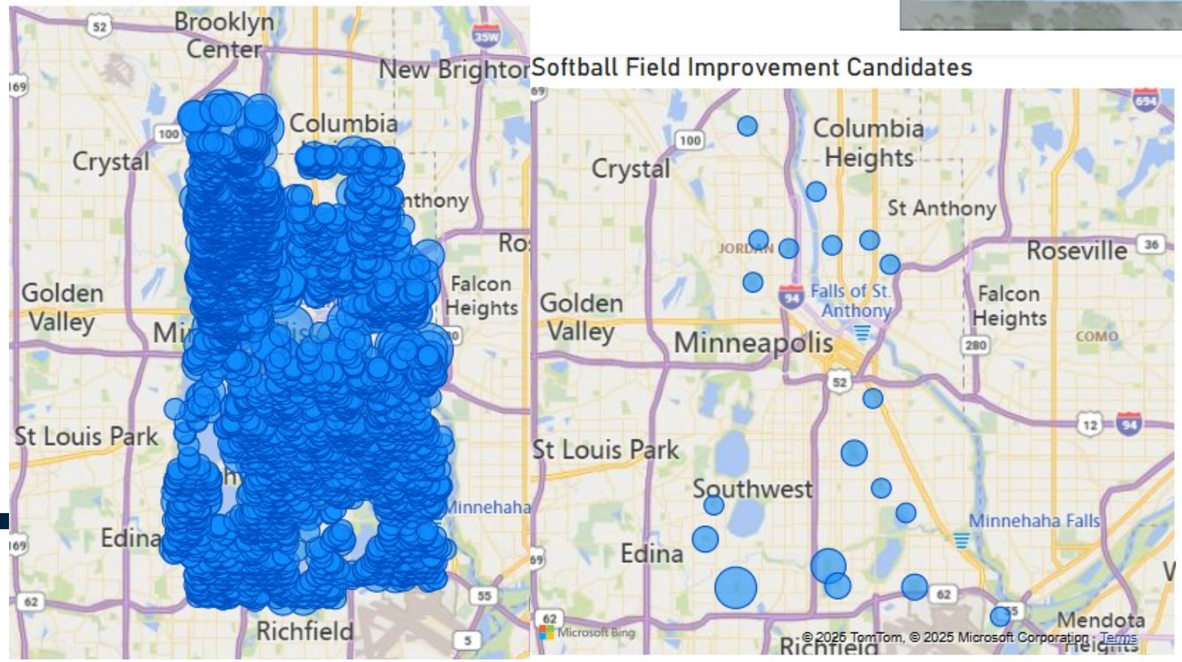
- You can add notes/attachments.

- We make more insightful decisions and miss fewer issues.

Telling Stories with Data

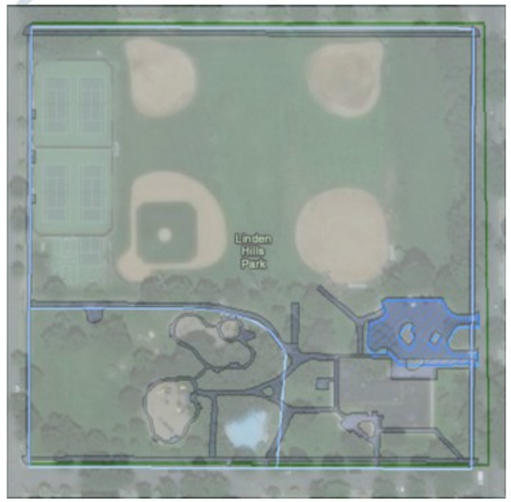


Trees Condemned



Plowed vs. Unplowed Areas

Linden Hills Park



MPRB works to ensure that paths around the perimeter and through the park are accessible to the public. Not all hard surfaces are plowed

Key

Grey: all hard surfaces in the park
Blue line: MPRB plow routes
Blue polygon: Parking Lot
White: Other space (building, playground or turf)
Green Line: Edge of park board owned space

Note: there are additional areas that staff remove snow using small equipment such as snow blowers and shovels. This includes entry ways, paths from parking lot to entry areas and handicap accessible ramps

Softball Field Improvement Candidates

Lights
- ☐ No
- ☐ Yes

Fenced
- ☐ No
- ☐ Yes

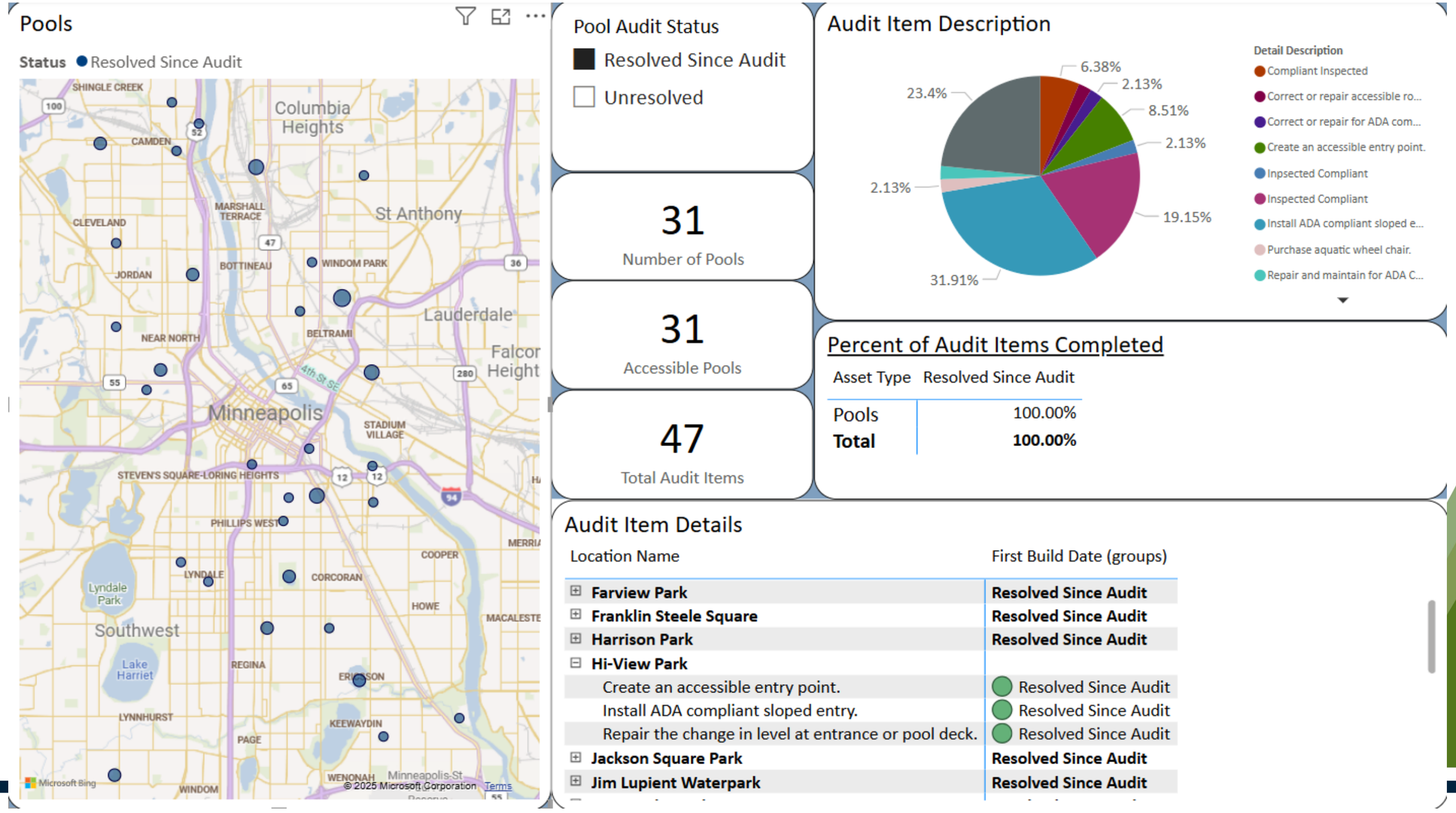
In Long Range Plan?
- ☐ No
- ☐ null
- ☐ Yes

Lights
- ☐ No
- ☐ Yes

Intersects Rink
- ☐ No
- ☐ Yes

Play Now or Improvement Candidate?
- ☐ ?
- ☐ Improvement Candidate
- ☐ Not a candidate
- ☐ Play Now

Telling Stories with Data



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Lessons Learned/Tips

- Organizational buy-in
- Build internal staff capacity to focus on GIS
- Define Core Assets
- Decide what should be tracked in those assets
- Implement a base GIS database
- Hire Intern/Staff for base data collection.

THANK YOU!

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