# GIS Enhancements to Support Park District Initiatives

Cleveland Metroparks Board Meeting

November 17, 2022

# GIS Program Summary

## Priorities

❖ Provide relevant GIS and drone services to:

- Support / enhance work across the Park District

- Facilitate access to information (spatial data)

- Augment communication through engaging visualizations

❖ Leverage resources through an open-source platform

❖ Support internal and external conservation and research

❖ Partner with external agencies to promote best practices

❖ Promote STEAM education



Cleveland-Cliffs Bike Park, Ohio and Erie Canal Reservation
Photo credit:  India Johnson

# Our Services

GIS Team
- Applications for spatial data access
- Visualizations and rendering
- Drone program
- GIS development and database administration

GIS Users within CM
- Maintain park-wide data layers
- Support desktop users
- Promote best practices

CM Staff
- Make spatial/tabular data available to all staff
- Provide applications that support job functions
- Answer spatially-based and data driven questions

External users
- Share data with stakeholders
- Facilitate collaboration
- Support publicly available applications
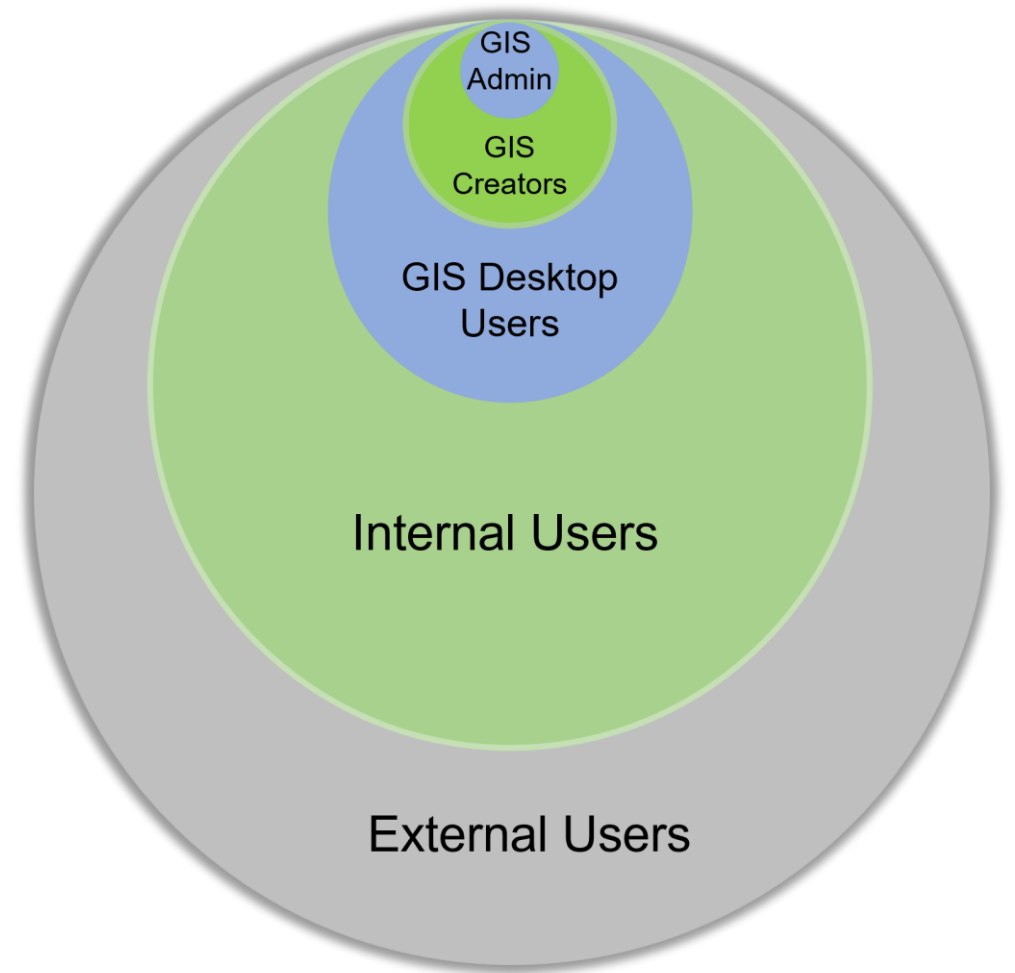
# Staff

## GIS Admin

❖ GIS Team (Planning & Design)

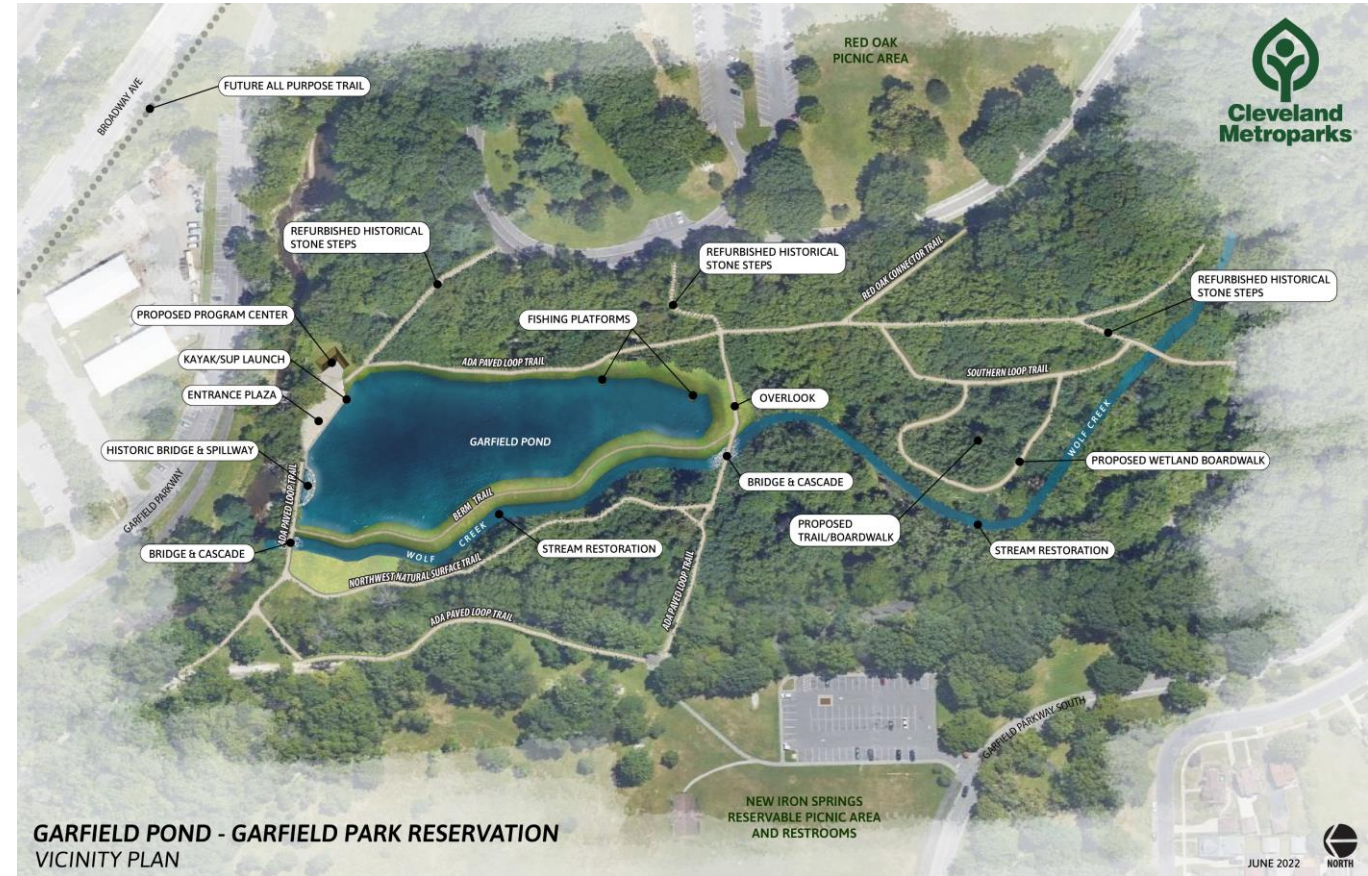 Cartographer – Brandon Garman

 Geospatial Developer – India Johnson

 GIS Administrator – Tom Kraft

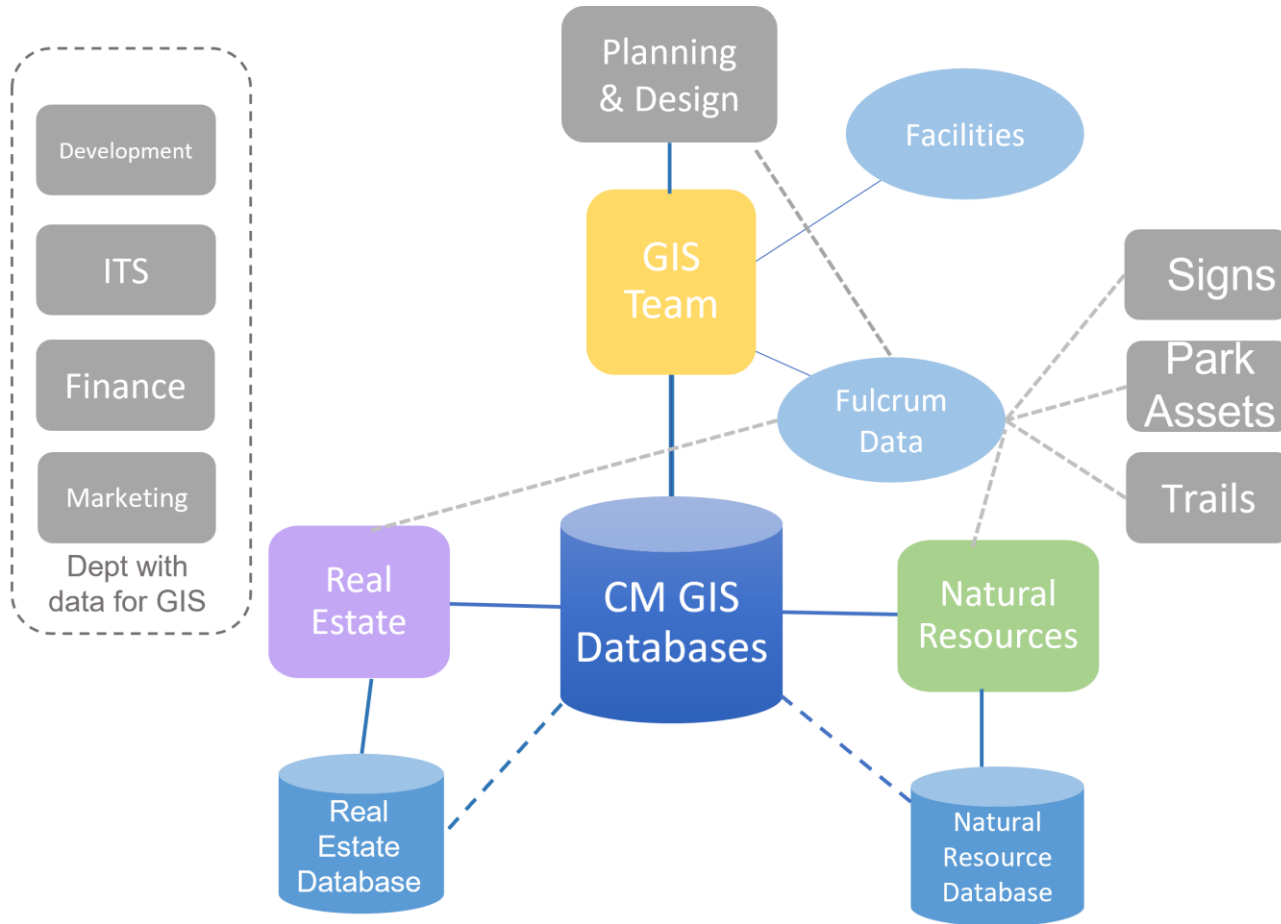 GIS Manager – Laura Schuch, PhD

❖ IT Services

❖ Natural Resources

❖ Real Estate



Credit: Brandon Garman

GARFIELD POND - GARFIELD PARK RESERVATION
VICINITY PLAN

JUNE 2022

FIND YOUR PATH

# Organization

## Hybrid Structure – Data, Staff and Applications



| Benefits | Challenges |
|---|---|
| Collaboration | Documentation |
| Team approach | Technological – server admin |
| Empowerment of staff | Knowledge management |
| Greater spatial understanding | Adequate communication |
| Intentional communication | |

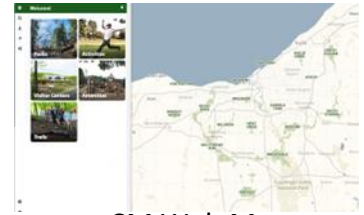# GIS Supported End-User Applications and Digital Resources



QGIS



Fulcrum



WebODM



*MapStore



*Printserver

**Internal**

**Public**



CM Web Map



Mobile App



Print / Digital media



Trail maps

*PrintServer functionality will be slowly phased out beginning 11/2022

Trail Maps

# Internal Service Requests / GIS Footprint

## Planning & Design

- Planners – data analysis, trails, visualizations for meetings / projects
- Surveyors – boundary updates, data sharing
- Architects – facilities database
- Engineers – infrastructure visualization, GIS data
- Construction – site plans, drone imagery, renderings

## Other Departments

- Marketing
- Real Estate
- Park Operations
  - Natural Resources
  - Outdoor Experiences
  - Reservation Managers
  - Trails
- Development
- Golf
- IT Services
- Legal
- Police
- Zoo

East 55th Marina Panorama, Lakefront Reservation, Photo Credit: India Johnson

Cleveland Metroparks
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# Drones / Unmanned Aerial Systems (UAS)

- Project planning
  - Site assessment
  - Project development
  - Visualization

- Research
  - Natural Resources
  - Conservation
  - Erosion

- Marketing
  - Special events
  - Golf Courses

- Infrastructure
  - Mapping
  - Asset Management

- Virtual Reality
  - 360 camera
  - Hard to reach areas



Garfield Pond Restoration, Garfield Park Reservation, Photo Credit:  India Johnson

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Hawthorn Bridge Infrastructure, South Chagrin Reservation, Photo Credit: India Johnson

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Seneca Golf Course, Photo Credit: India Johnson

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Wild Winter Lights, 2021, Cleveland Metroparks Zoo; Photo Credits: India Johnson

# MapStore

# MapStore – Web Map

# MapStore – Web Map

# MapStore – Web Map

# MapStore – GeoStory – Capital Projects for Coordinated Infrastructure

# MapStore – Dashboard – Trail Statistics
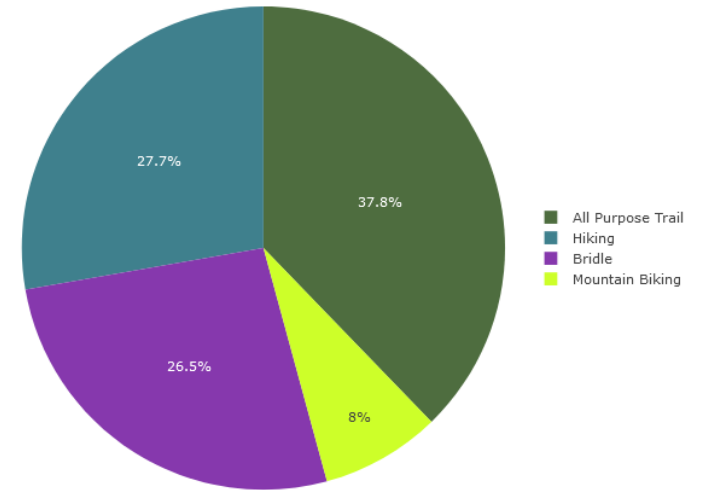
# MapStore – Dashboard – Summary Table

## Reservation Summaries

**Trail Mileage by Reservation Summary Table**

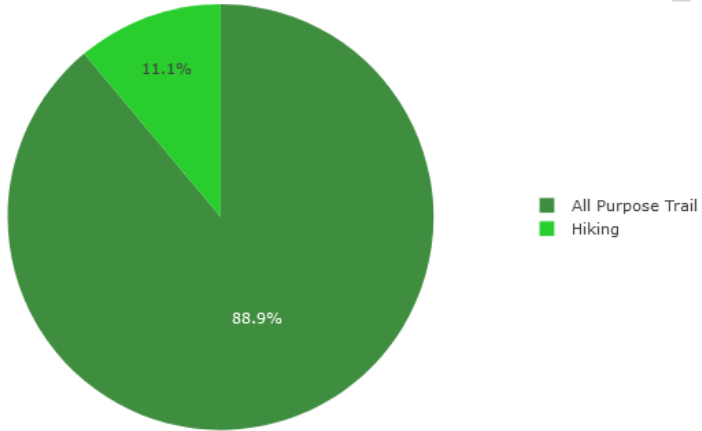| Reservation | TotalMiles | APTMiles | BridleMiles | HikingMiles | MtnBikeMiles | MilesPer100Acres |
|---|---|---|---|---|---|---|
| Acacia Reservation | 4.2 | 3.7 | | 0.5 | | 2.7 |
| Bedford Reservation | 39.7 | 8 | 13.3 | 8.7 | 9.8 | 1.5 |
| Big Creek Reservation | 14.8 | 11.6 | | 3.2 | | 1.9 |
| Bradley Woods Reservation | 4.3 | 1 | | 3.3 | | 0.5 |
| Brecksville Reservation | 43 | 12.1 | 17.9 | 13 | | 1 |
| Brookside Reservation | 5.7 | 4.7 | | 1 | | 4.3 |
| Euclid Creek Reservation | 8.1 | 4.4 | | 3.7 | | 1.5 |
| Garfield Park Reservation | 7.4 | 4.2 | | 3.2 | | 3.3 |
| Hinckley Reservation | 20.8 | 3.4 | 9 | 8.5 | | 0.7 |
| Huntington Reservation | 3 | 0.8 | | 2.2 | | 3 |
| Lakefront Reservation | 8.3 | 7.9 | | 0.4 | | 1.9 |
| Mill Stream Run Reservation | 33.5 | 11.3 | 8.7 | 4.1 | 9.4 | 1 |
| North Chagrin Reservation | 27.9 | 5.3 | 9.8 | 12.9 | | 1.3 |
| Ohio & Erie Canal Reservation | 23.2 | 18.7 | | 0.5 | 4.1 | 5.9 |
| Rocky River Reservation | 35.5 | 16.1 | 11.7 | 7.7 | | 1.4 |
| South Chagrin Reservation | 37.5 | 7.1 | 16.6 | 13.8 | | 2.2 |
| Washington Reservation | 2 | 2 | | | | 3.4 |
| West Creek Reservation | 9.2 | 1.8 | | 4.5 | 3 | 1.9 |
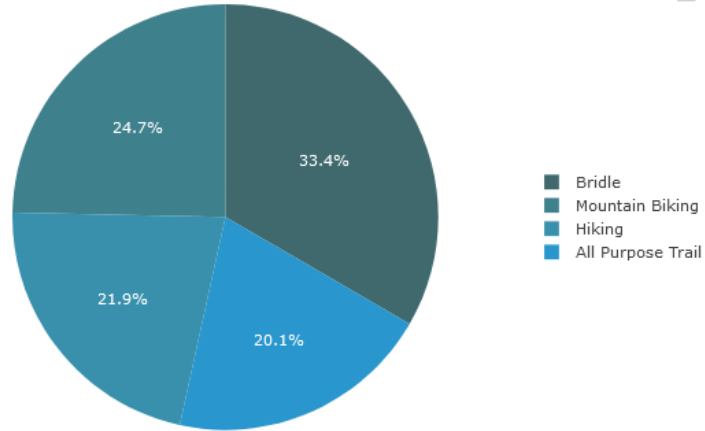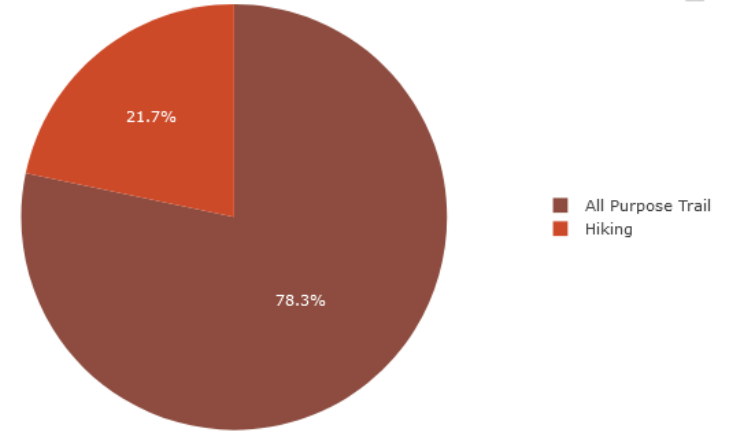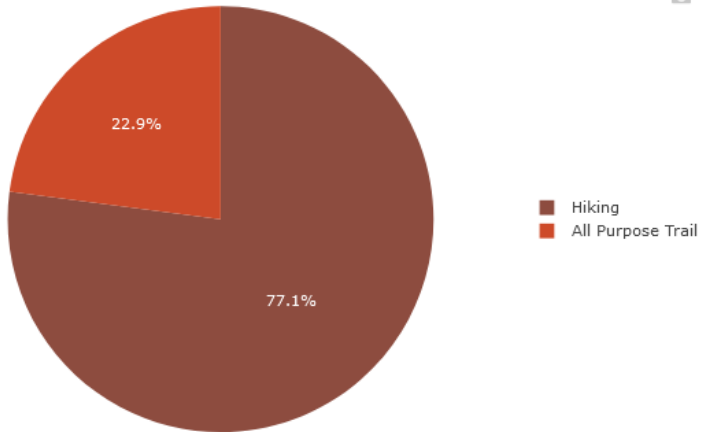
# MapStore – Dashboard – Charts
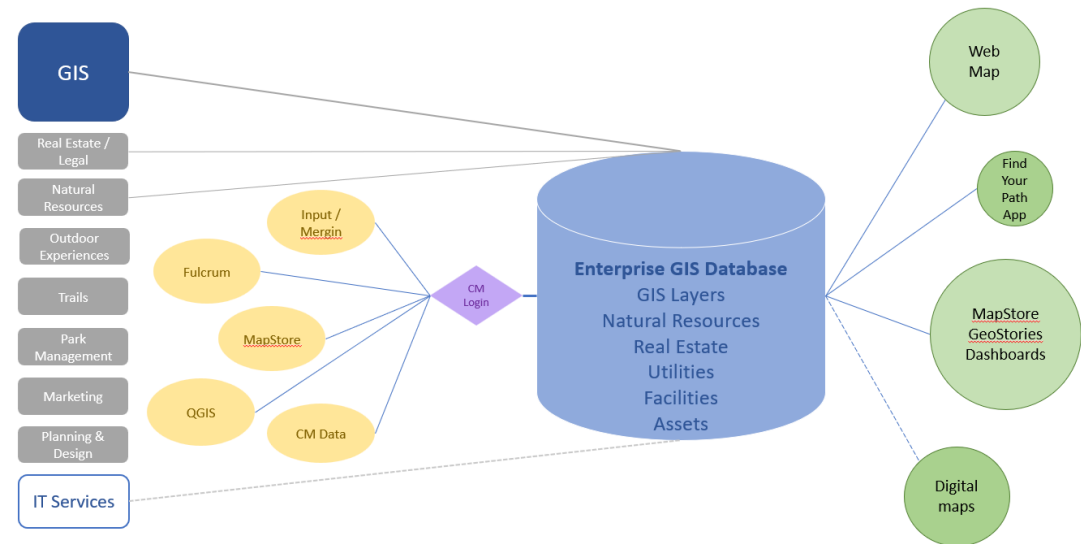
# Initiatives

## 2022 / 2023

- ❖ GIS Day

- ❖ MapStore roll-out beginning November 2022

- ❖ Enterprise Infrastructure mapping / needs assessment
    - Facilities
    - Assets
    - Utilities
    - Integration of other GIS databases

- ❖ Support internal and external GIS users
    - Within Cleveland Metroparks
    - With other park districts

## 5-year goals

- ❖ Established Enterprise GIS

- ❖ Utility mapping completed and workflow established

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District Initiatives

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