The Maryland-National Capital Park and Planning Commission
Montgomery County Department of Parks

Parks GIS Strategic Action Plan

Version 6.0

1-29-2020

Table of Contents

1.0 Introduction

Strategic planning is essential to ensure there is a single vision within the Department. It is where integration and innovation come together to produce a sustainable future. A GIS, geographic information system, specific plan ensures that the organization's leadership is on the same page when it comes to how GIS is utilized within the organization and how GIS empowers staff, clients, and park patrons by providing them with a way to analyze, map, and view information in relation to a location.

The Montgomery County Department of Parks has a long history with geographic information systems. Parks Department staff utilize GIS to locate and map invasive plant species densities, map our vast network of trails, evaluate sites for dog parks, and to provide data visualizations for decision-makers, just to name a few. With the assistance of the Information Technology & Innovation GIS team, the Parks Department has built a system with over forty GIS layers for use by Parks staff and the public. Most of the layers were created with no central vision or management, and several of the layers need updating and maintenance.

This document aims to provide the structure and workflows for data creation, maintenance, and visualization for the Department of Parks. This document sets a vision for the Department of Parks GIS that strives for reliable, high quality geospatial data that staff, and the public can easily access. The goals and action items were developed to assist and direct the Department of Parks to have 1). complete and accurate GIS data, 2). clearly defined workflows for better understanding of GIS-related roles and responsibilities, 3). standards for cartography and data visualization, 4). on-going communication about the geospatial industry that will empower and inform staff. Like the ever-evolving technology that GIS is, this strategic plan is a living document that will need to be upgraded and updated as needed.

2.0 Vision, Mission, and Goals

2.1 Vision

GIS, a mission critical component of park planning, development, stewardship, and operations that provides high quality location information to park staff and patrons.

2.2 Mission

To provide a robust and high-quality geographic information system that empowers users to efficiently access, manage, maintain, and share accurate, reliable, and consistent geospatial data; to easily and quickly analyze and obtain information in various formats on demand; and to develop the skillset of users across the Department.

2.3 Goals

Goal 1: Data: To have complete, accurate, and reliable geospatial data of parkland, park features, and assets maintained by the Department for use in the ArcGIS Desktop (Desktop) and ArcGIS Online (AGOL) environment.

Goal 2: Workflows: Clearly defined roles and responsibilities that support and facilitate consistent business process for geospatial data creation and maintenance.

Goal 3: Mapping, Data Visualization, and Analysis: High quality print maps, web maps, and web mapping applications that are available for staff and the public that are developed using the latest techniques.

Goal 4: Outreach and Education: To provide parks staff the most current information about the GIS industry and GIS technology advancements empowering parks staff to utilize GIS in their work programs.

3.0 Goal 1: Data

To have complete, accurate, and reliable geospatial data of parkland, park features, and assets maintained by the Department for use in the ArcGIS Desktop (Desktop) and ArcGIS Online (AGOL) environment.

1.1 Objective: Develop and implement a data maintenance program for the parks GIS data

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Identify and document the authoritative GIS datasets Department-wide for Desktop	X				MSD, All Divisions with GIS data	Yes
2	Identify and document the authoritative GIS datasets Department-wide for AGOL	X				MSD, All Divisions with GIS data	Yes
3	Identify the work group/staff responsible for maintaining Department-wide GIS datasets	X				MSD, All Divisions with GIS data	Yes
4	Develop a data management plan for the Department-wide GIS datasets	X	X			MSD, All Divisions with GIS data	Yes
5	Create the framework to perform a yearly review of all Department-wide GIS datasets for completeness		X			MSD, All Divisions with GIS data	Yes
6	Complete the GIS Capability Maturity Model to establish a baseline for resource requirements and core GIS staffing needs for the Parks GIS program			X		MSD	Yes

1.2 Objective: Identify opportunities to enhance current datasets or add new datasets the database

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Coordinate with Planning (ITI/GIS) and other agencies and municipalities to update the Department's records of non-M-NCPPC parkland	X	X	X	X	MDS, ITI/GIS	Yes
2	Develop a Parks GIS workgroup made up of GIS lead or Subject-matter Experts (SMEs) to identify subject-specific GIS data for every Division	X	X	X	X	All GIS Users/Data Stewards	Yes
3	Develop applications for field collection of data in the park system with GIS coordinates	X	X	X	X	MSD	Yes
4	Building upon existing data, develop a Parks Utility Infrastructure Layer to include all utilities	X X	X			MSD, PPD, FM	Yes
5	Building upon existing data, update trail lines and add meaningful attributes to the Parks Trails Layer	X				PPSD, MSD	Yes
6	Building upon existing data, update and correct the boundaries and attributes in the All Parks Layer	X	X	X	X	MSD	Yes
7	Develop an updated Athletic Fields layer with field shapes and a standardized field numbering system		X			MSD, Southern, Northern, PPD, PPSD, Enterprise	Yes
8	Develop an updated Sport Courts layer with standardized court numbering		X			MSD, Southern, Northern, PPD, PPSD, Enterprise	Yes
9	Develop an updated playground pad layer with a standardized identification system	X	X			MSD, PDD, PPSD	Yes
10	Building on existing data, develop layers of Natural Resource assets (points and polygons) for analytical purposes and to be uploaded to EAM		X			PPSD, MSD, ITI/GIS	Yes
11	Building on existing data, update and correct the Parks GIS Model with the most current data		X			MSD	Yes

1.3 Objective: Formalize GIS data standards throughout the Department to ensure consistency and quality of GIS data over the long term

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Create data creation standards and best practices for ArcGIS Desktop	X	X			MSD, ITI/GIS	Yes
2	Create data creation standards and best practices for ArcGIS Online	X	X			MSD, ITI/GIS	Yes
3	Create field data collection standards and best practices	X	X			MSD, ITI/GIS	Yes

4.0 Goal 2: Workflows

Goal: Clearly defined roles and responsibilities that support and facilitate consistent business processes for geospatial data creation and maintenance.

2.1 Objective: Identify, develop, and maintain workflows for business processes that involve GIS data creation

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Develop and implement workflow for the creation of new parks in GIS and EAM	X	X			MSD, PPSD	Yes
2	Identify park projects and develop a scope of work for GIS services	X	X	X	X	MSD, All Divisions with GIS projects	Yes
3	Identify and develop GIS workflows for departmental projects that have a GIS component		X			MSD, All Divisions with GIS projects	Yes
4	Develop an implementation plan for new GIS workflows		X			MSD, All Divisions with GIS projects	Yes

2.2 Objective: Ensure parks GIS data is maintained by the appropriate staff

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Develop and implement workflows for maintaining Department-wide GIS datasets	X	X			MSD, All Divisions with GIS data	Yes
2	Develop workflows that support the GIS data management plans	X	X			MSD, All Divisions with GIS data	Yes
3	Develop and implement a governance document in coordination with ITI/GIS		X	X		MSD, ITI/GIS	Partial

5.0 Goal 3: Mapping, Data Visualization, and Analysis

Goal: High quality print maps, web maps, and web mapping applications that are available for staff and the public that are developed using the latest techniques.

3.1 Objective: Formalize cartographic standards for static and web maps throughout the Department to ensure consistency, quality, and allow for the map to be consumed by all park staff and users

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Develop and implement standard symbology that meet parks and recreation industry standards	X				MSD, All Divisions with GIS projects	Yes
2	Develop and implement standards for static and web maps that incorporate ADA requirements		X			MSD, All Divisions with GIS projects	Partial
3	Develop template map documents at varied scales for staff use	X				MSD, All Divisions with GIS projects	Yes
4	Develop and implement a common branding theme/cartographic style for static and web maps	X				MSD, All Divisions with GIS projects	Yes

3.2 Objective: Formalize standards for ArcGIS online web application creation to ensure consistency, quality, and allow for the application to be consumed by all park staff and users

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Develop and implement standards for ArcGIS Online application creation that incorporate ADA standards		X			MSD, All Divisions with GIS projects	Partial
2	Develop a catalog of ArcGIS online applications detailing the owner, purpose, data contained, and update cycle		X			MSD, All Divisions with GIS projects	Yes
3	Develop criteria to determine the most appropriate ArcGIS online application for park projects	X	X	X	X	MSD, All Divisions with GIS projects	Yes
4	Develop and implement a common branding theme for ArcGIS online applications		X			MSD, All Divisions with GIS projects	Yes

3.3 Objective: Identify opportunities to enhance and/or develop ArcGIS online applications

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Develop and implement web maps and applications that will display EAM asset points and reports		X			MSD, All Divisions with GIS projects	Yes
2	Develop and implement a story map for Brookside Gardens 50th anniversary	X				MSD, HFEE	Yes
3	Develop and implement a Park Police Crime Map/Crime Analysis application		X			MSD, Park Police	Partial
4	Develop and implement an application to visualize Parks volunteer data		X			MSD, PACP	Yes
5	Develop and implement an application to visualize Parks permit data			X		MSD, PACP	Yes
6	Development and implement a web application to visualize data dealing with people in transition		X			MSD, Southern Division	Partial
7	Develop and implement a mobile GIS application for Montgomery Parks			X		MSD, ITI/GIS	Partial
8	Develop interactive NRS story maps with QR codes and linked PDFs for natural resources interpretation		X			MSD, PPSD	Yes

6.0 Goal 4: Outreach and Education

Goal: To provide parks staff the most current information about the GIS industry and GIS technology advancements empowering parks staff to utilize GIS in their work programs.

4.1 Objective: Develop a training program for the different skill levels and topics in GIS that can be adaptable to several different training settings

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Identify training opportunities in preexisting training subscriptions services	X	X	X	X	MSD	Yes
2	Identify training opportunities from industry training providers	X				MSD, ITI/GIS	Yes
3	Develop in-house “how to” documents and videos for common GIS tasks	X	X	X	X	MSD	Yes
4	Develop a training program from the identified opportunities for staff of all capabilities		X			MSD	Yes
5	Develop and implement a “road show” document for GIS applications	X				MSD	Yes

4.2 Objective: Develop informational materials about GIS use in the parks

Action #	Description	FY20	FY21	FY22	FY23	Division Involved	Staffing Available
1	Develop a GIS newsletter to provide information and about parks and industry GIS projects	X				MSD	Yes
2	Develop and implement a GIS Day program to coincide with GIS Day	X	X	X	X	MSD, All Divisions with GIS projects	Yes

7.0 Subject Matter Experts

Figure 1: Department of Parks Subject Matter Experts

8.0 Glossary

Geographic Information Systems (GIS): GIS is a computer-based tool that analyzes, stores, manipulates and visualizes geographic information on a map. GIS links geographic locations on Earth with attribute information enabling users to visualize patterns, understand relationships and trends (GISGeograhpy, 2018).

ArcGIS Desktop (Desktop): ArcGIS Desktop is the foundational piece of the ArcGIS platform for GIS professionals to create, analyze, manage and share geographic information so decision-makers can make intelligent, informed decisions. It allows you to create maps, perform spatial analysis, and manage data (Esri, 2019).

ArcGIS Online (AGOL): ArcGIS Online is a cloud-based mapping and analysis solution. Use it to make maps, analyze data, and to share and collaborate. Get access to workflow-specific apps, maps and data from around the globe, and tools for being mobile in the field. Your data and maps are stored in a secure and private infrastructure and can be configured to meet your mapping and IT requirements (Esri, 2019).

GIS Capability Maturity Model (GISCMM): Developed by the Urban and Regional Information Systems Association (URISA) and was designed to allow for the assessment of and organization's GIS for comparison with a standardized framework and rating system for enabling capability and execution ability (Babinski & Esnard, 2015). The GISCMM was released in 2015.

Collector for ArcGIS: Part of the Esri Geospatial Cloud, Collector for ArcGIS, a mobile data collection app, makes it easy to capture accurate data and return it to the office. Fieldworkers use web maps on mobile devices to capture and edit data. Collector for ArcGIS works even when disconnected from the Internet and integrates seamlessly into ArcGIS (Esri, 2019).

Survey123 for ArcGIS: Part of the Esri Geospatial Cloud, Survey123 for ArcGIS is a complete, form-centric solution for creating, sharing and analyzing surveys. Use it to create smart forms with skip logic, defaults, and support for multiple languages. Collect data via web or mobile devices, even when disconnected from the Internet. Analyze results quickly, and upload data securely for further analysis (Esri, 2019).

9.0 References

Babinski, G., & Esnard, A. (2015, April). *Managing GIS, A column from members of the Urban and Regional Information Systems Association.* Retrieved from Newsroom: https://www.esri.com/esri-news/arcnews/spring15articles/building-sustainable-gis-manageement-with-urisas-gis-capability-maturity-model

Esri. (2019, April 8). *ArcGIS Desktop*. Retrieved from ersi.com: https://www.esri.com/en-us/arcgis/products/arcgis-desktop/overview

Esri. (2019, April 8). *ArcGIS Online*. Retrieved from esri.com: https://doc.arcgis.com/en/arcgis-online/reference/what-is-agol.htm

Esri. (2019, April 8). *Collector for ArcGIS*. Retrieved from esri.com: https://www.esri.com/en-us/arcgis/products/collector-for-arcgis/overview

Esri. (2019, June 25). *Survey123 for ArcGIS*. Retrieved from esri.com: https://www.esri.com/en-us/arcgis/products/survey123/overview

GISGeograhpy. (2018, May 13). *GIS DIctionary - Geospatial Definition Glossary.* Retrieved from gisgeography.com: https://gisgeography.com/gis-dictionary-definition-glossary/#G

10.0 Appendix A – Respondent Results Report

Document link:
https://mncppc.sharepoint.com/sites/mcpulse/Parks/managementservices/GIS/Parks%20GIS%20Questionnaire%20Report%20-%20Version%203.pdf