Geospatial Strategy Proposal

Internal Draft, August 2022

Geospatial Strategy: Case-in-use

(McGinnis, ESRI Solutions Architect)

A Geospatial Strategy is a business-oriented plan that defines how an organization will use GIS to achieve its goals and desired outcomes

(GIS Strategy Handbook)

GIS strategic implementation plan provides a framework for organization to achieve its goals. During planning process, it identifies areas of improvement and then develops **metrics** that rate the process of improvement.

(United Nations Geospatial Strategy)

The Geospatial Strategy sets the direction to improve integrated information flow, enable a coordinated situational awareness for crisis response, enhance information-sharing and collaborative interactions between information providers and analytical entities

(Pardue, ESRI Geospatial Srategist)

A geospatial roadmap shows what you want to achieve and how and when you are going to achieve it: a development framework from Vision to Strategy to Implementation

(Precision Forestry Strategy, McKinsey & Co.)

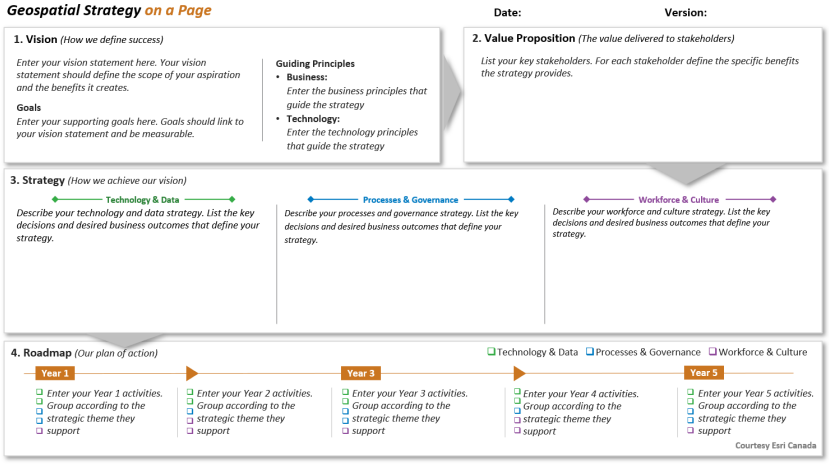
Four Ds include the crucial elements to GIS and digital transformation: Discover, Design, Deliver, De-risk…

(Sky City Geostrategy, ESRI)

A geospatial strategy will help you align your people, processes, and technology to your organization's business needs by taking a business-first approach, resulting in a higher return on your investment in geospatial technology.

(GIS People Ltd, Microsoft Partner)

A spatial strategy determines how your business can exploit location data to improve decision-making, reduce risks and optimise operations.



(ESRI Geospatial Strategy Template)

Geospatial Strategy: Veon's Proposed Design Process

Geospatial Strategy Draft

Guiding Principles: Data accuracy, integrity, and currency

1.1 Vision

Develop GIS infrastructure and toolset to:

- manage client's forest and landscape properties to the highest standards adhering to best forestry and environmental practices.
- add value to our client's investments by leveraging state-of-the-art digital tools and analytics that maximise the commercial benefits of their assets.

1.2 Goals

- Enable precision forestry through improved data collection, digital inventory, and GIS interoperability.
- Empower forest certification through data management and geotagging of VALMS system (jpgs, pdf, sharepoint)
- Reduce risk through advanced analytics and real time observation of climate events, forest health, big data.
- Support e-dashboard visualization of indicators to identify constraints, solutions, and strengthen communication.
- Improve mapping standards and workflow efficiencies

2. Value Proposition to Stakeholders

Forestry - Maximise value of timber assets with precision data.

Ecology - Ensure GIS & mapping services meet CIEEM standards.

Arboriculture - Ensure best practices in survey & CAD outputs.

Staff - Improve self-service capability in real-time spatial analysis

Management - Improve access to geodata services, apps and GIS infrastructure for optimized decision making.

3. Strategy

Technology

- Develop strategy for standardized projection and data formatting across FieldMaps, Arc, QGIS, CAD.
- Develop mapping framework and template library according to requirements & preferences.
- Compile SOP & training library for GPS processes.
- Customise ArcGIS Hub and WebMap/FieldMap labelling to increase use of surveys and resources.
- Develop approved library for site discovery

Process

- Scan full inventory and migrate/project data
- Document geodata governance priorities & develop storage rules accordingly.
- Develop GIS data model to support business processes and improve efficiency.
- Develop GIS scheduling webpage to coordinate mapping jobs and track quarterly workloads.
- GIS Maturity Matrix to monitor & manage adoption

People

- Highlight early adoption success and reduced GIS burden
- Host feedback sessions on FieldMaps and identify GIS needs
- Offer training on AGOL resources & in-field mobile mapping.
- Build geospatial community of practice (MTeams & AGOL)
-

4. Roadmap

2022 Q3 - Q4

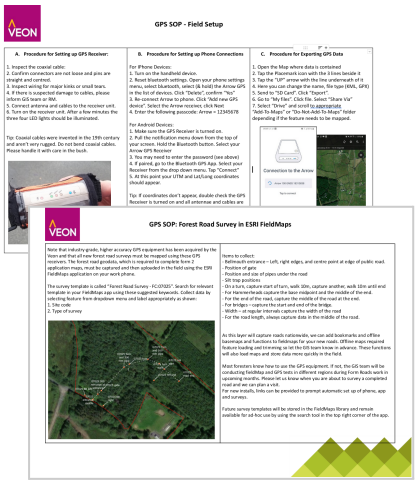
- Share draft 'Forestry Mapping Guidelines' & feedback
- Conduct training on F2 Roads surveys in FieldMaps.
- Complete & review mgt issues and asset digitization
- Complete reviews on ecology & arbor GIS standards.
- Share draft 'Ecology Mapping Guidelines' & feedback
- Document Arboriculture mapping needs & procedures
- Develop survey-specific SOPs for FieldMaps & GPS data
- Identify common map requests for template solutions
- Develop official list of standard mapping products
- AGOL cleanup & maintenance (track access points)
- Review PEFC updates & FS Circulars for GIS/mapping.
- Prepare activity plan and data inventory for PEFC audit

2023 Q1 - Q2

- Track milestones to GIS maturity matrix and report.
- Create onboarding training package of Veon GIS tools
- Build spectral library of cloud-free (<?%), normalized Sentinel tiles for disturbance mapping needs & tools.
- Develop data backup and security policy for GIS data and applications that is reliable, controlled and, consistent.

Implementation: Priorities across divisions

Forestry	Ecology	Arboriculture
Training & SOPs	Geodata standards	Formatting & storage: GIS to CAD


GPS SOP - Field Setup

A. Procedure for Setting up GPS Receiver:

1. Inspect the coaxial cable:
2. Confirm connectors are not loose and pins are straight and centred.
3. Inspect wiring for major kinks or small tears.
4. If there is suspected damage to cables, please inform GIS team or RM.
5. Connect antenna and cables to the receiver unit.
6. Turn on the receiver unit. After a few minutes the three four LED lights should be illuminated.

Tip: Coaxial cables were invented in the 19th century and aren't very rugged. Do not bend coaxial cables. Please handle it with care in the bush.

B. Procedure for Setting up Phone Connections

For IPhone Devices:
1. Turn on the handheld device.
2. Reset bluetooth settings. Open your phone settings menu, select bluetooth, select (& hold) the Arrow GPS in the list of devices. Click "Delete", confirm "Yes"
3. Re-connect Arrow to phone. Click "Add new GPS device". Select the Arrow receiver, click Next
4. Enter the following passcode: Arrow = 12345678

For Android Devices:
1. Make sure the GPS Receiver is turned on.
2. Pull the notification menu down from the top of your screen. Hold the Bluetooth button. Select your Arrow GPS Receiver
3. You may need to enter the password (see above)
4. If paired, go to the Bluetooth GPS App. Select your Receiver from the drop down menu. Tap "Connect"
5. At this point your UTM and Lat/Long coordinates should appear.

Tip: If coordinates don't appear, double check the GPS Receiver is turned on and all antennae and cables are

C. Procedure for Exporting GPS Data

1. Open the Map where data is contained
2. Tap the Placemark icon with the 3 lines beside it
3. Tap the "UP" arrow with the line underneath of it
4. Here you can change the name, file type (KML, GPX)
5. Send to "SD Card". Click "Export".
6. Go to "My Files". Click file. Select "Share Via"
7. Select "Drive" and scroll to appropriate "Add-To-Maps" or "Do Not-Add-To-Maps" folder depending if the feature needs to be mapped.

Connection to the Arrow

GPS SOP: Forest Road Survey in ESRI FieldMaps

Note: that industry grade, higher accuracy GPS equipment has been acquired by the Veon and that all new forest road surveys must be mapped using those GPS receivers. The forest road geodata, which is required to complete Form 2 application maps, must be captured and then uploaded in the field using the ESRI FieldMaps application on your work phone.

The survey template is called "Forest Road Survey - FCO7025". Search for relevant template in your FieldMaps app using these suggested keywords. Collect data by selecting feature from dropdown menu and label appropriately as shown:

1. Site code
2. Type of survey

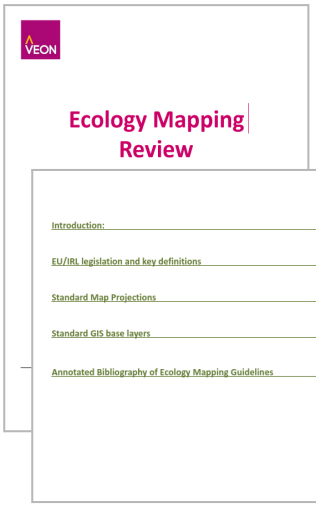
Items to collect:
- Ballmouth entrance – Left, right edges, and centre point at edge of public road.
- Position of gate
- Position and size of pipes under the road
- Silt trap position
- For Curves – capture start of turn, walk 10m, capture another, walk 10m until end
- For Hairpin Bends capture the apex midpoint and the middle of the end.
- For the end of the road, capture the middle of the road at the end.
- For bridges – capture the start and end of the bridge.
- Width – at regular intervals capture the width of the road
- For the road length, always capture data in the middle of the road.

As this layer will capture roads nationwide, we can add bookmarks and offline basemaps and functions to fieldmaps for your new roads. Offline maps required feature loading and trimming as let the GIS team know in advance. These functions will also load maps and store data more quickly in the field.

Most foresters know how to use the GPS equipment. If not, the GIS team will be conducting fieldtrips and GPS tests in different regions during Form Roads work in upcoming months. Please let us know when you are about to survey a completed road and we can plan a visit.

For new installs, links can be provided to prompt automatic set up of phone, app and surveys.

Future survey templates will be stored in the FieldMaps library and remain available for ad-hoc use by using the search tool in the top right corner of the app.


Ecology Mapping Review

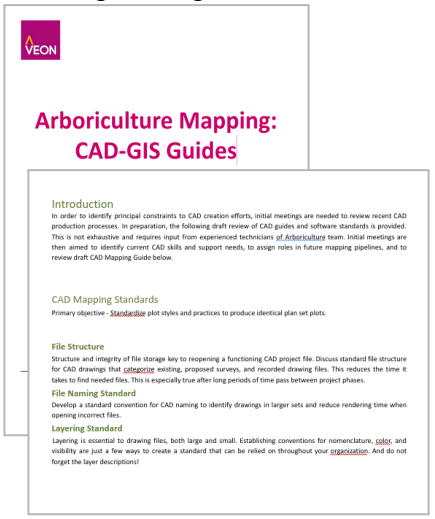
Introduction: 3

EU/IRL legislation and key definitions 4

Standard Map Projections 5

Standard GIS base layers 7

Annotated Bibliography of Ecology Mapping Guidelines 8


Arboriculture Mapping: CAD-GIS Guides

Introduction

In order to identify principal constraints to CAD creation efforts, initial meetings are needed to review recent CAD production processes. In preparation, the following draft review of CAD guides and software standards is provided. This is not exhaustive and requires input from experienced technicians of Arboriculture team. Initial meetings are then aimed to identify current CAD skills and support needs, to assign roles in future mapping pipelines, and to review draft CAD Mapping Guide below.

CAD Mapping Standards

Primary objective - Standardize plot styles and practices to produce identical plan set plots.

File Structure

Structure and integrity of file storage key to reopening a functioning CAD project file. Discuss standard file structure for CAD drawings that categorize existing, proposed surveys, and recorded drawing files. This reduces the time it takes to find needed files. This is especially true after long periods of time pass between project phases.

File Naming Standard

Develop a standard convention for CAD naming to identify drawings in larger sets and reduce rendering time when opening incorrect files.

Layering Standard

Layering is essential to drawing files, both large and small. Establishing conventions for nomenclature, color, and visibility are just a few ways to create a standard that can be relied on throughout your organization. And do not forget the layer descriptions!

Implementation: Prioritisation matrix

High value *- Backlog of DAFM information request* *- Build in-house national soil layer* *- Launch GIS ticketing system* *- Expand PEFC membership through declaration portal* - -	***Quick wins*** *- Road survey training and case testing* *- Decode & reclassify from SIS data protocols* *- Curate theory of change workshop on the above* - - -
Lower value *- Geo-library of government mapping standards* *- Web tiles for appropriate assessments & publicity* - - -	***Harder wins*** *- Operational dashboards: GIS to PowerBI rules* *- Expand VALMS fields to empower forest certification* *- Monitor GIS data traffic and staff storage habits* *- Build multispectral library & integrate into pipelines* - -