

Asset GeoPro

Bring your community plan to life



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Introduction to Asset GeoPro

Introducing Asset GeoPro

City plans, land use plans, road networks, environmental features, housing assets - where do you look when you need information on your community planning?

You can search through cabinets of documents and log books. Or, you can click once, and have access to all the information about your community.

Welcome to Asset GeoPro, McElhanney's asset management /geographic information system (GIS) for your community. Accurate, fast and easy to use, Asset GeoPro consolidates all components of your community planning, asset management and land-use governance needs. You will be able to highlight opportunities and foresee developmental constraints, as your community develops.



We set up the system for you, and then you choose to either manage it yourself, or have us continue to run it.

Features

- Pre-loaded with data to your specifications.
- Links to photos and reports.
- Automatic reporting for operations and management.
- Schedules upcoming work and generates work orders.
- Manages housing assets in accordance with First Nations' requirements.
- Maintains property assessment data and tracks taxation and payment history.

Asset GeoPro. Your community planning is only a click away.

There are many benefits of using Asset GeoPro, even simply for its GIS (geographic information system) capabilities, but the fullest use of this system results in a complete community asset management system.

The system's broad capabilities are derived from its uniquely combined GIS and asset management features. General descriptions of these features – Planning, Asset Management and Land-Use Governance, follow. The benefits of integrating GIS and asset management functionality are described in Section 2. More detailed descriptions of the workings of the program, and comparisons with “open” GIS software are more fully addressed in Section 3.

Community Planning

Asset GeoPro's GIS capability can efficiently consolidate all of your community plans including Official Community Plans, Land Use Plans, Physical Development Plans and Neighbourhood Plans into one *consolidated master planning tool*.

Even technical planning data, such as road network planning, utility expansions and storm water management plans can be included to overlay and interact with every other aspect of the community's aspirations. Special geographic areas, such as environmental, social and cultural land features can be fully integrated with these plans – never again to be overlooked!

Using Asset GeoPro's advanced GIS mapping functions enables you to quickly highlight opportunities, conflicts, and development constraints, as your community's plans develop and evolve. This consolidated map of your community's future becomes a truly living document that can include unlimited references to your library of photographs, reports, and other documentation.

Asset Management

Maintenance activities have a long term impact on the operation and lifespan of infrastructure components.

A formalized asset management system such as Asset GeoPro can be very helpful in maximizing the infrastructure lifespan and minimizing costs by managing, coordinating and tracking maintenance activities for these assets.

Maintenance tracking and scheduling has long been recognized as vital to preserving assets. In days gone by, this consisted of paper-based systems with "tickler files" to bring forward scheduled activities. However, utilizing log books and ledgers for scheduling, developing work orders, and projecting and recording time and expenses are labour-intensive and never-ending tasks. As we have all experienced, today's computers take care of such detailed and menial tasks instantly, accurately and reliably. Whatever the type of system, operator skill and dedication is critical to success and Asset GeoPro greatly lightens this burden and *it is actually fun to use*.



Your Asset GeoPro Asset Management Plan is designed to be:

- Simple to learn;
- User-friendly, with its graphical map interface and simple database forms;

- Accurate and complete, loaded with your data to your specifications;
- Handy for instant access, with links to your photographs, reports, etc.;
- Intuitive, as you input data in the pre-set forms and use the calendar for scheduling activities; and
- Time-saving, with automated reporting tailored for operations and management purposes.

There are two aspects to the asset maintenance functions. The first is listing assets and tracking activities and costs (historical data) and the other is Asset GeoPro's ability to schedule upcoming work and easily produce maintenance calendars and generate Work Orders as they are required.

For our First Nations clients, housing is a critical component and Asset GeoPro has specifically programmed features to manage housing assets in accordance with INAC's rules and requirements.

Land-Use Governance

Land-Use Governance includes the ability to attach information to specific lots or land areas, which is then permanently stored and retrievable with a click of the map.

Land registry data is usually the first level of property data. This is then supplemented with land assessment data, leaseholder information, payment histories, bylaw infractions, maintenance notes, and any manner of "notes to file", all of which is instantly accessible.

Bylaws pertaining to geographic areas (for example, an environmental regulation applied to an industrial park) can be included as map overlays, to become a crucial factor in land management decisions. Of course, the community's planning information as described above will automatically become part of all discussion on land management and governance as well, when common databases are shared across the entire organization, which is easily done with Asset GeoPro.

Asset GeoPro can also be configured to maintain property assessment data from the BC Assessment Authority and used to track taxation and payment history. This can then be analyzed visually, and statements automatically generated. If these functions are already available via your other databases, report data can be easily imported to Asset GeoPro to keep your historical records, and carry out custom analyses.

Further capabilities of Asset GeoPro include highlighting financial collection issues for follow-up action, scheduling upcoming lease renewals and creation of mailing lists based on query results.

Organizational Functionality

Specific departments across your organization can realize direct benefits from using Asset GeoPro.

Table 1.1 on the next page shows typical organizational departments and the Asset GeoPro features that would be of most benefit. A further advantage is that each department need not have direct access to Asset GeoPro. For example, Economic Development staff could get the information they need from a system operator from Public Works.

Table 1.1 Asset GeoPro Functionality

FEATURE	Departmental Use					
	Finance & Taxation	Engineering & Public Works	Land & Resource Management	Housing & Building Management	Bylaws / Collections	Planning & Marketing
Graphics						
Base Plans - Maps & Aerial Photos	✓	✓	✓	✓	✓	✓
Base Maps - Cadastral / Legal	✓	✓	✓			✓
Base maps – Utility Composites		✓	✓	✓		✓
Soils Classifications		✓	✓			✓
Watermains, Valves, Hydrants	✓	✓		✓		✓
Sanitary Mains and Manholes	✓	✓		✓		✓
Storm Mains, Drains and Manholes	✓	✓		✓		✓
Streetlights	✓	✓		✓		✓
Signs	✓			✓	✓	✓
Civic Addresses	✓		✓	✓	✓	✓
Emergency Response Information		✓		✓		✓
Environmental, Social, Cultural Areas			✓		✓	✓
Land Use Mapping	✓		✓		✓	✓
Lease Tenant /CP Information	✓		✓		✓	
Permits & Licenses	✓				✓	
Physical, Geo-based Constraints			✓			✓
Roads / Streets		✓	✓	✓	✓	✓
Utility Service Connections		✓		✓		✓
Wells		✓		✓		✓
Asset Maintenance Databases						
Asset Repair & Maintenance History		✓		✓		✓
Community Buildings		✓	✓	✓	✓	
Dams & Waterways, Licenses		✓	✓			✓
House Information	✓			✓		
INAC CAIS/ ACRS Tracking		✓				
Land Value Assessments and Taxation	✓		✓			✓
Maps Showing your Database Queries		✓	✓	✓	✓	✓
Septic Maintenance				✓		
Treatment Plants: Water, Sewer		✓				
Utility Mains - Underground		✓				✓
Utilities - Above Ground		✓				✓
Maintenance Scheduling						
Budgeting - Annual & Job cost	✓	✓		✓		
INAC Housing Reports				✓		
Maintenance Schedules		✓				
Public Works Dep't Resources	✓	✓				✓
Work Orders & Calendars		✓		✓		
Work Scheduling & Tracking		✓		✓		

The Benefits of Asset GeoPro

The Asset GeoPro system combines the power of GIS and asset management scheduling to form a practical and powerful tool.

Benefits of Using GIS

Land Stewardship

- Ties all assets to maps (the Land).
- Educational linkages to the land and assets.
- Range and forest management plans can be included.
- Map constraints and issues:
 - Culturally significant areas,
 - Archaeologically sensitive areas,
 - Environmentally sensitive areas.
- Agricultural assets and planning.



Land-Use Governance

- Land-use data and zoning – can be used to create a ‘living’ land use plan and physical development planning can be clearly shown.
- Legal and property status information – land registry records.
- Land use data and zoning where applicable.
- Track permits and license compliance.
- Bylaw coverage and enforcement histories.
- Taxation, lease and rental information including collection history.
- Water licenses, water management, dams, irrigation, flood protection works.
- Address maps, cemetery plans.
- Emergency plans and 911 mapping.
- Development constraint mapping:
 - Culturally, archaeologically and, environmentally sensitive areas,
 - Geological and geotechnical no-build zones.

Benefits of Developing an Asset Management System

Information & Financial Stewardship

- All maintenance information is available and easily accessed when needed.
- Seasonal maintenance and licensing requirements scheduled.
- Streamline expenditures through forward planning – cash flow reliability.
- Budget preparation data and budget tracking capabilities – budgeting reliability.
- Full database functionality – databases can be exported and used in conjunction with other data for statistical analysis, such as comparisons with tax rolls, lease data, housing records, etc.

Asset Management

- Utility repair & maintenance history.
- House assets – materials, finishes, major appliances, amenities.
- Septic system maintenance history.
- Well pumping and repair history.
- Wastewater infrastructure – pipes, fittings, pumping stations, treatment facilities, disposal systems.
- Water infrastructure – intakes, treatment facilities, pumping stations, pipes, fittings, valves, hydrants, service connections.



Reporting and Capacity-Building

- Statistical compilations generated for reports to the public, consultants, home designers, etc., which improves data quality and reduces future costs.
- Keep safety specifications on-line for maintenance activities.
- Training levels specified for various maintenance activities, matched to staff capacity, which can be used for targeted training and compliance tracking.

For Our First Nations clients

- Generates automatic housing reports for INAC and other authorities.
- Much better control of Band assets than INAC's CAIS/ACRS system, but can be used to supply data to INAC, thereby maximizing funding potential.

Benefits of Integrating GIS with Business Data and Maintenance Records

There is an astounding improvement in functionality and user friendliness as the entire community's planning and operations information integrate, and "come to life" on the maps of your community.

- Report data can be shown in various formats, including map layers.
- Graphical representation of information for Planning and Marketing / Economic Development is accurate and easy to understand.
- A terminal can be set up right at your "front counter" for instant answers to taxpayers', developers' and others' queries, providing better service and saving time for your senior staff and managers.
- Accountability and follow-up on planning and projects will be improve.



Benefits of McElhanney's Asset GeoPro – an Integrated GIS/Asset Management System

- Extremely easy to use – pre-programmed to do what you need. It's like driving a new car off the lot rather than buying a crate full of car parts.
- Ease of use increases effective use.
- Robust and reliable – built on industry-standard software.
- Affordable – invest in only the features needed.
- Organization-wide access to your best information by multiple users (if desired).
- Excellent support and assistance as required from McElhanney's professionals.
- Customizable to match client's needs.
- Flexible – can be used for many critical governance and asset management functions.

Working with Asset GeoPro

Overview

This section describes Asset GeoPro's abilities and compares it in general with other geographic information systems available.

Asset GeoPro is a Windows-based application that will run on any Windows Personal Computer. It is driven by two software engines: ESRI's Map Objects (graphics), and Microsoft's Access (database).

Asset GeoPro will provide all the GIS capabilities required by most municipalities. Once it is set up with the community's base mapping and utility information, it can plot maps, selectively show layers, and attach attributes to the map shapes. It is not, however, a full-featured GIS program that can be openly programmed. This is because it has been pre-programmed to do specific tasks. This simplifies the operation and virtually eliminates the learning curve to operate the system. Anyone who can use Microsoft Office or even "Facebook", will have no trouble operating the Asset GeoPro software. Asset GeoPro is a fully functional, self-contained software that does not require additional ESRI Mapping software or Microsoft Access to be loaded on the workstation; all functions are included with the Asset GeoPro system.



Maintenance Scheduling & Budgeting

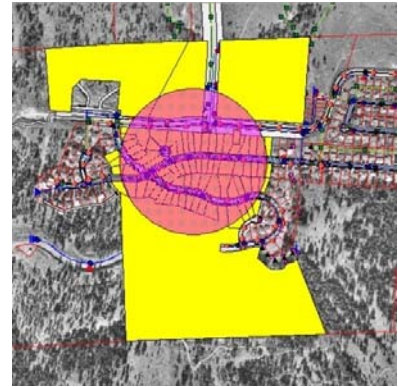
The various functions performed by Asset GeoPro are summarized in Table 1.1.

The maintenance scheduling and budgeting functions of Asset GeoPro include:

- Planning, budgeting, execution and tracking maintenance activities;
- Maintaining personnel, equipment, materials and contractor records;
- Providing daily and weekly overviews of scheduled activities from the calendar functions;
- Generating job schedules, work orders and cost estimates;
- Developing job budget for personnel, equipment, materials and contractors;
- Analyzing budgets, by recording the actual job costs for comparison with estimates and for future reference; and
- First Nations Housing asset maintenance.

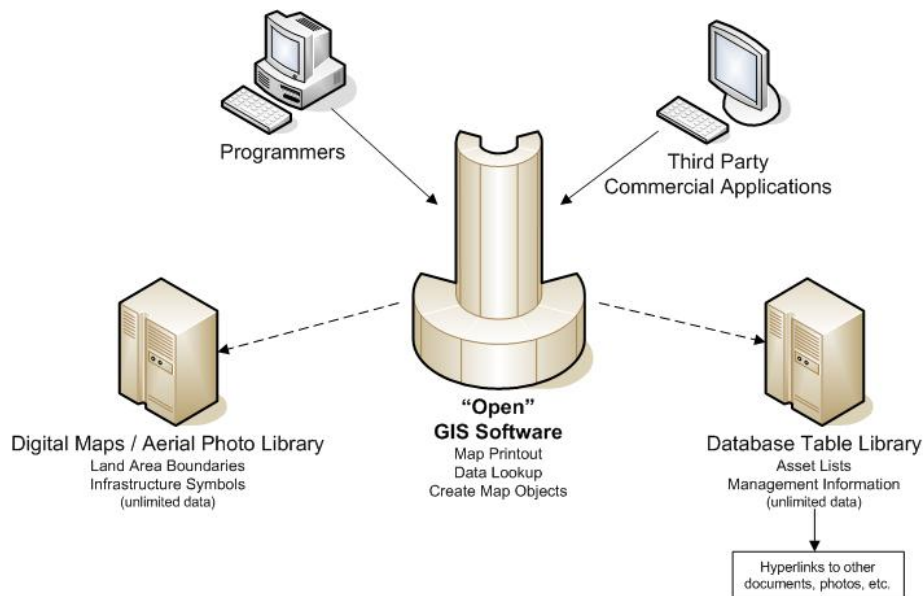
Graphical Interface – Ease of Use

- Access database information by simply clicking on the on-screen map.
- Display map location data by querying the databases. For example, showing all hydrants due for servicing in the next six months, or showing all lots with overdue utility payments.
- Link your maps to your library of photographs, scanned documents, reports, and even other external databases through hyperlinks.



Geographic Information Systems – Comparison

The following diagram shows, in general terms, the use of a full-function, or “open” GIS system.



“Full-function”, or “open” GIS software can be purchased from ESRI (ArcMap), or even McElhanney (MapInfo) and others, and there are web-based GIS programs available as well, such as Planet GIS.

Depending on the level of functionality desired, commercial packages can range from \$2,500 to \$25,000, with annual maintenance fees of \$1,200 to \$6,000. However, in contrast to Asset GeoPro, all come with much potential but no practical municipal application built in.

An open GIS package requires programming to develop the common routines needed to automate routine work and considerable training is required to become

proficient at programming the GIS software. With Asset GeoPro, these functions are already built in. Although the programmable functionality of open GIS packages does have its advantages in some settings, it is often a detriment for the average municipal office.

Rather than the hundreds of buttons and menus to learn the programming of an open system, Asset GeoPro is already programmed and customized for municipalities' needs.

Clients who already have GIS software and proficient staff can also benefit from Asset GeoPro, as it uses the industry-standard "Shape" files. Asset GeoPro does not create its own "Shape" files so these need to be created externally by a separate open GIS program, then imported to Asset GeoPro. Shape files are the "live" entities in the map base as they have attached attributes. During the Asset GeoPro setup these Shape files are typically created by McElhanney, and then updated occasionally as the need arises.

Shape files can also be produced by AutoCAD, and entire AutoCAD layers can be imported into Asset GeoPro layers. Therefore having electronic drawings saves time and money in the setup tasks.

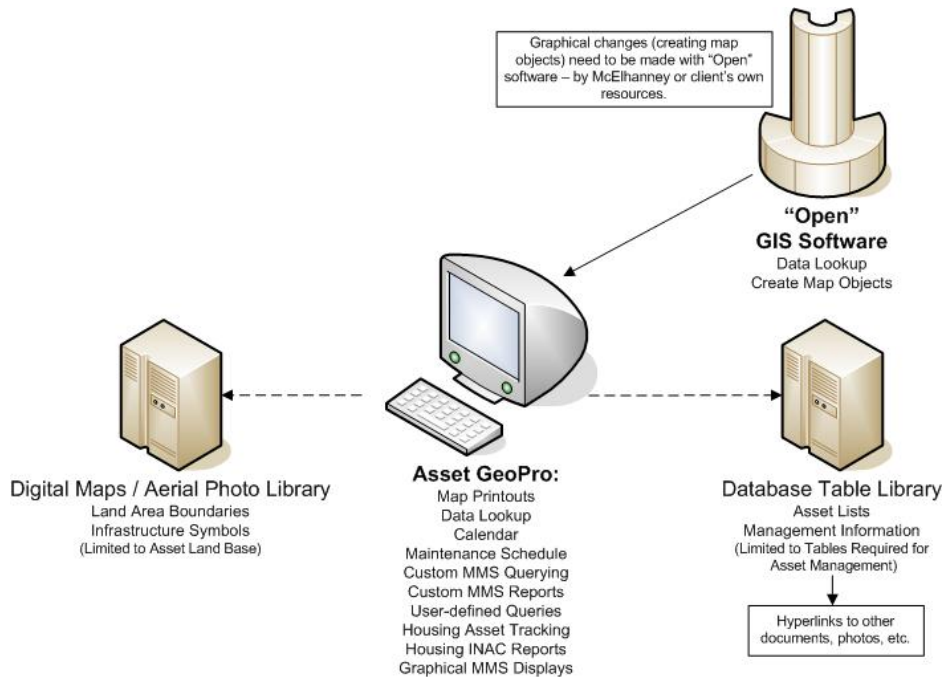
McElhanney's Asset GeoPro brings GIS functionality and more, while eliminating the need to develop GIS experts in your organization.

Multiple Users

With Asset GeoPro, you can purchase an unlimited number of user licenses, whereas an open GIS package typically can only be accessed by one computer.

This way, multiple staff members who need access to data in their day-to-day work can have Asset GeoPro installed on their own computers. In this case, Asset GeoPro is installed on the intranet server, so that all users are accessing the same databases. Therefore, any updates to data are immediately reflected to all users. Various users can be assigned appropriate levels of access to the system through password protection.

The following diagram shows the use of Asset GeoPro in your organization.



Editing Data

It was noted earlier that Shape files are created externally to the program by personnel trained in GIS operation. However, the following editing functions are available within Asset GeoPro.

We emphasize that once set up properly, virtually no changes to the graphical information will be required on a day-to-day basis. McElhanney is readily available to make changes and updates for our clients, so literally no editing is required by the client.

- You can change the symbols and layers displayed.
- You can add layers easily through the Add Layer Wizard.
- You can change symbol size/style/colour.
- You can change the draw order.
- You can add spatial data through a “program wizard” and the changes are automatically referenced in the database.
- You can enter maintenance data through pre-set on-screen forms.
- You can update any database records at any time using the on-screen forms.

Importing Data

Database information, such as the land registry information and BC Assessment Authority databases can be imported to the program.

Depending on the format, and the referencing system, some formatting and/or linking protocols may be required to the databases prior to importing. McElhanney can assist with this and after being set up once, successive imports of the same data (next year’s database) are simplified.

Terms of reference checklist

Objectives

The objective of this project is to develop a functional computerized asset management system utilizing McElhanney's Asset GeoPro.

By completing the following checklists, the project's terms of reference will be established. This is set up as a series of client decisions about what to include in the system and how involved the client wishes to be in its development. Items not included in the initial setup can easily be added later. These decisions are organized into:

- capital assets to be included;
- deliverables required;
- required tasks (assigning responsibility); and
- service options.



McElhanney is always involved in producing the initial base mapping and setting up the basic system to ensure that databases and maps are properly linked. Much of this work can be done remotely by linking your computer with ours over the internet using a secure connection.

Client involvement can include items in “deliverables” and “required tasks”. However, many clients will choose that McElhanney complete all the steps to deliver a “turn-key” system and provide the simple training required to operate the system. Others may choose to take on more responsibility in developing the asset map base by inputting maintenance activities and schedules.

Mapping Base and Community Information

	Include? (✓)
Base Mapping	
Topographic Information	✓
Aerial Photography	✓
Cadastral Information	✓
Planimetric Information	
Land Registry Data	
Land Use Plans	
Special Areas (e.g. ecological reserve)	
Official Community Plan Data (e.g. phased development)	

Capital Assets To Be Included

The capital assets which would need to be incorporated in the asset management system include the following:

	Include? (✓)
Public Works and Utilities	
Roads – gravel, paved, curb, gutter	
Sidewalks and walkways, bicycle facilities	
Streetlights	
Utility poles	
Catchbasins	
Community wells and surface water intakes	
Community irrigation systems	
Domestic water system and reservoirs	
Water mains, fire hydrants and valves	
Lift stations	
Sewer mains and manholes	

Treatment plants and pump stations	
Dykes	
Dams and waterways	
Public Works machinery and equipment	
Community buildings	
Housing	
Houses	
Appliances and house details	
Septic systems	
Agricultural Assets	
Buildings	
Fences	
Machinery and equipment	
Irrigation systems	
Scheduled farm tasks	
Cemetery	
Grave plot information	
Planning data	

Deliverables

	Include? (✓)	By Client (✓)	McElhanney (✓)
Provide User Manual for software application	✓		✓
Produce hard copy binder including copies of work orders, initial data tables, annual schedule, and budget			
Provide hard copy binder of maintenance manuals for individual system components			
Provide written recommendations for operator training and safety upgrading			

Required Tasks

	Include? (✓)	By Client (✓)	McElhanney (✓)
Project Coordination and Management			
Project meetings	✓		✓
Coordinate project and collect information	✓		✓
Quality Management System	✓		✓
Data Collection and Base Mapping Preparation			
Cadastral base mapping	✓		✓
Orthophoto mapping	✓		✓
Other digital base mapping	✓		✓
Land parcels, lots	✓		✓
Houses			
Community buildings			
Infrastructure mapping: water and sewer			
Installation and Software Training			
Install software application in client's computer system.	✓		✓
Test all functions to ensure proper links to data sets.	✓		✓
Train works personnel on viewing, querying, editing, and recording new data using this application.	✓		✓
Prepare GIS Databases			
Set up databases for buildings, infrastructure, roads and ditches	✓		✓
Link database attributes to graphic entities	✓		✓
Enter database data for infrastructure – utility mains, services, roads, etc.			
Housing data (can be entered by the client)			
Identify Maintenance Issues			
Gather information relating to personnel, client equipment and materials			
Inspect and review existing assets with client to determine maintenance requirements and current procedures			
Review existing work schedule with client			
Obtain copies of maintenance manuals for individual system components			
Review existing training levels for maintenance personnel			
Review existing safety procedures and requirements for maintenance activities			
Develop Maintenance Plan			
Input work orders and schedule			
Input data tables for personnel, equipment and materials			
Input work orders into program			

Input work orders to the Scheduler			
Prepare work schedule			
Prepare draft budget			
Review, refine and finalize			

Support Service Options

	McElhanney (✓)
Provide support service on an “as-required” basis following installation and training	
Once-a-month reviews during the first quarter of the year	
Quarterly site visits thereafter to review the use of the AMP application	
End-of-year review to assist the client set up their schedule and budget for the following year	
Web-based viewer, for full public access	