



How to Hire a GIS Technician

Optimize your municipal data

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Introduction

How can I be confident I'm making the right choice?

As municipalities grow, opportunities arise to hire skilled new staff who can help expand service delivery and improve operations. Growth always brings challenges. Hiring for a position that isn't related to your core function, particularly technical positions, can be intimidating.

As experts in municipal GIS, Catalis has assisted many municipalities in their GIS Technician hiring process. The intent of this eBook is to provide your organization with supplemental information to accompany your current hiring processes. We hope that "How to hire a GIS Technician" provides you with the knowledge you need to confidently hire the right GIS Technician for your municipality.



GIS and Your Community

Connect and simplify municipal information.

What is GIS?

GIS is an acronym for Geographic Information Systems. What does this mean? In a municipal context, think of it as an incredibly detailed digital map of your municipality. Using this map, you have a portal where you can store, access, and modify all kinds of municipal information. GIS gives you a clear picture of the “wheres” and “whats” of your community.

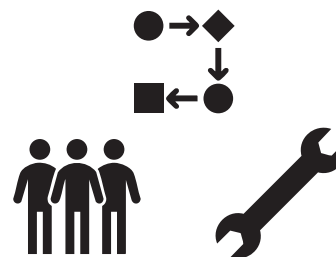


Why do I need it?

It's simple – better decision making and improved service delivery. GIS connects and simplifies municipal information. Centralizing and standardizing information into GIS enables staff to spend less time searching for and correcting data, and more time utilizing data to inform decisions and make improvements. Rather than spending time sifting through collections of maps, software, documents, and the collective memory of your organization, all this information can easily be accessed through a well managed GIS.

People, Process, Tools

To successfully implement a GIS program, the most important step is to start with the right people. The right people will build practical processes, and develop or find tools that work across your organization. When staff turnover occurs, well built processes and tools will help maintain your GIS and data.



The Role of a GIS Technician

A day in the life...

In a typical municipality with one dedicated GIS technician, this is how their time would be spent:

Data Completeness and Accuracy – 50%

“Garbage in, garbage out”. GIS causes big problems if data is insufficient or inaccurate. One of the most important roles of a GIS Technician within a municipality is to ensure that the data within the GIS is up to date, standardized, and accurate through data collection and upkeep.

Data Analysis & Presentation – 40%

A GIS Technician develops good information from GIS data, and shares it internally and externally. This is done through spatial analysis, cartography (map making), and report generation among other things. The quality of this information is crucial to good decision making and service delivery.

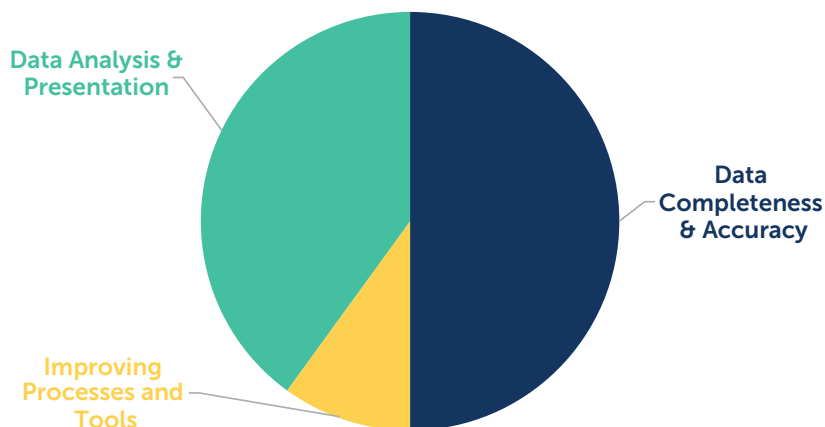
Improving Processes and Tools – 10%

This can include optimizing local servers and databases, implementing simple applications for staff to utilize, and researching and adopting best practices.

What’s in a name?

The term GIS Technician is used as an umbrella term in this eBook. Different names you’ll see commonly start with “GIS”, “Geospatial”, “Mapping” or “Infrastructure Data”, and end with “Technician”, “Technologist”, “Analyst”, “Specialist”, or “Coordinator” among other names. In larger organizations, these titles can have distinct meanings. In most municipalities with 1 or 2 GIS staff, these terms are typically synonymous.

Average Time Allocation



GIS Maturity

Where do you stand?

The table below provides a general outline of GIS maturity within municipalities. There is often an overlap between stages as municipalities grow, and other factors such as finances and geography can influence your stage. This table is not a “good, better, best” scale, but rather a depiction of the level of GIS required for a municipality to optimally function based on their circumstances.

Level of GIS Required	Description	Average Population
Basic GIS	People, processes, and tools are outsourced, typically to a customer-service oriented company that works closely with municipal staff. The company can provide integrated tools that optimize current processes, and allow staff to view and input data.	0 to 10,000
Advanced GIS	Processes and tools are outsourced based on internal capacity. 1-3 dedicated staff ensure GIS is being used to meet municipal objectives, and typically work closely with outsourced company to assist with processes and implement tools.	10,000 to 30,000
Expert GIS	Tools are outsourced according to specific needs. Municipality has a dedicated team of GIS staff. Processes are almost always completed in-house, and some tools are designed internally.	30,000 +



Why hire?

How do you know if your organization is ready to make the jump from Basic to Advanced GIS? It's almost always cheaper to outsource GIS, so why hire someone? Beyond staff compensation, other costs can include relocation and living expenses, professional development, and high capacity software and hardware. Total costs for all of this can often exceed \$100,000 annually, on top of what you are currently paying for outsourced solutions.

The top two reasons for investing in an in-house GIS program, are:

1) Accessibility to a GIS professional internally

2) Increased customization of GIS to meet unique needs

As municipalities grow, they have more resources to invest in their community, and their needs become increasingly unique compared to their contemporaries. The support and customization extent of outsourced providers works very well for a lot of municipalities, but there does come a point when growth dictates in-house support. In almost all cases, the amount of value your organization places on the two points above will determine if you move ahead with a hire.

Candidate Requirements

Let's get down to the nitty gritty.

You've assessed the needs of your organization, and you are confident that hiring a GIS Technician will bring value to your municipality. This is great!

Basic Skillset

To get started, here are basic skills that a municipal GIS Technician should have. A quick search through municipal job boards will show you job postings requesting skills like these below:

- Proficiency in the use of GIS software
- Experience in the use of GIS related tools, including database management systems Web Map servers, and data integration platforms
- Experience in computer programming languages
- Knowledge of computer systems and infrastructure
- Cartography (map making)
- Strong attention to detail
- Excellent communication
- Project management



Education and background

Formal GIS education covers a broad spectrum across all levels of post-secondary education. GIS study often accompanies Geography, Environmental Science, Computer Science, Information Technology, Infrastructure, Planning, and Hydrology among other fields. Many GIS Technicians will start their career in one of these areas and gravitate towards GIS as their career progresses.

Two Essential Traits

Being involved in municipal GIS for decades, and having hired many GIS Technicians ourselves, Catalis has identified two traits that separate the top GIS Technicians from the rest of the pack. These traits are:

Curiosity

- GIS technology is constantly evolving. A passion for growth and learning is necessary to ensure your processes and tools keep up with current trends.
- GIS involves a lot of “outside the box” thinking, as Technicians are constantly challenged with finding ways to improve processes, find efficiencies, and do more with less to provide more value to ratepayers.
- A complacent GIS Technician can leave your organization with inefficient and outdated systems, setting your municipality back and causing unnecessary financial burdens.

Emotional Intelligence

- Far too often there is a communication divide between technical staff and non-technical staff. The main contributor to this is a misunderstanding of each other’s needs. This is usually because the “what” is communicated, as opposed to the “why”.
- Successful GIS Technicians need to be able to analyze and discern the “why” behind their assigned tasks, and understand how their tasks fit in to municipal operations and objectives as a whole. The same goes for communicating information back to non-technical staff.

The Right Fit

As is the case with most hires, a strong candidate doesn’t need to have every single skill you are looking for. It’s better to hire a candidate with 70% of the skills who will fit well with your organization, as opposed to somebody with 95% of the skills whose values and habits don’t align.



Making the Right Hire

Do you know what you are looking for?

Interview questions

When preparing for the interview, don't start by immediately thinking of questions to ask. Work backwards, and think about the outcomes you want the successful hire to achieve. We've given you some samples below to get you started.

Question Type	Example
Scenario questions allow you to see how candidates will handle day to day situations. This is great for gauging their emotional intelligence and municipal knowledge.	The Director of Public Works asks for a map showing this year's road maintenance that he can present to council. What do you do?
Simple explanation questions ask the candidate to explain technical terms in the simplest way possible. This will show if they can effectively communicate with non-technical staff across the organization.	How would you explain GIS to a 5-year old?
Past project questions allow you to see the outcomes that the candidate has provided to others in the past. On top of this, you can gauge their project management abilities, and get a sense of what they pride themselves on.	Tell us about a GIS project you've completed that you are proud of. What made it successful?
Improved process questions allow you to gauge the critical thinking and curiosity of your candidate. It can also allow them to showcase specific skills you are looking for, such as computer programming, etc.	Tell us about a roadblock you've repeatedly encountered. What have you done to overcome it? Have you done anything to remove it?
Tool questions allow you to see the candidate's knowledge and awareness of additional tools or resources that can enhance the quality and efficiency of their work.	What software and tools do you use for GIS? What software and tools do you wish you were using? Why?
Hobby questions allow you to ask staff what interests them the most. This can lead to insights on how they self-learn, and can be a way to gauge curiosity.	Tell us about one of your hobbies? How did you discover it?

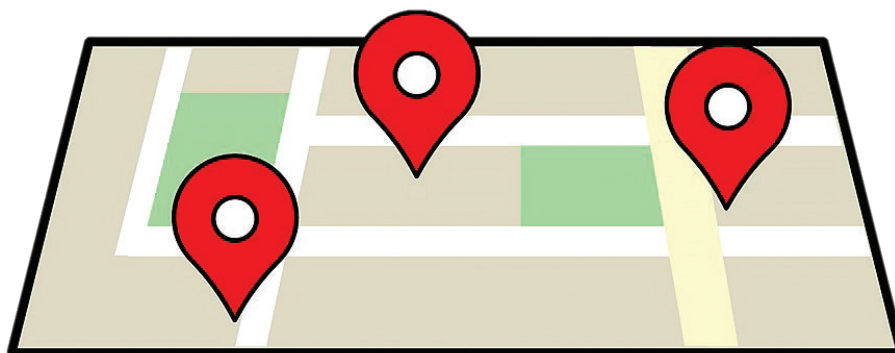
Hire according to your setup

GIS setups can vary greatly across municipalities. The right technician can help you get the most out of your existing systems.

Condition of GIS System	Suggestion of Technician Persona
• Current and accurate data • Effective processes and tools in place	Customer service oriented GIS Technician that will take advantage of existing systems to deliver tangible outcomes.
• Outdated and inaccurate data • Ineffective or non-existent processes and tools	Technically inclined GIS Technician that will ensure that your GIS is brought up to required standards.

Municipal vs. Private

GIS Technicians with municipal experience are often generalists across many areas, while GIS Technicians with private sector experience are often a specialist in one area.



Location Location Location

Like other municipal staff in various roles, GIS Technicians will sometimes move to a rural location to gain experience and later move on to new opportunities in larger centres as they arise. Be mindful of this in the hiring process, and be confident that your hire will set you up with the right processes and tools.

Making the Right Hire

Do you know what you are looking for?

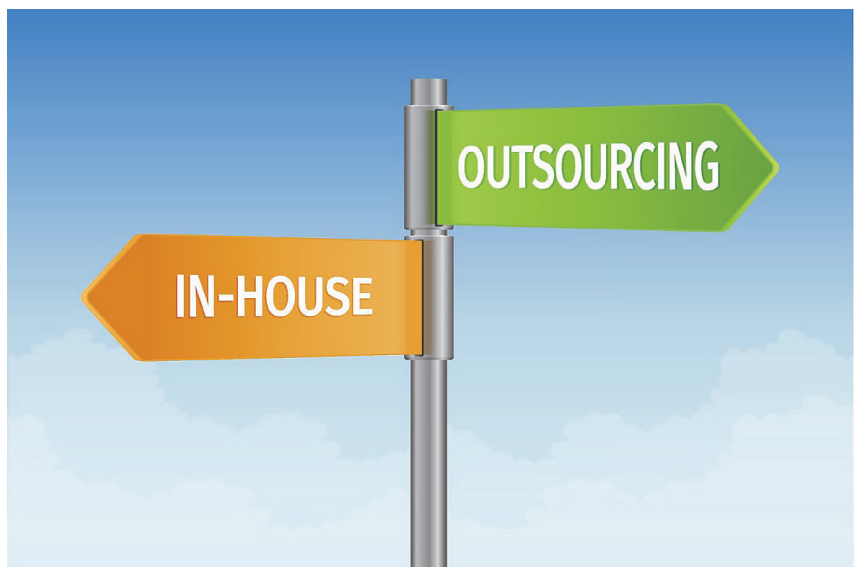
Not every municipality needs a GIS Technician, particularly if the municipality is small or resources are limited. This doesn't mean that your municipality needs to go without GIS and its benefits. By working with a third party provider, your organization can receive the following outcomes:

- Consistent and predictable pricing year over year
- No need to worry about staff turnover or personnel issues
- Industry standard and up-to-date processes and tools
- Optimized security of confidential data
- Personalized customer support by qualified industry professionals
- Decreased administrative workload
- Cost sharing of services across departments

As a trusted advisor to municipalities, Catalis can provide recommendations to providers that can best meet your municipalities needs, no matter what level of GIS you require.

Software AND Support

Remember, GIS will not fully benefit your municipality unless you have the components of people, process, and tools. Look for providers that provide software (tools) and support (processes) that work well with your staff (people).



Conclusion

GIS is a journey.

GIS is a journey for municipalities. It's a continuous process of data collection and optimization. Practices and technical capabilities are always evolving, leaving no room for complacency. A strong GIS program will grow with your municipality and help to improve operations across all departments.

The outcomes and resources that a well executed GIS program delivers to your municipality far outweigh the financial implications of not investing in one at all. Whether your journey involves GIS staff, an outsourced provider, or a combination of both, your organization should always be exploring ways to improve and advance GIS.

Hiring a GIS Technician, particularly for the first time, is a major step for most municipalities. Make sure you do your research and understand the needs of your municipality before you make this important hire. If you have any further questions about hiring GIS staff, Catalis is more than willing to provide advice based on our decades of municipal GIS experience. Happy hiring!



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