

Modernizing Local Government Department of Public Works

Comprehensive eBook for Municipal & County DPW

2023



The Operating System for Local Government

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Summary

| Leveraging Data for Efficient Public Works Management

Public works managers and staff can use data to optimize their operations, improve decision-making, and reduce costs.

| Infrastructure Maintenance Best Practices

Public Works Departments have a responsibility to maintain and improve existing infrastructure. It's a never-ending job. This section provides guidance on how to prioritize infrastructure maintenance tasks, extend the lifespan of assets, and avoid costly repairs and replacements.

| The Importance of Preventative Maintenance

Being proactive is critical. Preventative maintenance can keep larger, more costly problems from developing. This section will discuss the benefits of preventative maintenance, including increased efficiency, reduced downtime, and improved safety.

| Defining Goals and Objectives to Maximize Budgets through Strategic Planning

Public works managers face many challenges in managing limited budgets while still delivering high-quality services to the community. One way to manage budgets more effectively is through strategic planning.

| Effective Communication Strategies for Public Works Managers

Effective communication is an essential aspect of public works management, enabling managers to build trust with their team, stakeholders, and the public, and fostering collaboration towards shared goals. In this section, we will discuss some best practices for developing effective communications that can help public works managers to achieve their goals.

Chapter 1: Leveraging Data for Efficient Public Works Management

Public works managers and staff can [use data to optimize their operations](#), improve decision-making, and reduce costs.

Public works managers are responsible for providing essential services to the community, such as maintaining roads, bridges, vehicle fleets, and public facilities. In order to do this efficiently, managers need to have access to accurate and timely data that can help them make informed decisions about resource allocation, maintenance schedules, and project prioritization. Having a [modern public works strategy](#) is critical for local governments of all sizes.

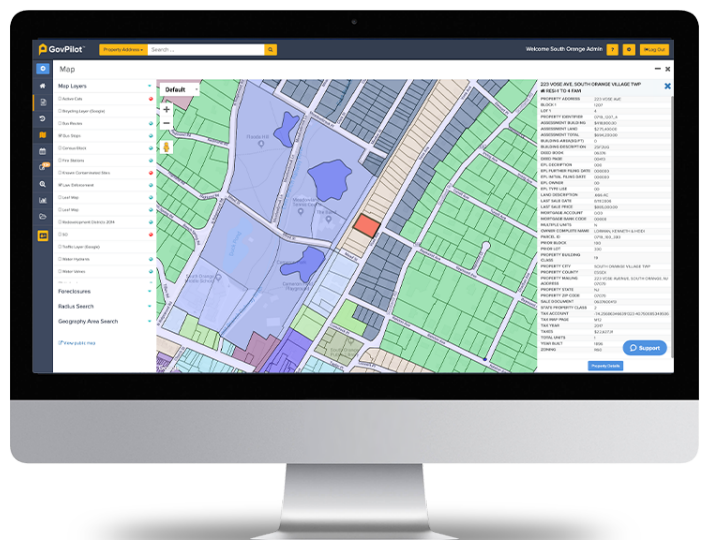
In recent years, there has been a growing recognition of the importance of data in public works management, with many managers now leveraging data and workflow automation to optimize their operations and improve decision-making, and constituent services.

One way that public works managers can leverage data is by using [geographic information systems \(GIS\)](#). GIS is a powerful tool that allows managers and staff to visualize and analyze data in a spatial context, helping them to identify patterns, trends, and correlations that might not be immediately apparent in raw data. For example, by overlaying data on a map, managers can quickly identify areas of the community that are most in need of infrastructure repairs or maintenance, and prioritize their efforts accordingly.

Another way that public works managers can leverage data is through the use of asset management systems or [Fleet management software](#). These systems allow managers to track the condition and performance of their assets, such as vehicles, roads, bridges, and public facilities, over

over time. By collecting data on the age, usage, and maintenance history of these assets, managers can develop more accurate models of asset lifecycle costs and make more informed decisions about when to repair or replace assets. Public facing [“Report-a-Concern”](#) solutions available on the government website or via mobile app can enable citizens to report non-emergency concerns that they encounter in real time, and route these issues automatically to the correct department for resolutions. Such concerns could include potholes, fallen trees, or roadkill. Asset management and digital citizen engagement solutions can help managers to reduce costs by avoiding premature replacements or unnecessary maintenance, while also improving the quality of service provided to the community.

In addition to GIS and asset management systems, public works managers can also leverage data through the use of predictive analytics. Predictive analytics uses machine learning algorithms to identify patterns in data and predict future events or trends. For example, managers can use predictive analytics to forecast future demand for services such as road repairs or snow removal, and adjust their operations.



operations accordingly. This can help managers to optimize their resources and reduce costs, while also improving the quality of service provided to the community. Of course, leveraging data for public works management is not without its challenges. Managers must ensure that they have access to accurate and reliable data, and that their staff have the necessary skills to analyze and interpret that data effectively. Managers must also be mindful of privacy concerns and ensure that they are using data in a responsible and ethical manner.

In conclusion, leveraging data is an increasingly important tool for public works managers who are looking to optimize their operations, improve decision-making, and reduce costs. By using GIS, asset management systems, and predictive analytics, managers can gain new insights into their operations and develop more effective strategies for delivering essential services to the community. While there are certainly challenges to be overcome, the benefits of leveraging data make it an essential part of modern public works management.

Chapter 2: Infrastructure Maintenance Best Practices

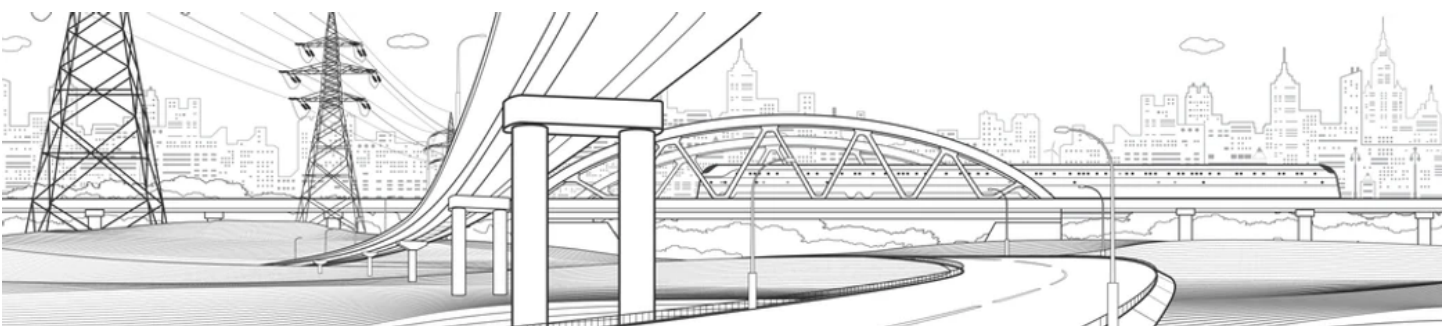
Public Works Departments have a responsibility to maintain and improve existing infrastructure. It's a never-ending job. This section provides guidance on how to prioritize infrastructure maintenance tasks, extend the lifespan of assets, and avoid costly repairs and replacements.

Maintaining public infrastructure is essential for ensuring the safety, functionality, and longevity of critical assets such as roads, bridges, and public facilities. However, with limited resources and competing demands, public works managers must prioritize their maintenance efforts carefully in order to extend the lifespan of assets and avoid costly repairs and replacements. In this article, we will discuss some best practices for infrastructure maintenance that can help

managers to prioritize tasks effectively and manage their resources efficiently.

Develop a Maintenance Plan

The first step in effective infrastructure maintenance is to develop a comprehensive maintenance plan. This plan should include an inventory of assets, their condition, and their expected lifespan. The plan should also identify maintenance tasks that are required for each asset, including routine maintenance, preventive maintenance, and corrective maintenance. By developing a maintenance plan, managers can prioritize tasks based on the level of risk and the expected lifespan of each asset, ensuring that maintenance efforts are focused on the most critical assets.



Implement Preventive Maintenance

Preventive maintenance is an important strategy for extending the lifespan of assets and avoiding costly repairs and replacements. Preventive maintenance tasks include activities such as regular inspections, cleaning, and lubrication, or tire rotation which help to identify potential problems early and address them before they become serious. By implementing a preventive maintenance program, managers can reduce the likelihood of unexpected failures and extend the lifespan of assets.

Monitor Asset Conditions

Monitoring the condition of assets is essential for identifying potential problems early and addressing them before they become serious. This can be done through regular inspections, data collection, and performance monitoring. By monitoring the condition of assets, managers can identify trends and patterns that may indicate potential problems and take corrective action before they become more serious.

Prioritize Tasks

Prioritizing maintenance tasks is essential for ensuring that resources are used effectively and efficiently. Tasks should be prioritized based on their level of risk, the criticality of the asset, and the expected lifespan of the asset. This ensures that the most critical assets receive the attention they require, while less critical assets are maintained according to their expected lifespan.

Use Technology

Technology can play a significant role in infrastructure maintenance, allowing managers to monitor assets more effectively and identify potential problems early. Technologies such as sensors, cameras, and drones can be used to collect data on asset condition, while predictive analytics can be used to identify potential problems before they occur. By using technology, managers can optimize their maintenance efforts and extend the lifespan of assets.

Automate Scheduling

Scheduling automation makes it easy for supervisors to create schedules that suit the needs of both employees and the organization. Scheduling software is particularly beneficial in a public works department, given that many roles, like traffic technicians, may need to be on-call or work overtime. Software makes it easier to ensure all shifts are filled and employees aren't overworked.

Digital work orders

Many public works employees rely on work orders to frame their to-do lists for the day. Digital work orders make it straightforward for staff to communicate these work needs with one another. Additionally, staff in other departments can submit a request for work (such as facility maintenance needs) to public works personnel, who prioritize this work alongside other critical needs.

Digital Timestamps

You can also use technology to create and track timestamps, such as when a work order is first submitted, when it is assigned and to who, and when it's processed and completed. As a result, you can better encourage accountability across your department by understanding which staff has accomplished what tasks and when. This tool is particularly helpful when it comes to data tracking, performance management, and delivery of constituent services.

In conclusion, infrastructure maintenance is a critical component of public works management, and effective maintenance strategies can help to extend the lifespan of assets, avoid costly repairs and replacements, and ensure the safety and functionality of critical infrastructure. By developing a comprehensive maintenance plan, implementing preventive maintenance, monitoring asset condition, prioritizing tasks, and using technology, public works managers can optimize their maintenance efforts and provide the community with the essential services they require.

Chapter 3: The Importance of Preventative Maintenance

Being proactive is critical. Preventative maintenance can keep larger, more costly problems from developing. This section will discuss the benefits of preventative maintenance, including increased efficiency, reduced downtime, and improved safety.

Preventative Maintenance

Preventative maintenance is a critical aspect of public works management, involving the routine inspection and maintenance of equipment and infrastructure to prevent potential issues from developing. By implementing a preventative maintenance program, public works managers can realize a range of benefits, including increased efficiency, reduced downtime, and improved safety.

Vehicle Inspection Workflows

Regular inspections of your entire [local government fleet](#) will be critical to ensuring safety and preventing accidents. Mechanics and other expert staff will need to determine the exact components of a thorough inspection for each vehicle type, and track vehicle maintenance records over time.

Increased Efficiency

Preventative maintenance can help to ensure that equipment and infrastructure are running at their optimal levels. By performing regular maintenance tasks such as cleaning, lubrication, and adjustments, equipment can continue to operate smoothly and efficiently. Preventative maintenance can also help to identify potential issues before they develop into more serious problems that could cause equipment breakdown or failure. By addressing issues early on, managers can avoid costly repairs, reduce downtime, and maintain a high level of productivity.

Reduced Downtime

Unplanned downtime can be a major headache for public works managers, leading to lost productivity, revenue, and customer dissatisfaction. Preventative maintenance can help to minimize the likelihood of unexpected downtime by identifying potential issues early and addressing them before they become more serious. Preventative maintenance can also help to extend the lifespan of equipment, reducing the need for costly repairs or replacements and avoiding costly downtime associated with major repairs or replacements.

Improved Safety

Preventative maintenance is also essential for ensuring the safety of workers and the public. Faulty equipment or infrastructure can pose a significant safety risk, potentially causing accidents or injuries. By performing regular inspections and maintenance tasks, managers can identify potential safety hazards and take corrective action before an accident occurs. This can help to reduce the risk of workplace injuries, as well as prevent accidents that could put the public at risk.



Other Benefits

In addition to increased efficiency, reduced downtime, and improved safety, preventative maintenance can offer a range of other benefits to public works managers. These benefits may include improved asset lifespan, reduced energy consumption, and reduced environmental impact. Preventative maintenance can also help managers to comply with regulatory requirements and industry standards, reducing the risk of fines or other penalties.

In conclusion, preventative maintenance is a critical aspect of public works management that can provide a range of benefits to managers and the community. By implementing a preventative maintenance program, managers can increase efficiency, reduce downtime, improve safety, and realize a range of other benefits. By investing in preventative maintenance, public works managers can ensure that their equipment and infrastructure remain in optimal condition, providing the community with the essential services they require.

Chapter 4: Defining Goals and Objectives to Maximize Budgets through Strategic Planning

Public works managers face many challenges in managing limited budgets while still delivering high-quality services to the community. One way to manage budgets more effectively is through strategic planning. A well-developed strategic plan can help managers to align their goals with available resources, identify opportunities for cost savings, and improve the efficiency and effectiveness of their operations. In this section, we will explore some best practices for developing a strategic plan that can help public works managers to maximize their budgets.

Define clear goals and objectives

These goals should be aligned with the mission of the organization and should reflect the priorities of the community. Objectives should be specific, measurable, achievable, relevant, and time-bound (SMART). By defining clear goals and objectives, managers can ensure that their strategies are focused and aligned with their mission and values.

Assess the Current Situation

Before developing a strategic plan, it is important to assess the current situation. This may involve analyzing data on

past performance, conducting a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis, and engaging stakeholders to understand their needs and priorities. This information can help managers to identify areas where improvements can be made and develop strategies to address them.

Develop Strategies

Once the goals and objectives have been defined and the current situation has been assessed, managers can begin developing strategies to achieve their goals. Strategies should be aligned with the goals and objectives and should be specific, actionable, and measurable. Strategies may include identifying areas where cost savings can be realized, exploring new technologies to improve efficiency, or partnering with other organizations to share resources.

Identify Key Performance Indicators

Key performance indicators (KPIs) are metrics used to measure progress towards achieving goals and objectives. KPIs should be specific, measurable, and relevant to the goals and objectives of the organization. By identifying that

KPIs, managers can monitor progress towards achieving their goals and make adjustments as needed to ensure that they are on track.

Monitor and Evaluate Progress

Finally, it is important to monitor and evaluate progress towards achieving the goals and objectives of the strategic plan. This may involve regular reporting on KPIs, conducting periodic reviews of the strategic plan, and making adjustments as needed to ensure that the plan remains relevant and effective.

In conclusion, developing a strategic plan is an important tool for public works managers who are looking to maximize their budgets and deliver high-quality services to the community. By defining clear goals and objectives, assessing the current situation, developing strategies, identifying KPIs, and monitoring progress, managers can ensure that their operations are aligned with their mission and values, and that they are making the most effective use of available resources. A well-developed strategic plan can help managers to improve the efficiency and effectiveness of their operations, while still delivering the essential services that the community requires.

Chapter 5: Effective Communication Strategies for Public Works Managers

Effective communication is an essential aspect of public works management, enabling managers to build trust with their team, stakeholders, and the public, and fostering collaboration towards shared goals. In this section, we will discuss some best practices for developing effective communications that can help public works managers to achieve their goals.

Be Clear and Concise

One of the most important aspects of effective communication is being clear and concise. Public works managers should aim to communicate their message in a way that is easy to understand and avoids unnecessary jargon. This can help to ensure that everyone is on the same page and can help to avoid confusion or misunderstandings.

Be Transparent

Transparency is another key aspect of effective communication. Public works managers should be open and honest

about their actions, decisions, and plans, and should be willing to provide information when requested. This can help to build trust with stakeholders and the public, and can help to foster collaboration towards shared goals.

Be Transparent

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Tailor Your Message

Different audiences may require different types of communication. For example, the language and style used when communicating with the public may be different from the language and style used when communicating with internal stakeholders. Public works managers should

tailor their message to their audience, using language and style that is appropriate for the context.

Listen and Respond

Effective communication is a two-way process. Public works managers should not only communicate their message, but should also listen to feedback and respond to questions and concerns. This can help to build trust and foster collaboration, and can help managers to identify areas where improvements can be made.

Use Multiple Channels

Public works managers should also consider using multiple channels to communicate their message. This may include traditional methods such as newsletters, press releases, and public meetings, as well as newer methods such as social media and online forums. By using multiple channels, managers can reach a wider audience and ensure that their message is heard.

Provide Context

Effective communication requires providing context for the information being communicated. Public works managers should explain the reasoning behind their actions and decisions, and should provide information on the broader context of their work. This can help stakeholders and the public to understand the significance of the work being done and can help to build support for public works projects.

In conclusion, effective communication is a critical aspect of public works management, enabling managers to build trust with their team, stakeholders, and the public, and fostering collaboration towards shared goals. By being clear and concise, transparent, tailoring their message, listening and responding, using multiple channels, and providing context, public works managers can develop effective communication strategies that can help to achieve their goals.



Chapter 6: Embracing Technology for Improved Public Works Management

This chapter will explore the use of existing and emerging technologies such as GIS mapping, mobile apps, artificial intelligence, machine learning, and the Internet of Things to improve public works management and service delivery. The use of emerging technologies such as artificial intelligence, machine learning, and the Internet of Things (IoT) can help public works managers to improve the efficiency and effectiveness of their operations, delivering higher-quality services to the community. In this article, we will explore some of the ways in which technology can be used in public works management and service delivery.

Real-time data collection

Another key benefit of public works software is that it can automate real-time data collection. This means busy public works employees don't need to add another to-do item to their list because data is collected automatically in real time and stored in the [government cloud](#). Mobile government technology provides cloud access to all field records. As a result, employees can know exactly what stage a project is in and all associated tasks without needing to call a supervisor. Likewise, automated and cloud-based government workflows make it easy to see who was the last person to undertake a task, so employees know what needs to be completed next.

GIS maps

Employees can use [GIS maps](#) to pinpoint locations of infrastructure that need maintenance, repair, inspections, or other attention across your community. This makes it easy for staff to know precisely where to complete work.

You can also use GIS maps to help citizens, business owners, and executive leadership understand where infrastruc-

ture projects are taking place in the community. This is a great way to [strengthen relationships with local government business partners](#) and residents.

Asset Management

One area where technology can make a significant difference is in asset management. Public works managers can use tools such as geographic information systems (GIS) to create detailed maps of their infrastructure assets, such as roads, bridges, and water systems. These maps can be used to track the condition of assets, identify areas where repairs or maintenance are needed, and prioritize investments in infrastructure improvements.

Predictive Maintenance

Emerging technologies such as machine learning can be used to analyze data from sensors placed on infrastructure assets, such as water meters, to predict when maintenance or repairs will be needed. This can help public works managers to plan their maintenance activities more efficiently, reducing downtime and minimizing the cost of repairs, and customer service. By leveraging these technologies, public works managers can work towards building more sustainable and resilient communities.

Smart Traffic Management

The IoT can also be used to improve traffic management in urban areas. Smart traffic lights can be used to adjust the timing of traffic signals in real-time, responding to changing traffic patterns and reducing congestion. Intelligent transportation systems (ITS) can also be used to provide real-time traffic information to drivers, helping to reduce travel times and improve the flow of traffic.



Environmental Monitoring

Another area where technology can be used to improve public works management is in environmental monitoring. Sensors placed in water systems can be used to monitor water quality and identify potential sources of pollution. This can help public works managers to identify and address environmental issues before they become more serious.

Customer Service

Technology can also be used to improve customer service. Online portals and mobile apps can be used to enable residents to report infrastructure issues such as potholes or broken water mains, and to track the progress of repairs. This can help to improve transparency and accountability, as well as providing a more convenient and efficient service to residents.

Financial data tracking

Given the complexity and scope of public works projects, your department likely has a large budget that includes numerous capital items. DPW software makes it easier to manage your budget, including tracking purchase orders, inventory management, placeholder carryover funds, prioritizing budget requests, and separating operating versus capital needs.

Complaint or Concern management software

Last but not least, you can use technology to make it easier for citizens to report issues that affect the public works department. [Complaint management software](#) makes it easy for citizens to report on non-emergency infrastructure issues, such as potholes, downed street signs, and failed power lights, so public works employees can quickly take action to remedy them.

[How Does Complaint Management Software Encourage Citizen Engagement?](#) Here's what to know.

In conclusion, embracing technology can help public works managers to improve the efficiency and effectiveness of their operations, delivering higher-quality services to the community. By using tools such as GIS, machine learning, the IoT, and online portals, public works managers can optimize their asset management, predictive maintenance, traffic management, environmental monitoring, and customer service. By leveraging these technologies, public works managers can work towards building more sustainable, resilient, and livable communities.

concise, transparent, tailoring their message, listening and responding, using multiple channels, and providing context, public works managers can develop effective communication strategies that can help to achieve their goals.

Chapter 7: Successful DPW Digital Transformation

Report a Concern

Explore this helpful [case study](#) for insight into how Elizabeth, NJ digitized their Open Records Request process.

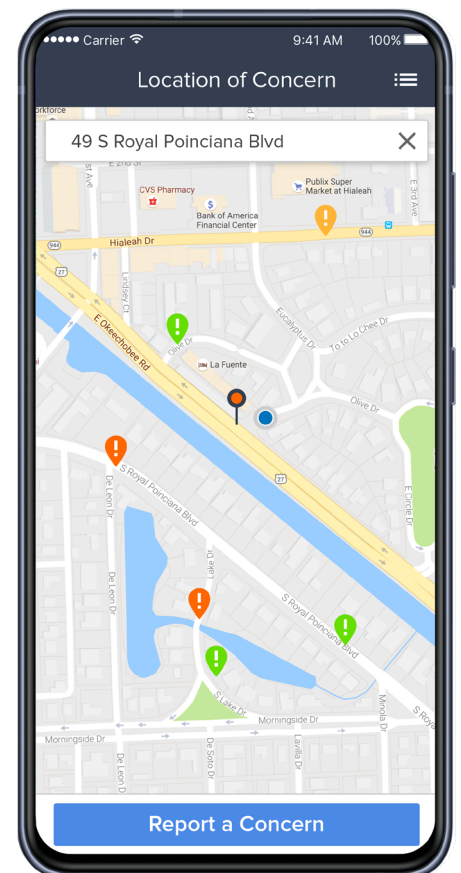
Challenge

Union County seat, Elizabeth, is one of New Jersey's most densely populated cities. Until recently, residents would drop by or call city hall to report code-related concerns to government officials. A paper-based resolution process meant documents were often lost or misplaced. Indeed, Elizabeth officials spent 30% of their day fielding phone calls from residents curious about the status of their request for city intervention.

Solution

Elizabeth officials needed a more efficient way to address resident concerns. They found it in GovPilot's Code Enforcement module. Instead of paying a visit or placing a phone call to city hall, residents can now submit issues through the digital Report a Concern form on Elizabeth's official website or from their smartphone through the free GovAlert mobile app. Concerns are instantly routed to the appropriate government official and processed via an automated workflow that triggers status updates to complainants at key events. With GovPilot technology handling submission and communication, Elizabeth employees have more time to handle other responsibilities.

Elizabeth officials used to record concerns and schedule inspections on paper documents. Now, they coordinate everything digitally through GovPilot. Prior to implementing GovPilot, Elizabeth employees had to search physical file cabinet drawers to retrieve the status of a complaint, violation and/or work order. Today, information can be easily accessed at any time from any device via GovPilot's cloud-based server.



Results

Eliminated

Eliminated resident walk-ins and phone calls (Now digital and automated)

82% Reduction

Drop in time spent on phone calls (Reduced from 8.5 mins to 1.5 mins)

2 Hours Per Day

Save employees 2 Hours per day (Automation expedites processing)

66% Saving

Time saved communicating with requestors/departments (30% of day to 10 %)

“ GovPilot is a game changer!
Our response time is faster and there
are far fewer errors in our workflows.”

Darren Bryden, Chief Information Officer
Elizabeth, NJ

Complete Your Government Digital Transformation

With the ability to integrate local government software to your county or municipal public works department in just a few weeks, the pros far outweigh the cons of embracing government technology. Take the proper steps to educate your staff and citizens, give consideration to the departments you want to move to the cloud, and work with your Onboarding Project Managers to make a smooth transition to a cloud-based platform that automates your most tedious, time consuming tasks and responsibilities.

For more details about how GovPilot can transform your government, [book a free demo](#).



The Operating System for Local Government

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GovPilot - named a GovTech 100 company for six consecutive years - is the leader in digital transformation for local governments. GovPilot's cloud-based platform was built with the sole purpose of enabling local governments to operate at their full potential by standardizing, digitizing, and unifying more than 100 operational and constituent service processes on one system.

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