



# Technology & Change Management

---



## Sixth Annual Executive & Commission Update



“If someone asks me what cloud computing is, I try not to get bogged down with definitions. I tell them that, simply put, cloud computing is a better way to run your business.”

- Marc Benioff

## Contents:

<b>Overview</b> WHAT'S THIS ALL ABOUT?	2
<b>Project Updates</b> WHAT HAVE WE BEEN DOING?	3
<b>The Cloud</b> EFFICIENCY WITH THE CLOUD	8
<b>Data Storage</b> AN ACCESSIBLE FILING CABINET	10
<b>Thin Clients</b> A FLEXIBLE WORKFORCE	15
<b>Security</b> A COMMITMENT TO STAYING HEALTHY	16
<b>ERP</b> BULKING UP INTER-DEPARTMENTAL COLLABORATION	17
<b>Conclusion</b>	21

## Overview:

The Technology and Change Management Department has spent the last several years implementing large scale changes in the standards, practices, and infrastructure of the City. The changes have resulted in a more modernized, mobile, workforce. The system itself is reliable, secure, and adaptable to future changes in technology. We are eager to work with the City's departments to help them modernize and strengthen the ways in which they operate while also slimming down the resources they require. Simply put, we hope to help them do more with less. The key words for the future are efficiency, flexibility, and accessibility.

Long term results will see our workforce become more efficient, using what we already have to greater effect; flexible, operating in new ways; and have greater access to data, finding their information quickly and securely. The short term results will see departments following more standard practices, using less resources to do more, and reducing the maintenance of computer assets.

As always, the next several years will see changes for specific groups within the City. The IT department will see changes in how we manage information within the network, and assist City employees in their duties. City employees will notice changes in how they access information, accomplish tasks, and interact with both the public and other departments. Citizens will also notice changes both in how they interact with the City, as well as the speed in which the City is able to respond to their needs. These changes will help the City to become more proactive, and less reactive to problems.

The rest of this report will more thoroughly explain the accomplishments of the past year and specific future goals of the IT department.

- Several projects have continued to develop and show improvements. They are discussed in the updates section starting on page 3.
- Moving more information into the cloud will be accomplished through the use of third party vendors. This is discussed in-depth in the SaaS section located on page 8.
- Standardizing the filing system software will let us store our content in a logical, easy-to-find, fashion. The Filing Systems section on page 10 will explain the benefits of our planned changes.
- Changes in the city's computer hardware will allow us to send data to users wherever they are located. The VDI section on page 15 will give readers a better understanding of our plans in this area.
- The security of the City's network will always be an important concern for the IT department. A review of the City's security practices occur in the appropriately named Security section located on page 16.
- Finally, on page 17, the use of enterprise resource planning for the City will be explained in the ERP section.

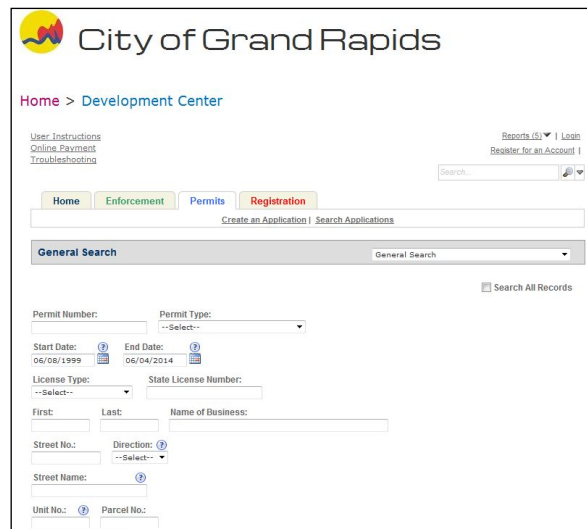
## Project Updates:

During the previous year the IT department has continued the work that it previously began on several projects. Some of the projects are nearing completion, while some have begun moving into a period of maintenance.

### Accela:

The City uses the Accela program to assist with land management. Accela is a publicly accessible tool which can help in many areas of operation. The two largest users of this program are the Building Inspection and Code Compliance departments. The public is also able to use this program to file complaints, apply for permits, and remediate problems through the internet.

This system has drastically reduced the City's response time, as well as making a more efficient use of its assets. This efficiency can be seen within the Code Compliance department. They are currently using this system to collect citizen complaints and automatically generate letters of notice. The software is useable from the field by City workers, who are able to use it to access information.

The screenshot shows the 'City of Grand Rapids' Accela 'Development Center' search page. At the top, there's a navigation bar with 'Home > Development Center'. Below this are links for 'User Instructions', 'Online Payment', and 'Troubleshooting'. On the right, there are links for 'Reports (0)', 'Login', and 'Register for an Account'. A search bar is located on the right side. Below the navigation bar, there are tabs for 'Home', 'Enforcement', 'Permits', and 'Registration'. Under the 'Permits' tab, there are links for 'Create an Application' and 'Search Applications'. A 'General Search' section is visible, featuring a dropdown menu for 'General Search' and a 'Search All Records' button. The search form includes fields for 'Permit Number', 'Permit Type' (a dropdown menu), 'Start Date' (06/08/1999), 'End Date' (06/04/2014), 'License Type' (a dropdown menu), 'State License Number', 'First' and 'Last' names, 'Name of Business', 'Street No.', 'Direction' (a dropdown menu), 'Street Name', 'Unit No.', and 'Parcel No.'.

EXAMPLE OF A SEARCH USING ACCELA TOOLS

During the last year we have upgraded to a newer version of the software. The only planned change in the coming year will be another major upgrade to an even newer version of the software.

### AVL:

The AVL/InMotion project began as a way of providing mobile office environments for employees who worked in the field. There are close to 300 InMotion gateways installed in City vehicles in order to accomplish this goal. These gateways allow field workers access to the network, as well as a way of tracking the vehicles themselves.

During the last year we have focused on upgrading the mobile network from Clear's WiMAX service to Verizon's LTE service. LTE, commonly known as 4G LTE, is a standard for wireless communication which allows for mobile devices, such as those installed in our vehicles, to access data at much higher-speeds. The use of this technology will significantly lower costs while also improving the quality of the service we are able to access.

In the coming year we will complete the move from the WiMAX service to the much faster LTE service.



## Disaster Recovery:

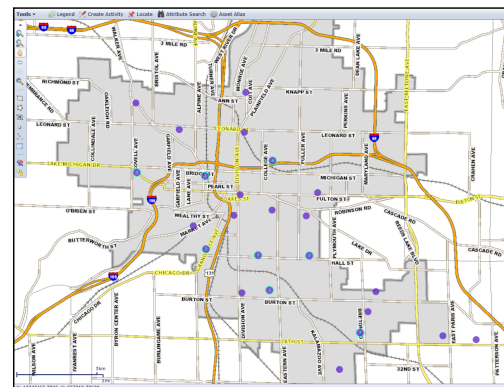
Disaster preparedness is an important goal for any city, and Grand Rapids is no different. Over the past year we have worked hard to create a solid plan for disaster recovery, and are now in the process of beginning to implement that plan.

The first stage will involve choosing a location for the recovery center; we are currently assessing different locations around the area to judge how best they can suit our needs. After we choose a location we can begin to equip it with the physical hardware. We will need to ensure that communications are routed to the backup location, and a useable recent backup of data is stored at the location. Unfortunately work on this project will be unable to move forward until a suitable location is chosen.

## GIS:

A GIS is a Geographic Information System. A GIS allows us to create, understand, interpret, visualize, and share useful map-based information. It can then be shared between departments, viewed by the public, and used by other programs to assist in operations. The City currently uses ESRI's GIS Mapping Software, ArcGIS.

Last fall, the City upgraded to newer versions of ArcGIS, and began to encourage the use of ArcGIS Online; a cloud based version of the software. ArcGIS Online will allow us to enhance and expand on the City's collaborative and data sharing abilities. During the upgrade we were challenged to migrate to the new environment while adapting the existing workflows and procedures of the City's departments. To assist in this effort we worked with an outside vendor, Power Engineers, Inc.



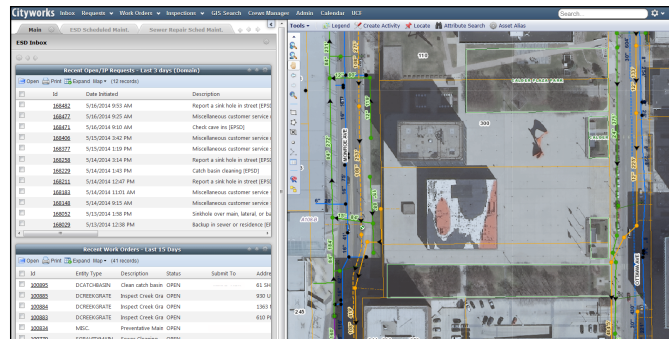
AN EXAMPLE OF AN ARCGIS MAP

This year we will continue upgrading, migrating, and maintaining the ArcGIS software, while also building applications which can take advantage of the City's interactive maps. We will further educate users about the benefits of data-sharing and collaboration. Several departments have already begun using a mobile version of ArcGIS, and we will drive adaptation of this tool by other departments as well.

Finally, we aim to provide an easy to use interface for the open data community with ArcGIS Open Data. ArcGIS Open Data is an easily accessible way to obtain and download published data. Open data, through ArcGIS Online, can create public facing websites which can give the public a novel way of looking at their community. By making this data available, we will be better able to keep the public informed on any issues or information which might impact them.

## Cityworks:

In the last year, we have continued to support departments in their use of the Cityworks asset management software. Cityworks is used to track work requested or done on assets around the City. It utilizes the previously mentioned GIS map-data to provide a visual representation of where work is currently in progress and where work has been done in the past.



AN EXAMPLE OF CITYWORKS IN USE

The data can also be analyzed in order to address immediate hotspots or to anticipate potentially large issues before they occur. Anticipating these problems will allow the City to behave more proactively, and efficiently in the maintenance of its assets.

This year we upgraded Cityworks in conjunction with the ArcGIS software. We also converted the data from an Oracle to an SQL platform for better cost efficiency. This upgrade resolved many issues with the older versions and offers new and enhanced features for users. Additionally, we have worked to keep Cityworks users informed of training opportunities, additional software functions, and upcoming changes. Keeping users aware of the ways in which they can best use Cityworks will remain an important goal in the next year.

## SCM:

SCM is an acronym which stands for Software Capital Management. It is a business practice that is intended to reduce the costs associated with upgrading and maintaining software. Budgets are prepared with anticipated future costs of upgrades in mind, and are better able to adapt to any changes or problems which might occur.

The main idea that departments need to be aware of is that software needs to be maintained and they need to plan for this. Software is not a one time cost, and neither is it a static tool. Over time departments will need to upgrade their software, and repair problems, but if departments are not prepared for these costs they can be in for a shock.

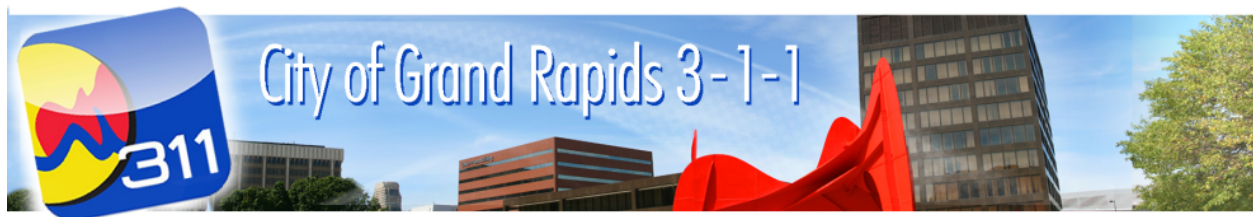


SAVE FOR A RAINY DAY

Even more shocking can be the introduction of a new software program. At some point all software will become outdated, and simple patches and upgrades will no longer be able to keep the system effective. When this happens the departments might need to introduce a completely new program, and the costs associated with this can be astronomical.

With a clear set of SCM practices departments will be able to reduce the financial shock associated with their software programs. This is not just a concern for the IT department, but rather a something that all the City's departments will need to start including in their budgets. By setting aside small amounts of money right now the departments will be able to eliminate the sticker shock that can occur later.

## 311:



The 311 project was started as a way of improving customer service for the City of Grand Rapids. The City's goal was to introduce a single point of access for citizens, business, and visitors to contact and interact with different City departments; 311 refers to the phone number with which they are able to do that.

Prior to the 311 project, the City's departments handled customer service individually; each had their own operating procedures, information systems and phone practices. By using 311 for customer service the departments are able to reduce the resources they dedicate to public interaction, and the public is given a standardized means of interacting with the City. There are over 200 published telephone numbers and five different walkup locations around the City; once 311 is fully implemented with the City, citizens will only have to remember one phone number.

It would be impossible for a 311 agent to be trained in every aspect of the City's operations, so the agents are able to access a knowledge base of information. This knowledge base contains detailed instructions on the most common procedures and answers to questions that come into the City. This central depository of information is maintained by each department, and creates a consistent, up-to-date, interaction between the City and the public.



WALKUP LOCATION BENEATH CITY HALL

If a citizen has an issue which requires more specialized knowledge the 311 agent is able to forward their request back to individual departments. By reducing the time and man-power dedicated to solving general issue the departments are able to cut costs and improve their responses to these more complicated issues.

## What has changed in the past year?

The 311 Department began a soft launch 10 months ago, and has worked hard to identify weaknesses within their system, create a well defined knowledge base, and train their agents.

Every City department now makes use of 311 for customer service, and due to the nature of the software they are able to analyze each interaction with a citizen and charge back departments in a fair and efficient manner.

The screenshot shows a web interface for a knowledge base article. At the top, there's a 'General' tab and a 'Time Spent' field showing '00:00:12'. Below that is the 'Article Information' section with the article title 'WATER - Account Balance' and a link to 'Show Comments' and 'E-mail Article'. The main content area is titled 'WATER - Account Balance' with a sub-header 'Knowledge Base Article'. It mentions 'APPLICATION: CAYENTA' and 'Review account summary tab'. Below this is a section 'Other related questions:' containing a table with three columns: 'LAST BILL AMOUNT', 'BILL DATES/PERIOD', and 'WAS READ/ACTUAL'. The table has three rows of data. Below the table is a link 'LAST BILL AMOUNT' and a note 'Review the account history tab'.

LAST BILL AMOUNT	BILL DATES/PERIOD	WAS READ/ACTUAL
BILL DUE DATE	COPY OF PAYMENT/ACCOUNT HISTORY	
COPY OF BILL	NEXT BILL	

AN EXAMPLE OF A KNOWLEDGE  
BASE ARTICLE

The City sees an average of 225,000 calls per year; the 311 department has taken around 75% of those calls since its inception last July. It should be noted that 311 is still un-advertised, and only accepts calls forwarded from other departments. When the City begins advertising the number to the public later this year, they expect the volume of calls to increase over the annual average. Educating and informing citizens about the new services the City offers, both 311 and online tools, is a continuing goal.

In addition to improving interactions between the City and the public the 311 department has also been a testing ground for many new types of phone and monitoring applications. They have been using voice and screen recording tools to both train their agents, and increase their accountability. These tools provide the ability to view the agent's screen or review their calls. In the case of a conflict with the public, or if additional training is needed, these recordings can give all parties a fuller picture of what has occurred.

## What will change in the following year?

Before the end of the year a hard launch of 311 will happen. Citizens will be able to simply dial 3-1-1 instead of contacting individual departments. The knowledge base is a living document and will continue to be expanded, improved, and edited for clarity. Each department will be responsible for editing the knowledge base to keep the information current and relevant to the public's interests.

The IT department is also planning to increase the ways in which departments such as 311 are able to connect with the public. Building on the existing Cisco VOIP technology we will begin upgrading some the hardware that controls the City's phone system. This technology, SIP, allows calls to travel over the internet rather than depending on older physical phone connections. SIP will allow much more scalability, permit the City to receive more phone calls, and allow several other tools to be used in the future.



One of those tools is an automated phone dialer, Robocaller. This tool will allow the City to communicate with residents without having to individually place calls. For example, if flooding were to occur in the City and the residents of a specific neighborhood needed to be notified, Robocaller could automatically dial those residents and deliver a message. Other possible applications for Robocaller include notifying citizens of late payments, alerting them to possible risks, and giving them status updates on important events.

Some upcoming changes to the online 311 services will enable citizens to track their interactions with the City on their computers and mobile devices. Some of these interactions, pothole repairs or graffiti cleanup for example, will be visible on a citywide publicly accessible map. Users of these applications will also be able to view their information privately by accessing their personal account online. Citizens who create a personal account will be able to receive personalized emails, newsletters and important information. All of these applications will allow the City to remain more accessible 24-hours a day.



FOURTH DIRECTIVE: ALERT CITIZENS  
TO IMPORTANT EVENTS

## The Cloud:

One of the ways the IT department is increasing efficiency is by moving more services to the cloud. At its most simple the cloud is just a way of storing files online, but it can do so much more. This year the City will move further into the cloud with the use of SaaS tools.

### What is SaaS?



THE CLOUD COMES TO YOU

The acronym SaaS stands for Software as a Service. It is a way that a user can access software over a network. Currently if an employee needs to access a program it must first be installed on their computer. The SaaS model stores the applications on a remote server, and allows the user to access the software from any device that is connected to the internet. Using the program is similar to visiting a website; something which most users are already familiar with. Some of the City's departments already use the SaaS model for specific tasks; programs such as Skire and WebProcure are successfully used on a daily basis.

## **What are the benefits of an SaaS model?**

With the SaaS delivery model the software is kept in a central location. This allows for the software to always be up to date with the newest features, gives all users access to the same features, and minimizes compatibility issues. The SaaS model will reduce the time the IT department currently devotes to software and hardware maintenance. With the SaaS model the data is stored and maintained by the SaaS vendor themselves. The operations team will no longer be responsible for updating the software or resolving problems users might encounter.

Due to the remote nature of SaaS the security of a possible vendor becomes a concern. Security certifications like SSAE 16 are used to analyze the standards and practices of the vendors.

## **What is SSAE 16?**

SSAE16 stands for Statement on Standards for Attestation Engagements No. 16. It is a type of report which the City can use as a way of measuring the effectiveness and security of a possible SaaS vendor. It usually includes several sections relating to the hardware, security, and business practices of a service organization.

## **What are the benefits of SSAE 16?**

There are two key differences between SSAE 16 and previous certification standards.

The first difference is a required assertion from the management of a service provider. This assertion gives accountability to a bid. The service organization is essentially guaranteeing that they are able to provide specific services for a certain period of time as well as discussing the criteria that is used to make their assertions.

SSAE16 also requires a more complete description of a service organization's system. The system can refer to specific services, procedures, or control structures with which the service provider can interact with users.

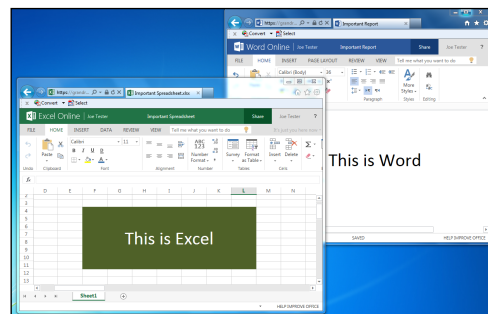
Both of these changes allow for a greater accountability from a possible service provider. The services they provide, and their ability to follow through on their claims, are laid out in clear language. With this certification we are better able to choose a vendor who can best fulfill our needs. It is currently the preferred security certification for SaaS services, and the IT department requires this certification from all SaaS service providers.

## **What changes can be expected?**

SaaS programs are accessed through a website, and as a result the average City employee will not notice a disruption in their day-to-day activities. City employees will be further introduced to the SaaS model as we upgrade to the Microsoft Office 365 program suite.

## What is Office 365?

The Microsoft Office 365 program suite is the next way in which City employees will be exposed to the SaaS model. The City already uses an offline version of this software to accomplish general office tasks, but we will be updating to an SaaS version over the next year. Switching to Office 365 will allow the City to consolidate their communications, document production, and cloud storage tools. One of the tools in the suite, Outlook 365, has already been introduced to City employees for their email management needs. Another tool, Microsoft Lync, will be used for instant messaging and video conferencing. Lync will replace the Microsoft Communicator program which employees already use.



SOME OF THE PROGRAMS IN OFFICE 365

Office 365 contains several more tools which are described more in depth in our Office 365: The Right Tools brochure.

## What are the benefits of Office 365?

Upgrading to Office 365 will allow the IT department to reduce the energy we devote to software maintenance; the software will be managed directly by Microsoft. This will allow for updates, and new features, to be delivered to all employees at the same time. Furthermore, the size of employee's inboxes will be increased. Most users are already familiar with Microsoft Office and this familiarity should ease the transition into the SaaS model. Using an SaaS version of the software will let users become more comfortable with the idea of storing and accessing data in the cloud.

### Data Storage:

Accessibility was one of the theme words mentioned earlier. There are many different ways in which the City stores documents at this time. Departments have the freedom to choose between paper copies, shared network drives, personal network drives, hard drives, and web applications. Having so many disparate types of storage mediums is inefficient, wasteful, and difficult to search through.

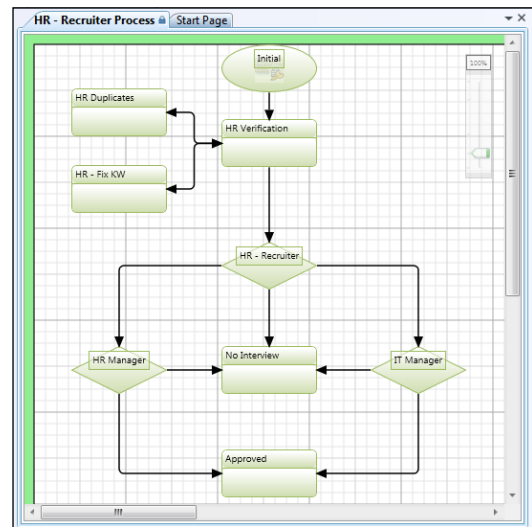
In previous years we have started to merge our data storage options. Some departments have taken advantage of an outside vendor, Graphic Sciences, to digitize the paper copies of their documents. Other departments have taken advantage of existing tools to assist the way in which they present documents to departmental employees and the public at large. We have encouraged the use of two programs to store and access content: OnBase, and Microsoft SharePoint.



## What is OnBase?

OnBase is a software tool used for the storage of electronic content. Content can be anything: images, videos, scanned copies of paper documents, or even just digital files, or. Its most simple usage is as a sort of electronic filing cabinet, but it can also create complicated workflows.

Workflows use a series of rules and actions to deliver documents to users. A common workflow example involves contract management by capturing, storing, routing and notifying staff of necessary tasks they must do to complete contract reviews and renewals on time. Workflows are an incredibly powerful and versatile way to automate tasks.



AN EXAMPLE OF AN ONBASE WORKFLOW

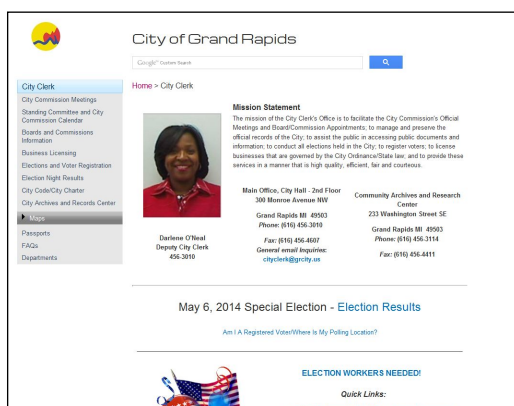
OnBase is just one aspect of our data storage plan, the other main tool is Microsoft SharePoint.

## What is Microsoft SharePoint?

SharePoint is an application used by the City for collaboration and document management. It excels at allowing collaboration on documents, and is designed to be understandable by non-technical users. It is integrated closely with Microsoft Office, allowing users to view and edit documents easily. Users can view stored data through customized sites.

Intranet SharePoint Sites have been created with a collection of libraries, lists, pages, and templates. These sites are similar to a webpage, and are the primary way users navigate through SharePoint.

Visitors to the sites will see different information depending on their individual permissions. For example, an employee in the HR department will see different files and options on a site than an employee for the Fire department. It is also possible to customize the sites based around the needs of a specific work group.



A SHAREPOINT DEPARTMENTAL SITE

The City is also able to use a feature inside of SharePoint, Collaboration Sites, to easily exchange information with outside vendors. Vendors would be able to use these sites to upload documents such as instruction manuals, how-to guides, progress timelines, or lists of issues. This information would then be accessible by City employees who might need the information.

## What are the benefits of these programs?

Municipalities generate massive amounts of information, and Grand Rapids is no different. Creating digital copies of documents will reduce the space we need to dedicate to physical storage. In conjunction with this space reduction is the ability to search through the documents in a more efficient way. Both SharePoint and OnBase offer powerful and user-friendly tools to search through the information they store.

Another improvement related to data storage is the retention of that data. Not all documents are created equal; some of them are disposable while others need to be protected for a longer period of time. These applications will make it easier to sort and assess our data, and either keep or discard it.



LESS OF THIS...

Workflows can streamline how a department operates, and reduce the time they dedicate to repetitive tasks. We are already working with departments to design workflows around their specific needs.

Collaboration is one of the areas in which SharePoint is particularly useful. Users are able to work together on the creation and editing of documents. They will also be able to easily share documents between themselves.

## What changes will users notice?

The main changes that users may notice are related to the way in which they operate. The use of workflows, templates, and standard practices will all impact how the City is able to conduct business.

Users will notice a more defined structure in how they will be asked to store their data. We originally attempted to empower the department administrators with the tools and knowledge to solve any problems themselves. To this end we gave individual departments a large amount of discretion in how they manage and store their data. While departments will still have ultimate control over their data we will create a unified set of rules, standards, and practices over the coming year. We anticipate a cleaner, more streamlined storage system as a result of these changes.



... MORE OF THIS

Users may also notice changes in how they access their information. We will attempt to use SharePoint as the portal to the information, while using OnBase as the repository. Ideally, a user will use a SharePoint site to locate the information they need, SharePoint would then access the information from OnBase and display it. Using SharePoint as a portal should make it simpler to access content, and easier to manage that content.

## Governance:

Increasing the governance of the data we store is a major goal for the next year. We will create more specific recommendations on how to collect, label, and store data. There will be five areas in which we will focus: information architecture, site creation, permission management, data retention, and search features.

Most of our changes will relate to the creation of a clear, and unified, informational architecture. Information architecture can describe how we design the rules of our storage system. Rules can define the structure of our system: how users create content, how they store it, how they access it, and how we present it. By setting up limits on the way users create content we can increase the efficiency of how they access it later.

SharePoint Sites were mentioned earlier as becoming a portal to the information. We hope to standardize the branding, layout, and style of these sites. We will create several customized templates which departments can choose between. A small number of similar templates will create a central theme across all sites. A unified theme across all the sites should allow both City employees and the public to find the resources they need.

Permission management also relates to our plans for increased data governance. SharePoint and OnBase manage access to information through user permissions. Those permissions control how users are able to view and edit content. For example, an employee in the Finance department will not be able to access information on another department's site unless they have been directly given permission. Conversely an administrator for the HR department might have permission to see all the documents within their department. We will begin to enforce stricter rules on the management and assigning of permissions.



CHUCK IT OUT

Data retention is another area we hope to improve. We need to make sure the data we are keeping is relevant to our users. A well defined informational architecture will have rules about what to keep, and what to discard. Data retention rules can give administrators details on the relevancy of what they are storing, or even automatically manage outdated data. For example, a list of the hours of operation for City parks from 2002 is useless to a citizen hoping to go for a hike; the information is simply out of date. Our planned changes will be able to reduce irrelevant information that can make it difficult to gather data.

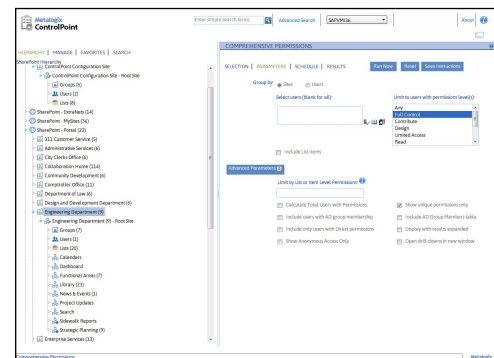
One of the final ways we will increase governance is through clarifying and improving how users can search for data. Setting up a clear and concise informational architecture will impact this. Every file within these programs uses metadata. Metadata is a fairly nebulous term which can describe any information which identifies a file. It could be a title, a list of groups with permission to view the file, identified keywords, or a summary of the data within the document. We already ask users to assign some metadata when they create a file, but the scope of our metadata standards will expand. If users better label a file when they create it, the file will become much easier for others to find and access later.

## Metalogix ControlPoint

Our Data Governance plans will coincide with the further use of Metalogix's ControlPoint software. ControlPoint is an administrative program which works in conjunction with SharePoint to grant its users powerful tools. These tools can help them control the data within their sites, change and view user permissions, and instantly create reports. It can be thought of as a portal to tools already within SharePoint.

SharePoint is powerful by itself, but ControlPoint takes it to the next level. ControlPoint doesn't do anything that SharePoint can't do already, but it does do it much more efficiently. For example, earlier this year we used this program to transfer all the data from the ESD's departmental SharePoint Site Collection to the City's ESD SharePoint Site. ESD must follow strict state guidelines in regards to their records keeping, and the use of ControlPoint during this data migration greatly simplified this process. ControlPoint also simplifies the management of users permissions inside SharePoint sites. Administrators will be able to ensure that data stays accessible to only those who need it.

Since the introduction of this program the IT department has continuously upgraded and planned on how best to customize this software. The customizations we have planned will let us limit how it is used while still allowing site administrators access to the powerful tools they need. We will continue working closely with departments to educate them on how ControlPoint, and all our data storage options, can help them.



CONTROLPOINT SCREEN

## Thin Clients:

The final keyword was flexibility. Things change, and a workforce needs to adapt to those changes. The City has already invested in an infrastructure which allows our employees to become more mobile. We will begin to adapt a VDI framework to take advantage of that infrastructure and change how our users interact with the network.

### What is a VDI framework?

The acronym VDI stands for Virtual Desktop Interface. Traditionally a user's data is stored inside of a specific computer; to access their files they will need to be at that physical location. A VDI moves the data to a remote location, and delivers it to the user on any device they access. A user will have access to the same data whether they are in their office, or signed into a conference room computer.

The largest change that employees will notice is the use of a thin client. A thin client is often just a simple computer. They are small, cheap, and easier to maintain than a regular computer. This simplicity occurs by storing data and doing calculations on a remote server. In recent years the idea of a thin client has expanded to include smart phones, and tablet PCs. Police department vehicles already use these devices, a laptop in this case, to assist with their duties. Soon, work crews will also use tablet PCs in a similar fashion.



SIZE DOESN'T MATTER

### What are the benefits of a VDI?

A VDI stores data in a central and remote location. This allows the data to become more accessible, more secure, and easier to update.

Currently a user needs to be at their computer to access their files. With a thin client, such as a tablet PC, the files are delivered to the user. Storing the data in one place, and delivering it to users on demand, has several advantages. The first advantage is the efficiency of the employees; the use of these devices will reduce how much an employee is tied to their desk. Delivering the data to them will let them become more flexible in how they respond to challenges from the field. The second advantage is the accessibility of their data; information can be delivered to any device, updated, and those same updates can be viewed later. Finally is the security of the data; a VDI framework stores everything in a central location. That location is the operations office, within police headquarters, and it is unlikely to have a security breach.

Disaster recovery may also be improved with a VDI framework. The central location will allow employees to move without losing access to their data. This constant access to their files, along with the use of mobile devices, should reduce any interruptions in City operations during a possible disaster.



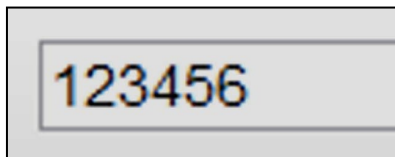
## Security:

Security continues to be our greatest concern. During the last year the IT department conducted a test of our networks security standards and practices. The test involved attempts to access the network through both internal and external means.

The external access attempts occurred at various areas around City Hall and the IT department's operations center. The location of the operations center within Police headquarters, as well as the procedures allowing access to the office, meant that it was unable to be breached. The physical security of City Hall was weaker, and the ease of access to the building led to breaches. These issues do need to be addressed, but their importance is slightly mitigated by the strength of the rest of the network's security.

During the test the network's internal security was also examined for weaknesses. The main area that the City can improve its security is related to the employees.

### Weak vs strong passwords:



DON'T DO THIS.

What is a weak password? In 2013 "123456" was rated as the most common, and the worst, password on the internet. In 2012 the worst password on the internet was "password." A person attempting to gain access to the City's network would be able to guess such passwords with relative ease. As a result of the security test the IT department has updated the standards involved with password creation to force users to create stronger passwords.

What is a strong password though? A strong password includes letters, numbers, special characters, upper and lower case, a minimum length, changing the passwords at certain intervals, or restrictions on not being able to repeat changed passwords.

Increasing passwords strength is an easy and effective way of safeguarding the network, but it is only one of the ways the City needs to improve security.

### Weak vs strong personnel:

One of the other areas relates to safe internet usage by users. During the security test City employees received an email which directed them to a malware website. The IT department alerted users to the risk, but an alarming large number of users still became involved.

Network security breaches often involve poor choices by the users of the network. As the City begins using new software tools it will become increasingly important that we are all educated and aware of how we can protect the network. The data itself will become more secure, but we must follow safe procedures to keep it that way.



STRENGTHEN UP!

## Resource Planning:

Due to the current structure of the City's departments many different software programs are used in the day-to-day operations of the City. These programs are not always able to communicate with each other, and in some cases fulfill the same purposes. To rectify this we are investigating the usefulness of an ERP system and how it will allow us to streamline our practices.

### What is an ERP?

ERP stands for Enterprise Resource Planning. Resources can refer to not only physical assets, but also the people who work for the City, and the time which they are able to dedicate to tasks. An ERP solution is usually a suite of several software modules which are designed to communicate with different modules in order to process information, and deliver feedback to users. In the case of Grand Rapids an ERP system could be used for many operations including citizen services, finance, human resources, procurement, and public safety.

As mentioned above each department might use several different programs to operate. A well-designed and correctly implemented ERP solution would allow them to consolidate their tools and integrate them into a more unified system.

### What are the benefits of using an ERP?

An ERP is modular; The City can choose just the modules that it needs to operate. This modularity will allow us to consolidate the tools that we use and keep them in a central location. For example the City might integrate a module which can be used to oversee financial operations. At the same time we might exclude a module related to customer service.

An ERP is also designed to communicate and interact with its different modules. In the current system users might have difficulty transferring data between departments, between software programs, or even between other employees. An ERP keeps the data in a standard format which is easily transferable.

This communication between those modules will also make it easier to create workflows. As mentioned earlier in this report a workflow can simplify existing processes and streamline administrative systems. With an ERP the workflows can drastically change the speed and effectiveness of City operations. Data can be easily shared between multiple departments, combined with other pieces of data, and reported to the users who will be most effected.



POSSIBLE MODULES IN AN ERP



An ERP can instantly deliver feedback to the users of the system. Departmental leaders will be able to see up-to-date information related to different areas of their department, and the compilation of reports can become more automated. The ability to clearly deliver feedback in a quick manner can provide the City with invaluable information on operations and allow for more timely reactions to changing environments.

## **Customization of an ERP:**

The customization of an ERP system is very important. Customization is needed to streamline operations, but it is also one of the main causes for failures in larger ERP systems. Customization is a double edged sword; not enough of it can result in a useless system, while too much of it will make it difficult to upgrade and adapt to changes. While choosing an ERP vendor we will need to stay aware of the ways in which we can and can't customize their systems.

Traditionally ERP systems have been used by cities much larger than Grand Rapids. We are simply too small to make effective use of all the tools that an ERP can offer. By partnering with a larger municipal area we will be able to not only reduce the cost of the system, but also to share the knowledge that is required to setup and customize an ERP. Collaboration with larger areas will help us to learn from one others missteps and avoid the common pitfalls that accompany the start of an ERP program.

We will need to take a close look at the ways in which we can customize an ERP tool to our existing procedures while also examining how we will need to adapt our procedures to the ERP tool itself. Changing to an ERP system is not a small undertaking. It will require the continued support of the City leadership, as well as a commitment to change by City employees. Large scale changes will happen with a migration to an ERP system, but by staying focused and committed to the change we should be able to avoid the mistakes that larger organizations encounter.

It is important to clarify that an ERP system will not be able to replace all of the City's current software tools. While we analyze how an we can integrate an ERP with our systems, we will also need to honestly assess the ways an ERP will not fit into our system. In some cases it will simply be easier to continue using our existing tools rather than trying to adapt an ERP system.

## **Frameworks:**

The tools that the City uses now can be visualized as fitting into one of two frameworks: A horizontal framework and a vertical framework.

### **What is a horizontal framework?**

A horizontal framework has breadth, but no depth. It deals with the design and development of processes, and generalized tools. The City uses the ArcGIS mapping tool for many different applications, and it is an example of horizontally focused framework. The ArcGIS program provides different maps of the City; these maps can be used in different ways within different programs. The Cityworks program uses them to direct work crews, while the public might use the maps to view the location of their voting district.

The mapping data becomes more valuable as a tool to be used with different programs. Those programs might be part of another general horizontal framework, or they might be part of a more focused vertical framework.

## **What is a vertical framework?**

A vertical framework has depth, but no breadth. They are focused on specific process and functions. The tight focus of this framework can limit its ability to communicate with other programs, as well as its flexibility. It is able to do some tasks very well, but cannot be easily used in other operations.

While a horizontal framework might provide a general collection of tools, a vertical framework is much more focused. This combination of generalized and focused tools is what a diagonal framework tries to create.

## **What is a diagonal framework?**

A diagonal framework tries to combine the best of both of the other frameworks. The framework, in this case an ERP's modules, can communicate, deliver, and share information while also applying that information to specific tasks. This communication between modules, is the key to a diagonal framework.

By adapting to a diagonal framework we will be able to not only reduce the software tools that each department uses, but we will also be able to integrate the tools to assist each other. This style of framework can refer to more than just using an ERP; updating the rules and practices of OnBase/Sharepoint is another example of a diagonal framework.

Having tools that are able to instantly communicate data between departments, and between other software programs can be leveraged in ways which this City can use to reinforce the keywords that keep being mentioned: efficiency, flexibility, and accessibility.

## **What does this mean to users?**

For now? Not much. The IT department is working with the City's leadership to examine how we can best use an ERP system. If such a system is introduced then employees will notice huge changes in the way they go about their job. These changes are scary, but the IT department believes in cool, refreshing motivation. Free ice cream all summer for City employees? Never say never.

## Conclusion:

The main keywords of this report have been efficiency, flexibility, and accessibility. The plans that we will implement in the future will help us to turn those keywords into tangible change. Uploading more data to the cloud will make us more efficient in how we manage our resources. Giving the users of our network access to thin client devices will increase their flexibility in responding to issues. Storing our data in a digital format will allow us to manipulate it, and increase how accessible it is. Finally an ERP will allow us to change how we operate, exemplifying all of those keywords.

In the future we envision a slimmer, stronger, and more agile system, but we will need to continue training the users of that system. Users, both employees and the public, will be able to use these tools to accomplish tasks in new and better ways, but they will need to follow the rules to see the benefits. Following the rules for data governance, changing the software they use, and being aware of how they can impact security will all be important to the changes we have planned.