

**Minnehaha Creek Watershed District**  
**REQUEST FOR BOARD ACTION**

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**MEETING DATE:** November 9, 2017

**TITLE:** Authorization to Amend 2018 Information Technology Work Plan to Include Information Technology Investments

**RESOLUTION NUMBER:** 17-070

**PREPARED BY:** Lars Erdahl

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**REVIEWED BY:**  Administrator       Counsel       Program Director  
 Board Committee       Engineer       Other

**WORKSHOP ACTION:**

- |  |  |
|--|--|
| <input type="checkbox"/> Advance to Board mtg. Consent Agenda.                     | <input type="checkbox"/> Advanced to Board Meeting.      |
| <input type="checkbox"/> Refer to a future workshop (date): _____<br>(date): _____ | <input type="checkbox"/> Refer to taskforce or committee |
| <input type="checkbox"/> Return to staff for additional work                       | <input type="checkbox"/> No further action requested     |

**PURPOSE or ACTION REQUESTED:**

- 1) Review of the 2017 Draft Information Technology Plan
- 2) Accept the Plan Framework
  - a. Overview
  - b. IT History
  - c. Current IT
  - d. Goals and Outcomes
  - e. Implementation
  - f. Costs
- 3) Direct the Administrator to incorporate implementation of the Information Technology Plan to:
  - a. Update the 2018 IT Workplan and Budget
  - b. Present the individual elements of the 2018 Workplan to the Board of Mangers for review and approval
  - c. Initiate the scoping for the Capital Project, Project Management and Land Management database

**PROJECT/PROGRAM LOCATION:**

Organization Wide

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## **PROJECT HISTORY:**

- September 2016, – Information Technology Workplan outlining the need for an IT Plan as a MCWD priority
- September 2016 – MCWD Strategic Plan identifies the benefits of an IT Plan
- February 9, 2017 – The MCWD Strategic Plan directs staff to prioritize IT Investments
- February 23, 2017 – IT Managed Service Provider Discussion with the Board of Managers in relations to IT Plan
- August 24, 2017 – 2018 IT Workplan presented to the Board of Mangers outlining IT Plan Framework
- September 12, 2017 – Board Resolution setting November 9, 2017 for Plan IT Plan Presentation
- September 2017 – IT Workpan outlining IT Plan presented to the Board Of Managers
- November 9, 2017 – Presentation of the Draft IT Plan to the Board of Managers

## **NEXT STEPS:**

- December 2017 – Staff Present updated 2018 IT Workplan and Budget
- 1<sup>st</sup> Quarter 2018 - Present the individual elements of the 2018 Workplan to the Board of Managers for review and approval
- 1<sup>st</sup> Quarter 2018 – Staff presents a draft scope to initiate the scoping for the Capital Projects, Project Management and Land Management database

## **SUMMARY:**

### Background:

In February of 2017 the Minnehaha Creek Watershed District adopted a strategic plan to achieve its mission of protecting and improving land and water by:

- building green infrastructure, and
- changing local, regional and state policy to further integrate land and water planning.

A critical component in operationalizing this strategy is the effective deployment of technology. Since 2009, the District has made considerable investments in its technology with a focus on the goals of stability, accessibility and security. As a result, the District's technology environment is much more stable and provides a solid foundation for future improvements.

While the District has historically invested in the acquisition of hardware and software to improve data management at the District, these tools are not connected and the District lacks a central access point for all staff to use them. Information is inconsistently stored and managed

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across the organization, retrieval of data can be cumbersome and time consuming, and often data is not available. This has put the District at a competitive disadvantage in areas of data management, analysis and reporting.

To address these issues, District staff and the Board of Managers have identified the need for a comprehensive Information Technology (IT) plan. The 2018 IT work plan describes the District's current IT offerings and needs, and outlines a framework for prioritizing IT investments based on a number of criteria including organizational impact, efficiencies gained, costs and timeline.

The IT investments outlined in the draft framework would help the District achieve the following goals:

1. A graphical user interface to update, store, query, and report information
2. Robust database with additional organizational District data, including capital projects data, operations and maintenance, Dam management data, and other pertinent information
3. Improved ability to store information spatially using Geographic Information Systems (GIS)
4. Enhanced document management and retention, with connectivity to data management and GIS
5. Automated business processes that reduce the amount of manual process
6. Updated website to provide access to District data on all devices, including mobile, and improve customer service with interactive features

If the District's data is effectively defined, updated, and managed for retrieval, it could achieve the following outcomes:

- improve the quality of analysis, planning and decision making
- save staff time by streamlining business processes and aligning workflow across all departments

The District staff has worked with IT Consultants to develop a comprehensive Information Technology (IT) Plan that pairs needs across all MCWD programs in areas of document and data management, geographic information systems, business process management, and the website. The IT Plan will provide a roadmap for the District to prioritize needs and enhance functionality of these tools, resulting in better project outcomes and workflow efficiencies. **The Draft IT Plan identifies the following as central themes of the plan, they include:**

- a. Overview
- b. IT History
- c. Current IT
- d. Goals and Outcomes
- e. Implementation
- f. Costs

Each year staff will present the elements of the upcoming years as part of the IT workplan along with a recommendation if existing fund balance or tax levy should be the funding source. Additionally, when an item is ready for implementation, staff will create a Request for Board

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Action and present the item to the Board for review and approval. The 2018 IT Workplan has a budget of \$100,000 being recommended for 2018,

**Next Steps:**

Update the 2018 Work plan

Pending acceptance of the draft 2017 IT Framework by the MCWD Board of Managers, staff will update the 2018 Workplan and Budget to reflect the work identified and present it to the Board of Managers in December of 2017.

**Project Scoping for the PLMP Database**

The 2017 IT plan implementation schedule identifies the Capital Projects, Project Maintenance and Land Management database as the next phase of the plan. Pending approval by the MCWD Board of Managers, staff will work the District IT Consultants to develop a scope of work to develop the database early in 2018.

**ATTACHMENTS:**

Attachment 1 – Draft 2017 IT Plan with supporting documents

## RESOLUTION

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**RESOLUTION NUMBER:** 17-070

**TITLE:** **Authorization to Amend 2018 IT Work Plan to Include Information Technology Investments**

- WHEREAS, In February of 2017 the Minnehaha Creek Watershed District adopted a strategic plan to achieve its mission of protecting and improving land and water by building green infrastructure, and changing local, regional and state policy to further integrate land and water planning; and
- WHEREAS, A critical component in operationalizing this strategy is the effective deployment of technology; and
- WHEREAS, On February 9, 2017 Staff presented the MCWD Strategic Plan and received direction to prioritize investments in Information Technology (IT); and
- WHEREAS, The District has made considerable investments in its technology with a focus on the goals of stability, accessibility and security that provide a solid foundation for future improvements; and
- WHEREAS, The District has historically invested in the acquisition of hardware and software to improve data management at the District, these tools are not connected and the District lacks a central access point for all staff to use them; and
- WHEREAS, The lack of central access and inter-connectedness has put the District at a competitive disadvantage in areas of data management, analysis and reporting; and
- WHEREAS, To address these issues, District staff and the Board of Managers have identified the need for a comprehensive Information Technology (IT) plan; and
- WHEREAS, On August 24, 2017 Staff presented the 2018 IT Workplan to the Board of Mangers outlining a framework for future IT investments; and
- WHEREAS, In September 2017 Staff presented the 2018 IT Workpan identifying future IT investments and the Board of Managers directed staff to present the implementation plan at the November 9, 2017 meeting; and
- WHEREAS, On November 9, 2017 Staff presented the draft 2017 IT Plan to the Board of Managers; and
- WHEREAS, The IT Plan, when fully implemented, would achieve the following goals:
1. A graphical user interface to update, store, query, and report information
  2. Robust organizational database with additional organizational District data, including capital projects data, project maintenance and land management data, and other pertinent information
  3. Improved ability to store information spatially using Geographic Information Systems (GIS)
  4. Enhanced document management and retention, with connectivity to data management and GIS
  5. Automated business processes that reduce the amount of manual process
  6. Updated website to provide access to District data on all devices, including mobile, and improve customer service with interactive features; and

WHEREAS, If District's data is effectively defined, updated, and managed for retrieval, it could improve the quality of analysis, planning and decision making and save staff time by streamlining business processes and aligning workflow across all departments; and

WHEREAS, The draft 2017 IT plan has been reviewed for interconnectedness in collaboration by North Point GIS, Corporate Technologies, OPG 3 and has the support of all of the vendors that the existing technology offerings are capable of working together to achieve the established outcomes, and

NOW, THEREFORE, BE IT RESOLVED that the Minnehaha Creek Watershed District Board of Managers hereby authorizes the District Administrator to proceed with amending the 2018 IT Work Plan to incorporate the IT Plan recommendations, to initiate scoping of the Capital Project, Project Management, Land Management database and to proceed with preparing individual elements of the 2018 plan implementation.

Resolution Number 17-070 was moved by Manager \_\_\_\_\_, seconded by Manager \_\_\_\_\_.  
Motion to adopt the resolution \_\_\_ ayes, \_\_\_ nays, \_\_\_ abstentions. Date: \_\_\_\_\_.

\_\_\_\_\_  
Secretary Date: \_\_\_\_\_

**MINNEHAHA CREEK**  
QUALITY OF WATER



**WATERSHED DISTRICT**  
QUALITY OF LIFE

# **Information Technology (IT) Plan November 2017**

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- Appendix D – MCWD Technology Infrastructure Diagram
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## 1) Overview

Early in 2017 the Minnehaha Creek Watershed District adopted a strategic plan to achieve its mission of protecting and improving land and water by:

- building green infrastructure, and
- changing local, regional and state policy to further integrate land and water planning.

This plan is actively guiding the realignment of District programs, people, and fiscal resources to implement the organizational strategy.

A critical component in operationalizing this strategy is the effective deployment of technology. Since 2009, the District has made considerable investments in its technology with a focus on the goals of stability, accessibility and security. As a result, the District's technology environment is much more stable and provides a solid foundation for future improvements. A comprehensive list of the District's IT achievements is attached (Appendix A).

Needs:

While the District has historically invested in the acquisition of hardware and software to improve data management at the District, these tools are not connected and the District lacks a central access point for all staff to use them. Information is inconsistently stored and managed across the organization, retrieval of data can be cumbersome and time consuming, and often data is not available. This has put the District at a competitive disadvantage in areas of data management, analysis and reporting.

To address these issues, District staff and the Board of Managers have identified the need for a comprehensive Information Technology (IT) plan. The 2018 IT work plan describes the District's current IT offerings and needs, and outlines a framework for prioritizing IT investments based on a number of criteria including organizational impact, efficiencies gained, costs and timeline. The 2018 IT work plan (Appendix B) is attached.

Goals:

The IT investments outlined in the draft framework would help the District achieve the following goals:

1. A graphical user interface to update, store, query, and report information
2. Robust organizational database with additional District data, including capital projects data, project maintenance and land management data, and other pertinent information
3. Improved ability to store information spatially using Geographic Information Systems (GIS)
4. Enhanced document management and retention, with connectivity to data management and GIS
5. Automated business processes that reduce the amount of manual process
6. Updated website to provide access to District data on all devices, including mobile, and improve customer service with interactive features

Outcomes:

If the District's data is effectively defined, updated, and managed for retrieval, it could achieve the following outcomes:

- improve the quality of analysis, planning and decision making
- save staff time by streamlining business processes and aligning workflow across all departments

The District is working to develop a comprehensive Information Technology (IT) Plan that pairs needs across all MCWD programs in areas of document and data management, geographic information systems, business process management, and the website. The IT Plan will provide a roadmap for the District to prioritize needs and enhance functionality of these tools, resulting in better project outcomes and workflow efficiencies.

## **2) MCWD IT history**

The MCWD's technology environment has evolved considerably over the past eight years. In 2009, IT consisted of a series of disconnected elements and various operating platforms without a network server. Many of the components were outdated, did not work or did not conform to the industry standard. Since then, the MCWD has made significant strides to update its technology and it currently has a stable structure to build from.

A comprehensive list of the District's IT investments is attached (Appendix A), but some of the major milestones in the process to upgrade the District's technology include:

2009: Selected Pareo as Managed Service Provider and tested Sharepoint to manage Board packets and related documents

2011: Launched new MCWD website

2012: Initiated electronic delivery of Board packets to the Managers; provided iPads to the Managers

2013: Purchased Laserfiche for records retention and document management; moved to new District office with updated technology throughout the building; developed interactive map for internal use; restricted employee desktop/laptop use of C drive to better manage data.

2014: Enabled videotaping of board meetings and video storage on YouTube

2015: Enabled electronic payments; completed virtual server installation; acquired MDM Application Tool; obtained Revel digital signage platform for front lobby; updated external interactive web map; initiated data reduction project to free up server space, purchased WISKI to manage water quality data

2016: Developed a disaster recovery/intrusion detection protocol

2016/17: Initiated a network tiered backup for District data using internal and cloud platforms

A comprehensive list of the District's IT investments is attached (Appendix A).

### **3) Current IT**

The District's technology environment is currently stable as a result of a series of investments in hardware, software and professional services. However, the data the District collects is difficult and time consuming to retrieve and analyze, making it challenging to effectively and efficiently use the information for planning and decision making. District staff currently use five distinct tools to assist in collecting, storing, analyzing and reporting data:

1. Permitting database (SQL)
2. Research & Monitoring database (WISKI)
3. Geographic Information Systems (GIS)
4. Laserfiche
5. Website

Descriptions of each tool, including their purpose, history and existing limitations are outlined below.

#### **3.1) Permitting database (SQL)**

Purpose:

The database is a web-based SQL application which processes all permits and also stores data.

The permitting process requires many paper documents. In 2014, an interface was constructed to the Laserfiche system to store, retrieve and maintain the paper records. All permits are entered and managed by the permitting database and Laserfiche processes all documents. The direct interface minimizes paper document storage, access and handling.

The database was designed to work on a PC and standard browser types (Google, Chrome, Safari, Explorer), and to be viewed on a mobile interface (e.g. iPad, iPhone, Android) without major loss of functionality or usability.

The current permitting system was designed to connect with the District web-based mapping system but this functionally has not been put into production. The structure of the permitting database and documents use common keys to link data via PID (County Parcel ID) and Permit numbers issued by the application process.

History:

The first permitting database was constructed using Microsoft Access. In 2009 the District identified the need to update the permitting database as an organizational priority. In 2012, the MCWD initiated a RFP process to choose a vendor. North Point GIS was selected to develop a permitting database that helped the District achieve two primary goals: improve functionality and increase ease of access by making the database a web-based SQL database. To date, all permits have been entered into the database with PID information included. PID information for past permits were edited for entry errors in 2015 and 2016, minor updates may be needed for any new entry errors. The database was designed and constructed for interconnectedness with Laserfiche, the interactive map (all data is geospatial through the PIDs) and accessible by all staff. The

database was also designed to work on a PC and to be viewed on a mobile interface (e.g. iPad, iPhone, Android) without major loss of functionality or usability.

Existing Limitations:

The permitting database is a web-based platform that is connected to Laserfiche and the Interactive map. The database is not currently connected to the web site, does not currently have a process for automation of workflow designed, and needs additional development for WCA and other department data and setup with a public opportunity for usage or viewing.

### **3.2) Research & Monitoring database (WISKI)**

Purpose:

WISKI (Water Information Systems KISTERS) is a water resource data management software that provides a platform that integrates application modules with powerful statistical, data analysis and visualization features. The WISKI platform, which was purchased in 2016, allows the District's Research and Monitoring Program staff to store, validate and analyze water-related data to diagnose drivers, broadly characterize ecological health, and track management of high impact aquatic invasive species.

WISKI also allows staff to make the data and data analysis accessible on the District's website. The purchase of the KiWIS module, which would enable this web-based functionality, has been delayed pending the budgeting of funds for the web development that would be needed and the training of staff on use of the WISKI system.

History:

The District has been collecting time-series flow data and discrete water quality data from 50+ stream stations for the past 39 years, and has been collecting discrete water quality and water level data from 50+ lakes for the past 45 years. In addition, MCWD and volunteers have been collecting precipitation data throughout the watershed for the past 23 years. All of this information has built a lengthy and robust dataset that comprehensively characterizes the water resources throughout the District.

As of 2015, all of the District's water-related data was not well organized, and difficult for staff to share and analyze. There was a need for better storage, validation checks, more in-depth analysis tools and easier data sharing capabilities. A more comprehensive data management system was recommended to manage water-related data with much greater efficiency and usefulness.

As of 2015, the District ended its relationship with the custom-built database consultant. The Board of Managers approved the purchase of the WISKI data management system in January 2016. Staff had the software installed as of April 2016 followed by a 3-day in-house training session. The Research and Monitoring staff are the main users of WISKI, but there are four view-only licenses distributed throughout the office to expand access to the data. The Planning Department has two licenses, Project and Land Management staff have one and the Permitting Department has one.

Research and Monitoring staff use WISKI almost on daily basis and are readily acquiring new skills. Staff have also conducted a very basic training of WISKI for other District program staff. A follow-up training is planned and a custom user guide will be provided as a supplement.

As for keeping the software up-to-date, the District will be receiving its 2<sup>nd</sup> version upgrade of WISKI in late 2017. The WISKI annual fee covers 24/7 support and maintenance of the system. Although additional modules purchased would raise the cost of the annual fee, the additional modules would be covered by the support and maintenance plan.

#### Existing Limitations:

The WISKI Database is a standalone database that is currently not connected to other District IT offerings. It is a solution that allows for expansion of its capabilities through the purchase of additional modules.

### **3.3) Geographic Information System (GIS)**

#### Purpose:

Geographic Information Systems (GIS) is the computer-based system that provides for the storage, analysis and distribution of the District's spatial data/information. GIS has been used in multiple ways by staff and consultants over the years. It has been used for presentation purposes to highlight a message, to analyze trends in data over time, to track objects by parcel location, or to designate locations of key projects. The data used by GIS can include data from outside agencies, from consultants or it can be existing data developed by the District. The District has been using GIS for many years. Much of the current workload is accomplished by hiring a consultant to create new deliverables. Currently the District maintains more than 40 GIS data layers.

#### History:

The District uses GIS in multiple ways, including desktop GIS, staff access to online GIS, internal GIS and a public portal to access GIS data via the District website.

**Desktop GIS:** The District currently has the 2014 version of Desktop GIS installed which can only be used on three dedicated machines within the District Office. The Desktop GIS offers a comprehensive system to design, analyze, map, manage, share and publish geographic information. This software supports decisions for all District departments. Printed and electronic maps are the most common output used by the District. Using a fully functional GIS system requires significant training and experience.

**Online (Web) GIS:** Once spatial data is created and organized it can be viewed and simply maintained via ESRI's ArcGIS Online (AGO) software, which allows users access to GIS information from their workstation or on a mobile device via a web browser. This has the potential to make access to the GIS software more readily available since it does not require software to be installed on a device such as a desktop or laptop machine. Rather AGO allows "authenticated" users to log in and create, manage and maintain GIS data, while public users can also be granted "read only" access through the AGO permissions settings. This means MCWD has the option to readily share maps, apps and data hosted in AGO, to the public. This can be done through the MCWD website via a link to the MCWD AGO instance, or through embedded

web map(s) as in the MCWD website, or a combination of both. AGO also has tools to easily display, analyze and retrieve spatial data, which is important for project coordination and management. There are also a variety of “out-of-the-box” applications in AGO such as the ESRI Collector App that allows users to quickly create web applications for field data collection on a mobile device. Another AGO application that MCWD is interested in, is the ability to create and distribute “Story Maps.” These are interactive, multi-media map applications that can be readily created by MCWD staff to display geographical information, pictures, documents and project information to both the public, as well as internally. Story maps can be generated to highlight and present key projects, initiatives, and results; they can then be embedded in the MCWD website to provide data to the public in a cohesive and professional manner. Currently the District has 3 AGO licenses that users can check out and use at their workstation. AGO also requires less user training than the ESRI ArcMap Desktop software.

**Internal Spatial Data:** A web-based version of the District’s spatial data is provided for staff’s internal use. Data layers are hosted externally and are stored and backed up on the Amazon Cloud Server. By hosting spatial data on the Amazon Cloud, data loading speed is in some cases increased over internal hosting, and security as well as accessibility (very little down time) is increased. A cross-departmental team worked to identify the 40+ layers that are used by staff for this internal map service. Additionally, the map data layers hosted on the Amazon server can be utilized to create maps and apps in AGO as well.

**Public Online Map:** The District created an online web map integrated into the District website in 2014 with the purpose of providing information to the public. The public map uses the same dataset as the internal web-based system, but has fewer layers and has more limitations. Among the goals of this public online map are to display relevant information in a graphic format, to help visitors stay on the MCWD website rather than going elsewhere, and to display information in a user-friendly format. This system was also developed by a cross-departmental team. The IT plan will include updating this feature as an AGO map,

**Existing Limitations:**

The existing GIS environment was developed for usage by staff, but lacks a common document management process, needs to have licenses and layers updated and integrated with other IT tools to allow for geospatial analysis and review of district data.

### **3.4) Laserfiche**

**Purpose:**

Laserfiche is a document management system that is used to store documents per the District’s record retention schedule. This tool creates efficiencies for day to day work routines by digitizing documents. Laserfiche allows multiple people to access the same document at the same time, eases the process of searching for documents, eliminates lost paperwork and the need to store excess boxes. Existing capabilities of the Laserfiche system include quick search features, connectivity to databases, ease of scanning and identification of metadata.

**History:**

The District identified a need to organize its existing paper and electronic data into a document management system in 2009. An RFP process was conducted and Laserfiche was selected as the District’s document management system. Laserfiche has a wide range of capabilities, but the

District's plan was to initially use it as a document retention tool. Since acquiring the system in 2013, the District has scanned and digitized board meeting packets, District permits, insurance documents, board meeting audio recordings and board resolutions.

The District is expanding the usage of the Laserfiche system beyond storage to the needs of all program staff. Staff are able to search for documents and store photos and other materials.

Existing Limitations:

Laserfiche is currently being used as a document library to allow storage, searching capability and connection to technology tools such as the permitting database. It is a Document Management System capable of developing automated processes for daily workflow as well as working with other technology for ease of viewing information in Laserfiche such as databases, the web site and mobile devices.

Weblink: Laserfiche can be connected to the web site by purchasing a license named Weblink. Webl link allows for documents to be displayed on the web by saving them in Laserfiche. It has administrative tools that create controls restricting who can see the document allowing for choice as to internal documents or public availability. Weblink has an initial purchase and an annual license cost.

Workflow: Laserfiche has the ability to be programmed to assist in the workflow of process by creating forms and templates to automate a desired process. An example is desingint a process for receiving applications, Laserfiche can be designed to have the application filled out electronically, then automate storage, emails to staff or the applicant, track timelines be managed by a computer or a mobile device. Laserfiche work flow can be designed and implemented by District Staff or the District Lasrfiche vendor, depending on the complexity of the project. The District annually budgets for Workflow projects for the Laserfiche Vendor in the I.T. Budget.

\*NOTE: The District may have to increase the number of annual Laserfiche licenses purchased as the usage of automated workflow functions increases.

### **3.5) Website**

Purpose:

The District's website is a central location for up-to-date information about the District's projects, programs and initiatives. It's a dynamic communications tool that promotes transparency, saves staff time and conveys the breadth and impact of the District's work in a compelling, visually pleasing way. The website is also an interactive resource library that has the potential to provide the public with expanded access to the District's data.

History:

In 2009, the District identified a complete rebuild of its website as a priority and began a two-year process to scope, design and build a new website. The new site was launched in 2011 on the Drupal Content Management System with external hosting and backup of the site for efficiency, access and speed.

The website was constructed with input by a team of consultants, the Board of Managers and staff. The original scope of the project identified five major goals:

- Update the look and feel for the site which was last updated in 2002

- Improve efficiency of the site, many links were broken and old
- Organize and edit information
- Update the search feature
- Update offerings such as social media, databases, photos and articles

The District improved the functionality of the website in 2015 by incorporating an interactive map into the website framework which keeps the user within the website rather than navigating away from it.

Existing Limitations:

The existing website is not connected to Laserfiche, WISKI or the permitting database. The site was developed prior to mobile platforms becoming industry standard and currently has some limitation when being used by cell phones and some tablets. The site backend is also in need of updating to allow for more efficient updates and changes.

#### **4) Goals and Outcomes:**

Considering the functionalities and limitations of the District's current IT environment, the following goals have been identified to help achieve the desired outcomes of a fully integrated system that improves the quality of the District's analysis, planning and decision making and saves staff time by streamlining business process and aligning work flow across all departments.

##### **4.1) Graphical user interface to update, store, query, and report information**

Description: Currently the District technology applications do not have a single access point; they have to be installed on each machine or accessed individually to be used. An existing gap is a user interface which would provide one location to access the Organization database, WISKI, Laserfiche and the interactive map.

Outcome: Staff would be able to access the District's organizational data from a single place, improving workflow efficiencies that save staff time and increasing the quality of the District's discovery. A graphical user interface would enable the creation of comprehensive reports and a complete analysis of all of the available data, improving the District's ability to make decisions on future plans.

Example: The District currently has two databases that could be fully accessible via a graphical user interface, allowing for connectivity to GIS, the District's data management system and website and providing for automated business processes.

The Research and Monitoring Department's WISKI database has a website application that would allow access to external users. There are desired outcomes for the WISKI Database with the full implementations of the plan, they include increase the connectivity to other IT developing automation, connectivity to GIS and the website. The deliverables include:

- Connectivity to the Website: WISKI has a module that the Research and Monitoring Department has work with Kisters on purchasing. The Module would allow the Data in the database to be displayed on the web site.



- Integrate data with Arc GIS
- Continue to streamline reports, calculations and data management.
- Develop Workflows

**4.2) Robust organizational database with additional District data, including capital projects data, project maintenance and land management data, and other pertinent information.**

Description: The Permitting Department’s SQL database provides a solid foundation for the incorporation of additional datasets to serve the organization’s needs.

Outcome: There are multiple outcomes for the organizational database with the full implementations of the plan, they include increased capacity for decision making, an automation process to streamline workflow, connectivity to GIS for graphical display of information, and connectivity to the website for increased access and improved transparency. The deliverables include:

- An organized and easily accessible data set for the staff and public
- Ability to track progress toward the District’s Watershed Management Plan and TMDL goals
- Ability to track long-term maintenance requirements and activities for District lands, projects, signage, etc.
- Automated input of data from the field
- Facilitated annual reporting to and from the District
- Ability to display geospatial information on the District GIS System

**4.3) Improved ability to store information spatially using Geographic Information Systems (GIS)**

Description: The existing GIS environment was developed for usage by staff, but lacks a common document management process, needs to have licenses and layers updated and integrated with other IT tools to allow for geospatial analysis and review of district data.

Outcome: There are multiple outcomes for GIS with the full implementations of the plan, they include increased capacity, a stronger presence on the website, and connectivity to other IT key elements. The deliverables include:

- a) Desktop GIS: The district currently has 3 Desktop GIS licenses operating on computers within the District Office. The deliverables include:
  - i. Updating the Licenses to the most current offering
  - ii. Updating of base layers
  - iii. Creation of a district wide document management process for historic and new GIS Layers

- b) Online GIS
  - i. Updating the Licenses to the most current offering
  - ii. Updating of base layers
  - iii. Creation of a district wide document management process for historic and new GIS Layers
- c) Online GIS Portal
- d) Integration with Organization Database, WISKI and User interface
- e) Dedicated staff for GIS

**4.4) Enhanced document management and retention, with connectivity to data management and GIS**

Description: Currently the District uses Laserfiche to store and manage its documents. With enhanced connectivity, the District’s data management function will provide new access and efficiencies.

Outcome: There are two outcomes for Laserfiche with the full implementations of the plan, they include connectivity to the website and facilitating work flow.

The deliverables include:

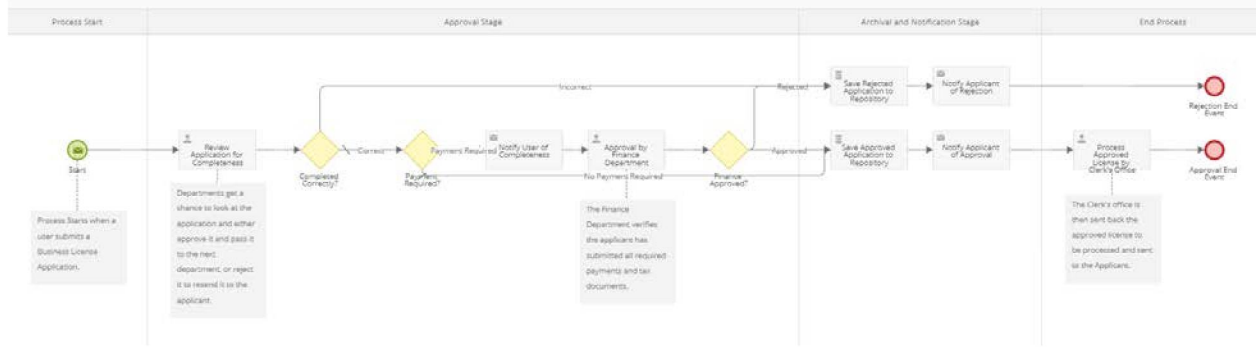
- Data Reduction: Currently some data is loaded in multiple locations. Board packets are currently being saved on the server, Laserfiche, the website and Dropbox. With Weblink, the packets would be loaded in one location.
- Staff time: Currently staff is saving data in multiple locations and when the data changes, it has to be updated in all of the locations. With Weblink, the data is stored and modified once.
- District Engineers would have access to the information without having to give them access directly onto the server.
- Public and internal access options: Weblink allows the district to restrict access to data on the web by setting access settings if a document is internal or public.
- Automation of process for daily workflow will be created by Laserfiche forms: The District will annually budget for specific processes that can be automated and complete the tasks internally or work with the District Laserfiche vendor to complete the workflow project.

**4.5) Automated business processes that reduce the amount of manual data entry**

Description: The District currently does not utilize applications that could automate workflow which would improve staff efficiencies and ensure all steps in a workflow are met in a timely fashion.

Outcome: Automation of process for daily workflow will be created by Laserfiche forms. The District will annually budget for specific processes that can be automated and complete the tasks internally or work with the District Laserfiche vendor to complete the workflow project. The automation of workflow will result in savings of staff time processing applications, and will allow automatic tracking of timelines, among other benefits.

Example of how an Application process would look:



See Appendix C for “Sample Study of How Laserfiche Can Automate Permitting.”

**4.6) Updated website that provides access to District data on all devices, including mobile, and improves customer service with interactive features**

Description: Currently the website is a resource for information that is manually loaded by staff. It has limited interactive capability and its displays are not easily viewed on mobile devices.

Outcome: There are multiple outcomes for the Website with the full implementations of the plan, they include a web design to make the site more mobile friendly, connectivity to other IT key items, and updating the backend to create updating efficiencies. The deliverables include:

- 1) Mobile Platform: The current website was not designed to be accessed by cell phones and tablets. A mobile site would ensure that there is one cohesive experience across device types, while emphasizing prioritization, intuition, and concision related to navigation and content architecture.
- 2) Laserfiche Weblink: Weblink will allow a connection between Laserfiche and the website. The data can then be loaded into Laserfiche and linked to the website for either public or internal access: Weblink allows the District to restrict access to data on the web by setting access settings if a document is internal or public (e.g. the Comprehensive Plan, Project Information).
- 3) Backend Cleanup: Staff will work with the host provider to streamline the process of updating website content.
- 3) Online GIS Portal

## **5) Implementation**

### **5.1) Process**

The District Information Technology (IT) Plan primary focus moving forward pairs needs across all MCWD programs in areas of document and data management, geographic information systems, business process management, and the website. The IT Plan will provide a roadmap for the District to prioritize needs and enhance functionality of these tools, resulting in better project outcomes and workflow efficiencies.

The purpose of the plan implementation is to forecast the future Information Technology over years and create a process to phase in the delivery of the offerings. Each year, starting with the 2018 IT Work Plan, staff will create a list of project for the upcoming year and present it to the Board of Managers with a description of the project, a cost estimate, expected deliverables and a timeline. Additionally, when an item is ready for implementation, staff will create a Request for Board Action and present the item to the Board for review and approval of the individual element prior to initiating the project. Once the project is approved, staff will create a project outline for approval by the Board of Managers, working with the District Consultants, to delineate the core elements of the project including Scope, Timeline, budget and deliverables.

### **5.2) Connectivity**

As part of the connectivity aspect of the current IT Strategic planning effort, MCWD reached out to several vendors, including NPGS (GIS Consultants), OPG-3 (LaserFiche) and Fjorge (Website provider) to obtain their insight and recommendations regarding MCWD's IT planning efforts.

NPGS identified three main components as the main focus for the connectivity portion of the MCWD IT Strategic Plan. These items are as follows:

1. Assess the existing MCWD infrastructure and determine key hardware, software and support resources required to meet *short-term* and *long-term* objectives.
2. Develop an IT roadmap that includes recommendations for implementing the various technology milestones, based on current MCWD organizational objectives.

### **5.3) Technology Recommendations**

Based on the current infrastructure analysis, the following recommendations are identified for MCWD. The organization currently has a majority of the capabilities and infrastructure in place for hosting data, however the deficiencies lie in the ability to have a cohesive delineation and plan for accessing and managing both geographic-based data and non-geographic-based data.

#### Geographic-based Data

The geographical based data can be effectively accessed and managed using ESRI's ArcGIS Online product (discussed above). Access to the AGO portal can be incorporated in the MCWD website and can serve as the main portal for MCWD's location-based data such as maps, mapping applications, and story maps. The AGO portal can be thought of as a customizable library of geographic information, maps and apps for MCWD. This library initially may have a few key items that will be generated for use by the organization, but over time, the capabilities can grow and be updated as needs change and evolve. MCWD can also access Laserfiche

documents such as permits or other site-related information, via URL hyperlinks in AGO maps and apps. This provides ready access for location-based information and documentation in an easy-to-use interface.

Non-geographic-based Data

The non-geographic-based data, can be readily handled through Laserfiche tools that include web forms for completing permit applications (for example) as well as a “portal” to access and manage documentation. MCWD can also customize which information they would like shared publicly, vs. what they would like to remain internal content. Access to the Laserfiche portal can be incorporated in the MCWD website and can serve as the main portal for MCWD’s non-location-based data such as permits, meeting minutes CAD drawings and other documents. Since permits will have a location associated with them, this data can be accessed via apps or maps in the AGO portal. Furthermore, other documentation can also be “geo-referenced” using a common location field such as a Parcel ID number (PID).

See Appendix D for MCWD Technology Infrastructure Diagram

**5.4) Recommended Timeline and Estimated Cost**

Geographic-based Data Management and Support - 2018

Item	Description	Est. Cost
Update Esri Desktop licensing	Bring the 3 Esri Desktop licenses current. This is a license fee paid directly to Esri.	\$9,000.00
Purchase additional AGO licenses	Purchase 12 AGO <i>Contributor</i> licenses (3 already included with desktop licenses) at \$47/month (\$6,768.00/year) and 15 AGO <i>Viewer</i> licenses at \$9/month (1,620.00/year). This is a license fee paid directly to Esri.	\$8,388.00
Upgrade desktop ArcMap	Once licenses are current, update Esri ArcMap software (on 3 machines) to the most recent version. Currently several versions behind at 10.3. Cost is for vendor support to update software and provide tech support.	\$1,000.00
Customize ArcGIS Online (AGO)	GIS Vendor will collaborate with MCWD to setup and customize their AGO landing page, including look and feel branding, 3 – 4 thumbnail images, as well as initial data loading.	\$11,000.00
Database review and updates for Permitting	GIS Vendor will collaborate with MCWD to plan Permitting database updates in support of 2018 Permitting data management activities, as well as perform specified updates as agreed upon with MCWD.	\$3,500.00
Configure Permit Inspection Collector App	GIS Vendor will collaborate with MCWD and Laserfiche to configure a basic AGO Collector app that will allow MCWD permit inspectors to	\$4,000.00

	collect data in the field and have it sync directly with AGO. This will also include ensuring the specified data gathered through Collector, is written and stored to either AGO or the MCWD Permitting SQL Server.	
Begin Development on Planning and Capital Projects Application(s)	GIS Vendor will collaborate with MCWD to begin configuring either Esri AGO apps or developing a custom application surrounding the Planning and Capital Project's needs. The specific approach will be based on information gathering and planning sessions	\$12,000.00
MCWD Amazon Server Transfer Support	GIS Vendor will collaborate with MCWD to transfer server ownership from NPGS to MCWD, as well as set up new billing structure.	\$1,000.00
Amazon Web Server Hosting	Options include paying monthly (approx. \$650/month) or paying 3-years up-front, which includes a 30% discount for up-front payment.	\$7,800.00/year OR \$16,400.00 (for 3-years)*
Misc. GIS Support and Vendor Collaboration (annual)	Includes ad hoc map creation, data management, data creation, troubleshooting, and training. Includes ad hoc trouble-shooting and support (outside of standard project scopes) for MCWD data integration among SQL, Amazon, AGO, WISKI and Laserfiche. Cost is for vendor support. Cost is for vendor support. If these hours are not needed, MCWD would not be invoiced.	\$3,500.00
<b>2018 Estimated Geographic-based Data Management and Support Costs</b>		<b>\$61,188.00</b> <b>OR</b> <b>\$69,788.00*</b>

Non-geographic-based Data Management and Support - 2018

Item	Description	Est. Cost
Digitize MCWD Paper Documents	Review and manage existing paper documents for use in Laserfiche system.	MCWD Labor
Database Review and Updates for 2018	MCWD Labor for planning, coordination and updates to the database(s) in relation to 2018 work and planning for 2019 work. May include (but not limited to): Permitting, Capital Projects, Planning, Operations and Maintenance. Vendor fees in support of MCWD efforts are accounted for as separate line items.	MCWD Labor

Laserfiche Public Portal Setup	This includes product and licensing fees for the Laserfiche Starter Public Portal, and associated tools and user accounts that will enable users to access data online.	\$15,000.00
Laserfiche Professional Services for Setting up Permitting Capabilities	This includes OPG-3 labor and support for setting up the Permitting and Portal capabilities.	\$22,200.00
Laserfiche Public Forms License	Includes a onetime licensing fee for public forms.	\$8,000.00
Website Updates for Permitting and GIS Integration	Vendor support and labor for ad-hoc website integration and collaboration by Fjorge. With Laserfiche and GIS vendors. This is an estimated budget. If these hours are not needed, MCWD would not be invoiced.	\$5,000.00
Misc. Website Support and Vendor Collaboration (annual)	Includes ad-hoc maintenance, troubleshooting, project collaboration, training and support outside of standard project scopes.	\$5,000.00
Web Admin Efficiencies	Website updates to improve administrative efficiencies.	\$5,000.00
<b>2018 Estimated Non-geographic-based Data Management and Support Costs</b>		<b>\$60,200.00</b>

**Total Estimated 2018 Infrastructure Cost:** \$121,388.00 - \$129,988.00

#### **4.4) Technology Milestone Recommendations per Year and Estimated Cost – 2019**

##### Geographic-based Data Management and Support - 2019

<b>Item</b>	<b>Description</b>	<b>Est. Cost</b>
Annual Esri Desktop licensing	This is an annual license fee paid directly to Esri.	\$2,200.00
Annual license fee for AGO licenses	This is an annual license fee paid directly to Esri, assuming the same number of users as 2018. This includes 12 AGO <i>Contributor</i> licenses (3 already included with desktop licenses) at \$47/month (\$6,768.00/year) and 15 AGO <i>Viewer</i> licenses at \$9/month (1,620.00/year).	\$8,388.00
Amazon Web Server Hosting	paying monthly (approx. \$650/month)	\$7,800.00/year (Assuming the monthly payment plan)

Complete Development on Planning and Capital Projects Application(s)	GIS Vendor will collaborate with MCWD to continue configuring either Esri AGO apps or developing a custom application surrounding the Planning and Capital Project's needs. The specific approach will be based on information gathering and planning sessions.	\$20,000.00
Misc. GIS Support and Vendor Collaboration (annual)	Includes ad hoc map creation, data management, data creation, troubleshooting, and training. Includes ad hoc trouble-shooting and support (outside of standard project scopes) for MCWD data integration among SQL, Amazon, AGO, WISKI and Laserfiche. Cost is for vendor support. May also include collaboration and planning projects and database updates with MCWD staff. Cost is for vendor support. If these hours are not needed, MCWD would not be invoiced.	\$8,000.00
<b>2019 Estimated Geographic-based Data Management and Support Costs</b>		<b>\$46,388.00</b>

Non-geographic-based Data Management and Support - 2019

Item	Description	Est. Cost
Update Website Content	Review and update the content and pages on the MCWD website.	MCWD Labor
Database Review and Updates for 2020	MCWD Labor for planning, coordination and updates to the database(s) in relation to 2019 work and planning for 2020 work. Vendor fees in support of MCWD efforts are accounted for as separate line items.	MCWD Labor
Misc. Laserfiche Support and Vendor Collaboration (annual)	Includes ad-hoc maintenance, troubleshooting, project collaboration, training and support outside of standard project scopes.	\$8,000.00
Misc. Website Support and Vendor Collaboration (annual)	Includes ad-hoc maintenance, troubleshooting, project collaboration, training and support outside of standard project scopes.	\$5,000.00
Develop New Mobile-compatible Website	Coordinate with website development vendor to develop a new website that is also mobile compatible.	\$55,000.00
<b>2019 Estimated Non-geographic-based Data Management and Support Costs</b>		<b>\$68,000.00</b>

**Total Estimated 2019 Infrastructure Cost: \$114,388.00**



#### 4.5) Technology Milestone Recommendations per Year and Estimated Cost – 2020

##### Geographic-based Data Management and Support - 2020

Item	Description	Est. Cost
Annual Esri Desktop licensing	This is an annual license fee paid directly to Esri.	\$2,200.00
Annual license fee for AGO licenses	This is an annual license fee paid directly to Esri, assuming the same number of users as 2018. This includes 12 AGO <i>Contributor</i> licenses (3 already included with desktop licenses) at \$47/month (\$6,768.00/year) and 15 AGO <i>Viewer</i> licenses at \$9/month (1,620.00/year).	\$8,388.00
Amazon Web Server Hosting	paying monthly (approx. \$650/month)	\$7,800.00/year (Assuming the monthly payment plan)
Development on 2020 Projects and Application(s)	GIS Vendor will collaborate with MCWD to continue configuring either Esri AGO apps or developing a custom application aligning with MCWD needs and priorities. The specific approach will be based on information gathering and planning sessions.	\$16,000.00 - \$32,000.00
Misc. GIS Support and Vendor Collaboration (annual)	Includes ad hoc map creation, data management, data creation, troubleshooting, and training. Includes ad hoc trouble-shooting and support (outside of standard project scopes) for MCWD data integration among SQL, Amazon, AGO, WISKI and Laserfiche. Cost is for vendor support. May also include collaboration and planning projects and database updates with MCWD staff. Cost is for vendor support. If these hours are not needed, MCWD would not be invoiced.	\$8,000.00
<b>2020 Estimated Geographic-based Data Management and Support Costs</b>		<b>\$42,388.00 - \$58,388.00</b>

##### Non-geographic-based Data Management and Support - 2020

Item	Description	Est. Cost
WISKI Web Module	Updates to the WISKI Web module for water quality data management	\$30,000.00

SQL Database Hardware Upgrade	If needed, purchase a new SQL server and/or upgrade the existing SQL database.	\$15,000.00
Misc. Laserfiche Support and Vendor Collaboration (annual)	Includes ad-hoc maintenance, troubleshooting, project collaboration, training and support outside of standard project scopes.	\$8,000.00
Laserfiche Annual Licensing	This is an annual license fee for Laserfiche tools.	\$6,875.00
Misc. Website Support and Vendor Collaboration (annual)	Includes ad-hoc maintenance, troubleshooting, project collaboration, training and support outside of standard project scopes.	\$5,000.00
<b>2020 Estimated Non-geographic-based Data Management and Support Costs</b>		<b>\$64,875.00</b>

**Total Estimated 2020 Infrastructure Cost:** \$107,263.00 - \$123,263.00

**5.5) Project-based Estimates**

This section describes project estimates based on current understanding for each year. To better visualize this information, please refer to the MCWD IT Strategic Planning Roadmap that is attached (Appendix E). It should be noted that the Roadmap highlights both project-specific activities and costs (vertical, color-coded columns within a given year) as well as notes the overall estimated budget, spanning the entire year. Although some activities may occur within the timeframe of a given project (vertical columns), or may overlap a project, if they are not directly related to the project scope itself, the cost will not be noted in the project-specific budget.

**5.5.1) Project 1 - 2018: Permitting and Inspection Process, Including ArcGIS Online Configuration**

Project Scope:

- Update Esri Desktop licensing: \$9,000
- Purchase additional AGO licenses: \$8,388.00
- Upgrade desktop ArcMap: \$1,000.00
- Customize ArcGIS Online (AGO): \$11,000.00
- GIS Database review and updates for Permitting: \$3,500.00
- Laserfiche Database review and updates for Permitting: \$3,500.00
- Configure Permit Inspection Collector App: \$4,000.00
- Laserfiche Forms License: \$8,000.
- Set up permit application web forms: \$22,200
- Website Updates and Coordination (Fjorge): \$5,000.00

**Total Estimated Project Cost: \$75,588.00**

#### **5.5.2) Project 2 - 2018: Laserfiche Web Portal and Website Efficiencies**

Project Scope:

- Laserfiche Public Web Portal Setup: \$15,000.00
- Web Admin Efficiencies: \$5,000.00
- Update Website Content: MCWD Labor

**Total Estimated Project Cost: \$20,000.00**

#### **5.5.3) Project 3 - 2019: Planning and Capital Projects**

Project Scope:

- Planning and Capital Projects GIS Application Development: \$32,000.00
- GIS Vendor Collaboration for Planning and Capital Projects: \$4,000.00

**Total Estimated Project Cost: \$36,000.00**

#### **5.5.4) Project 4 - 2019: Updated MCWD Website**

Project Scope:

- Development for updated, mobile-responsive website: \$55,000.00

**Total Estimated Project Cost: \$55,000.00**

#### **5.5.5) Project 5 - 2020: SQL Database Upgrade and WISKI Web Module Integration**

- New SQL Database and/or Upgrade: \$15,000.00
- WISKI Web Module Integration (Kisters): \$30,000.00

**Total Estimated Project Cost: \$45,000.00**

## **MCWD IT History: 2009 – 2017**

1. Operations Assessment (September 2007 - December 2007)
2. Process and Workflow Assessment (March 2008–June 2008)
3. Technology Managed Service Provider (MSP) Initiative (initiated in August 2008, completed March 2009)
4. Sharepoint - Board Packet / Document Management Pilot (October 2009 – November 2009)
5. MCWD Website Rewrite (initiated in January 2010, completed October 2011)
6. Records Retention / Document Management Initiative (initiated March 2011, Laserfiche purchased June 2013)
7. Mobility and Paperless meetings (iPads, Board Managers - Summer 2012)
8. Interactive Maps (Spring 2013)
9. New MCWD Offices and Facility Move – July 2013
10. Permitting Database
11. Data Management – Restrict access to Desktop/Laptop C: drives
12. Create videotape capacity, workflow and library/storage (You tube)
13. Electronic Payment Capability – Jan 2015
14. MSP RFQ – Spring 2015
15. Server Installation (Virtual) – March 2015
16. MDM-Application Tool – June 2015
17. Web Project-Update External Interactive Map winter of 2015
18. Revel Digital Signage Platform - 2015
19. Data Reduction Project, P and S Drive 2015 - ongoing?
20. WISKI Water Quality Database - 2016
21. Disaster Recovery/intrusion detection Protocol 2016
22. Initiated a network tiered backup for District Data, internal and cloud 2016-2017

**MINNEHAHA CREEK WATERSHED DISTRICT  
2018 RECOMMENDED WORK PLAN**

**PREPARED BY:** David Mandt

**DATE:** August 16, 2017

<b><u>Program</u></b>	Information Technology (1003)
<b><u>Summary</u></b>	<p>The Information Technology (IT) program’s primary objective is to provide a baseline of program support to meet the strategic direction of the District.</p> <p>To provide program support, the IT program strives to:</p> <ul style="list-style-type: none"> <li>• Provide a reliable network environment which includes equipment, software and license to allow staff to focus on their work</li> <li>• Provide accessibility to information</li> <li>• Provide Security to District’s Data</li> </ul>
<b><u>Location</u></b>	District-wide
<b><u>Description</u></b>	<p><b>Background:</b></p> <p>The strategic direction of the MCWD, as adopted by the Board of Managers on February 9, 2017, is to accomplish the District’s mission to collaborate with public and private partners to protect and improve land and water for current and future generations by prioritizing the following activities:</p> <ol style="list-style-type: none"> <li>1. Develop high impact capital projects integrated with non-water initiatives through multi-jurisdictional partnerships.</li> <li>2. Change the land-use and water policy environment to increase early, value-added partnership with private development, public infrastructure, and public policy/planning.</li> </ol> <p>The strategic direction further indicates that all other MCWD programs will be developed in support of these priorities. The Information Technology program operates primarily in a supporting role, to be used by all staff, the Board of Managers and the public.</p> <p>The Information Technology program designated to support the goals of the organization has four main activities:</p> <ol style="list-style-type: none"> <li>1) Contracted Services;</li> <li>2) IT Equipment;</li> <li>3) Staff Training; and</li> <li>4) Strategic IT Plan.</li> </ol> <p><b>Contracted Services (\$31,500)</b></p> <p>The Information Technology Fund for 2018 proposes funding levels needed to assist with existing office functions, pay for consultants assisting the District with technology, as well as improve established programs.</p>

➤ Building Audio Video Equipment

The District has a professional service contract with I Space to perform planned maintenance and repairs for the board room, the IT room and all building audio visual equipment.

➤ Laserfiche

The District has a professional service contract with OPG3 to assist with the upkeep and maintenance of the District Document Management System as well as to provide training for staff.

➤ Website Support

The District has a professional service contract to host and support the District website, as well as provide staff training.

➤ Geographic Information System (GIS) Hosting

The District has a professional service contract with Amazon to host GIS data for the Interactive Map as well as web oriented GIS Data on their cloud.

➤ Managed Service Provider

The Managed Service provider's is a general fund contract that is approved every two years by the Board of Managers within the scope of services process. The IT budget allows for the District to contract for additional services as needed.

**IT Equipment (\$38,500)**

➤ Hardware and Software Replacement

The District has developed replacement schedules for hardware, software, audio video equipment and the server environment. Staff has also initiated a monthly tracking report related to the age and performance of equipment and software, which is used to coordinate the items to be purchased per the various replacement schedules. Current policy defines the replacement schedule for a computer at four years, but replacements are not purchased if the technology is still performing at an acceptable standard.

➤ Software Annual Support and Licenses

These funds are designated to cover the annual license fee for three applications: Laserfiche Document Management System, the WISKI Data Management System, and the Online GIS licenses.

**Training (\$6,700)**

➤ Staff Training

The District provides funds for staff to attend training for technology related to District wide operational needs such as Laserfiche, GIS and website work.

## **Strategic IT Plan (\$100,000)**

In the fall of 2016, staff developed an internal team to develop a strategic IT plan to define District wide technology initiatives and create a comprehensive understanding of the individual projects, the prioritization of deliverables and total costs associated with IT Improvements over the next five years.

Although the comprehensive Strategic Plan is still in the development stage; the District staff team has identified central themes and core elements of the plan. We have begun the prioritization effort and is in the scoping process to determine the deliverables including the timeline and total project costs.

### **Essential Themes of the Plan**

- All data sets and applications should be accessible by a central location.
- The scopes for the individual projects should ensure that all datasets and applications should be designed to work with each other, ensuring fluidity between departments.

### **Core Elements (in no particular order)**

- User Interface/Dashboard

Currently the District technology applications do not have a single access point; they have to be installed on each machine or accessed individually to be used. An existing gap is a user interface which would provide one location to access the Organization database, WISKI, Laserfiche and the interactive map.

#### Organizational Database

The District currently has two databases, one used primarily for Permitting and one for Research and Monitoring. The organization database needs include Capital Projects, Planning, Operations and Maintenance and Grants. The database currently used for Permitting is connected to Laserfiche for document storage, is connected to the GIS Interactive Map with all data being geospatial and is capable of being expanded to accommodate new modules for Capital Projects, Operations and Maintenance, and Grants.

- GIS

The District has two GIS capabilities, the ability to work with GIS internally as well as through the interactive map on the Amazon cloud. The District currently consults for much of its GIS work, and does not have a uniform storage structure. The needs identified include internal staffing, connectivity to additional datasets, and access and storage plans.

- Website

The District Website was constructed in 2009. The organizational needs identified include the need to update the content on the site, to explore options to make the upkeep of the site more responsive and to identify additions or structural changes that are necessary. The site will be analyzed to verify that it can connect to all of the district applications and tools.

➤ Laserfiche

The District Document Management System is a tool that is currently used as the document library for storage per the Record Retention Schedule. This tool creates efficiencies for day to day work routines by digitizing documents, which allows for multiple people to access the document at the same time, easing the search for documents, eliminating lost paperwork and the need to store excess boxes. Existing capabilities include quick search features, connectivity to databases, ease of scanning and identification of metadata. The need highlighted for Laserfiche is the addition of an annual license that would allow data within the Laserfiche system to be viewed by the public via the website.

**Project Discovery and Formation Process**

Definition of staff's needs is ongoing and it is anticipated to be completed early September for the Database and late September for the Website. The consultants have impressed on staff that in application development it is critical that the needs are documented to a common understanding on what will be developed. Staff is working to take the desired database attributes collected over the past few years and consolidate it into a common format to be provided to the consultants in early September.

**Project Scoping and Prioritization phase**

The next phase of the plan is for the database and website consultants to incorporate the data received from the district and compile a comprehensive project scope, incorporating timeline for the deliverables, quotes for each element and ensure integration with other technology. It is anticipated that the District will have a draft scoped for both projects in late September or early October.

Once received, staff can incorporate the database and web scopes of services with the other core elements of the plan to implement the project prioritization phase. Staff anticipates using an approach to rank strategic benefit with other factors such as efficiencies gained, organizational impact/usage, costs, and timeline of delivery.

**Draft Presentation**

Following prioritization of the plan elements, a draft of the Strategic IT Plan will be presented to the Board of Managers for their review, either in late October or early November. The presentation will encompass all of the elements of a plan prioritized by organizational benefit, cost and provide an overview of how the elements will work together to provide access and efficiencies. Staff is anticipating that the full 5 year plan will exceed the \$100,000 being recommended for 2018, but will present the full plan to allow for an understating of the total impact as well as the order in which items will be constructed over the length of the plan. Each year staff will present the elements of the upcoming years as part of the IT workplan along with a recommendation if existing fund balance or tax levy should be the funding source. Additionally, when an item is ready for implementation, staff will create an Request for Board Action and present the item to the Board for review and approval.



	<p><b>2018 Budget Summary:</b></p> <table border="1"> <thead> <tr> <th>Activity/Expense</th> <th>Budget</th> </tr> </thead> <tbody> <tr> <td>Contracted Services</td> <td>\$31,500</td> </tr> <tr> <td>IT Equipment</td> <td>\$38,500</td> </tr> <tr> <td>Staff Training</td> <td>\$6,700</td> </tr> <tr> <td>Strategic IT Plan</td> <td>\$100,000</td> </tr> <tr> <td style="text-align: right;"><b>Total</b></td> <td><b>\$176,700</b></td> </tr> </tbody> </table>		Activity/Expense	Budget	Contracted Services	\$31,500	IT Equipment	\$38,500	Staff Training	\$6,700	Strategic IT Plan	\$100,000	<b>Total</b>	<b>\$176,700</b>
Activity/Expense	Budget													
Contracted Services	\$31,500													
IT Equipment	\$38,500													
Staff Training	\$6,700													
Strategic IT Plan	\$100,000													
<b>Total</b>	<b>\$176,700</b>													
<b><u>Goals/Outcomes</u></b>	The Information Technology work program strives to maintain the existing District technology environment while improving efficiencies through a programmatic approach. The desired outcomes are stability, security and accessibility.													
<b><u>Schedule</u></b>	On-going													

### Budget/Levy History

Year	Budget	Tax Revenue	Grants & Other Rev.	Expenditures	Transfer in/out	Carryover	Assigned Funds
2016	\$ 101,063	\$101,063	\$0	\$(51,276)	\$0	\$5,698	\$154,627
2017	\$101,063	\$95,365	\$0	\$(101,063)	\$0	\$0	\$0
2018	\$176,700	\$76,700	\$0	\$176,700	\$0	\$100,000	\$0

\*\*\* During the 2016 IT workplan presentation, staff highlighted that the 2015 audit balance in the IT fund had a balance of \$106,325 from previous years and recommended that the balance remain in the IT Fund. The 2016 audit balance for the IT Fund is \$160,325. Staff is recommending, that \$100,000 remain in the IT Fund designated specifically for the Strategic IT Plan and the remaining amount should be transferred for levy reduction or usage elsewhere. This would allow the Board of Managers the flexibility to use existing funds that were designated for IT for a one-time project(s) prioritized in the plan.

### Recommended 2018 Budget and Levy

Budget: \$176,700

Levy: \$76,700

**Detailed Budget:**

<b>Activity Code</b>	<b>Activity Name</b>	<b>Amount</b>
4010	Wages	
4011	Wages-Overtime	
4018	Salary – Insurance Reimbursement	
4020	Payroll Tax Expense	
4035	Unemployment Reimbursement	
4040	PERA Expense	
4050	Benefits	
4060	Staff Mileage/Expenses	
4065	Staff Training-Laserfiche, web and GIS	\$6,700
4066	Staff Tuition Benefit	
4110	Manager Per Diems	
4120	Manager Expenses	
4125	Manager Computer/Software	
4130	Manager Dues/Subscriptions/Internet	
4210	Office Supplies	
4215	Meeting Expense	
4220	Furniture & Fixtures	
4222	Vehicle Expense	
4230	Printing/Publishing/Postage	
4240	Telecommunications -Cell/internet	
4245	Special Events	
4247	High Water Restoration	
4248	FEMA Expense	
4250	Dues & Subscriptions	
4265	Rentals-Building & Equipment	
4280	Insurance	
4292	Bank/Agency Fees	
4295	Other/Miscellaneous—IT Strategic Plan	\$100,000
4320	Contract Services	\$29,000
4330	Accounting & Auditing	
4340	Engineering/Consulting	
4350	Legal Expense	\$2,500
4390	CAC Expense	
4520	Monitoring/Lab Analysis/Inventories	
4530	Permit Acquisition	
4540	Property/Easement Acquisition	
4550	Construction	
4565	Property Management – CBRE	
4566	Tenant Relocation – CBRE	
4570	Equipment/Supplies	\$38,500
4575	Repairs/Maintenance	
4594	Debt Service-Principal	
4595	Debt Service-Interest	
4600	Grants/Awards/Loans - Given by MCWD	
4651	Issuance Cost	
4962	Office Bldg. Maintenance	
4963	Office Building Utilities	
	<b>TOTAL</b>	<b>\$ 176,700</b>

## Appendix D

### A Sample Study of How Laserfiche can be used to Automate Permitting:



*Laserfiche Solution Contributed By: Michael Read, Deputy MIS Director, Brunswick County, NC* Located between historic Wilmington, NC, and lively Myrtle Beach, SC, Brunswick County, NC is the fastest growing county in North Carolina and sixth-largest by total area. During the past 10 years, growth in Brunswick County has outpaced the state and nation by a large margin. Brunswick County experienced a growth rate of 29% since 2006, and is currently the 30<sup>th</sup> fastest growing county in the nation. "We've been on this trend for a while," says Brunswick County Manager Ann Hardy in an article published on [StarNews Online](#). "We've got a lot of

retirees coming to take advantage of the many leisure pastimes we offer as well as the great weather." To keep pace with population growth, the county's building department performs 3,000 building inspections and reviews 100 to 150 applications for new residential or commercial building projects each month. The many inspections and applications generated a lot of paper that had to be transferred between different individuals and departments. Additionally, the county's 846 square mile land area, much of which is rural or coast wetlands, presented a unique service delivery challenge. Here is how Laserfiche helps the county building department keep pace with growth.

### Applying for a Building Permit

Depending on building permit type, a customer or contractor fills out one of two different forms.

- **A change out/trade form** is used for small projects, like replacing an air conditioning unit.
- **A second form is used for larger commercial/residential projects**, such as building a new house.

The customer or contractor fills out the application in Laserfiche Forms. Different fields appear as the applicant fills out the form, so he only needs to provide the information that is relevant to the project at hand. The ability to hide sections of a form that do not apply to the submitter makes for a cleaner and easier to understand application.

# Project Application

**Project Number** 404997

## Applicant

**You are or will be:**  Property Owner  
 Building Owner  
 Primary Contact

**First Name \***   
Please fill out this field.

**Last Name**

**Address**

Street Address

Address Line 2

City  State

Postal / Zip Code

**Phone \***   
(xxx) xxx-xxxx

**Alt Phone**   
(xxx) xxx-xxxx

Customers and contractors fill out a Laserfiche form when they want to apply for a permit.

Eighty percent of the forms are filled out by large contractors who apply for permits often and know the process well. The remaining twenty percent – smaller contractors or homeowners performing their own work – often need help with the application, so the form allows them to submit it with some fields left blank. Once the form is submitted, it is sent to the Intake group where it is reviewed by a representative. If something is missing or incorrect, the representative calls the contractor in order to complete the form or obtain the correct information. Once the application is complete, the Intake representative submits it. This action transfers the data to Brunswick County's custom permitting system. The permitting system generates the permit and invoice, and saves both in Laserfiche. An automatic email is sent to the applicant with a link to the invoice and permit in Laserfiche WebLink. The applicant can then download the documents from the portal themselves. They have three days to pay the invoice. This is where the process for the change

out/trade permit ends. Commercial/residential permits continue on.

## Approving Commercial/Residential Permits

Before the permits for new commercial/residential buildings can be generated, they must be approved by the appropriate departments which can include one or more of the following:

- Planning
- Permitting
- Fire
- Environmental Health
- Storm Water
- Engineering
- Utilities
- Plan Review

Brunswick County developed a custom in-house dashboard where the departments can view the status of all permits awaiting their review, and the appropriate employee can perform the approval or rejection. The dashboard is color-coded to help the departments view what permits need their attention. Permit applications and supporting documents can be viewed directly from the portal from an embedded Web Access view. The departments can select their decision from a dropdown field.

The screenshot displays a web application interface for permit management. At the top, there are search and filter fields for 'Project' (2015004246) and 'Title' (0008005). Below these are fields for 'Legacy Description' and '3610 RIVERGATE WAY NE 29451'. A navigation bar includes tabs for 'Approvals', 'Check List', 'Permits', 'Zoning/Certification', 'FIR', 'Signatures', 'Documents', 'Payments', and 'Final Signoff'. The main content area is titled 'Final Signoff' and contains a table with the following data:

Department	Final Approval	Approved Date	Approved By
Engineering	Not Required		
Storm Water	Not Required		
Fire	Not Required		
Env Health	Not Required		
Utilities	Not Required		
Planning	Not Required		
Permitting	Not Required		
Plan Review	Not Required		

Departments can select their decisions from a dropdown field in the custom portal

Once everyone has either approved or noted that their approval is not necessary, the information is pushed into the permitting system where individual permits are generated.

## Building Inspections

When a contractor is ready for the building department to inspect the item covered by the permit, he fills out another Laserfiche form online to schedule an inspection. The contractor simply fills in the project number, and the form displays a list of scheduled inspections that are still pending. This prevents a contractor from scheduling duplicate inspections.

The screenshot shows a web application interface for scheduling inspections. On the left is a vertical sidebar with a dark blue background and white text, listing various navigation options: 'Online Applications', 'Permit Search', 'Permit Search', 'Health Permit Search', 'Print Permit Copy', 'Schedule an Inspection', 'Current Workday Inspection', 'Next Workday Inspection', 'Final Inspection CO Report', 'Inspection Reports', 'Municipalities', 'FAQ', and 'Permit Data Download'. The main content area is titled 'Schedule Inspection' and features several input fields and informational boxes. The 'Project' field contains '400031'. The 'Permits' dropdown menu is set to 'HC Permit\_1004'. A yellow warning box below the permits field contains the text: 'If you wish to Schedule All Permits or All Inspections, please select All Permits or All Inspections to ensure All trades get scheduled.' The 'Inspection Type' dropdown menu is set to 'Final'. Below this, another yellow box contains the text: 'A final inspection is the last inspection needed for a certificate of occupancy or completion. Please do not select this option if work will continue after the inspection.' There is an empty text area for 'Notes'. Below the notes area, a dark blue header separates the form from a section of pre-populated data: 'Permit Type' (HC Permit), 'Parcel ID' (00000011), 'Applicant' (Troy Oliver), 'Address' (1000 RIVERGATE WAY NE 28401), and 'Contractor' (MILAM JASON WILLIAM DBA MILAM P.L.B. INC.). At the bottom of the form, it reads 'Brunswick County Code Administration' and 'PG 855 208'.

Information on the form for scheduling inspections is automatically populated based on project and permit numbers.

The rest of the form is automatically populated with data from the permitting system. Data is also pushed to the ESRI Collector for ArcGIS geographic information system (GIS). Inspectors go into the field with an iPad, which they can use to view a map of all the houses that they need to inspect that day. When they click on a house, all the details from the relevant forms appear. Inspectors also have access to Laserfiche Mobile so they can view any documents associated with project. The Collector for ArcGIS data entry form has a hyperlink to open Laserfiche Mobile to the project folder. They can approve or deny the inspection via the map and that information is pushed back into the permitting system.



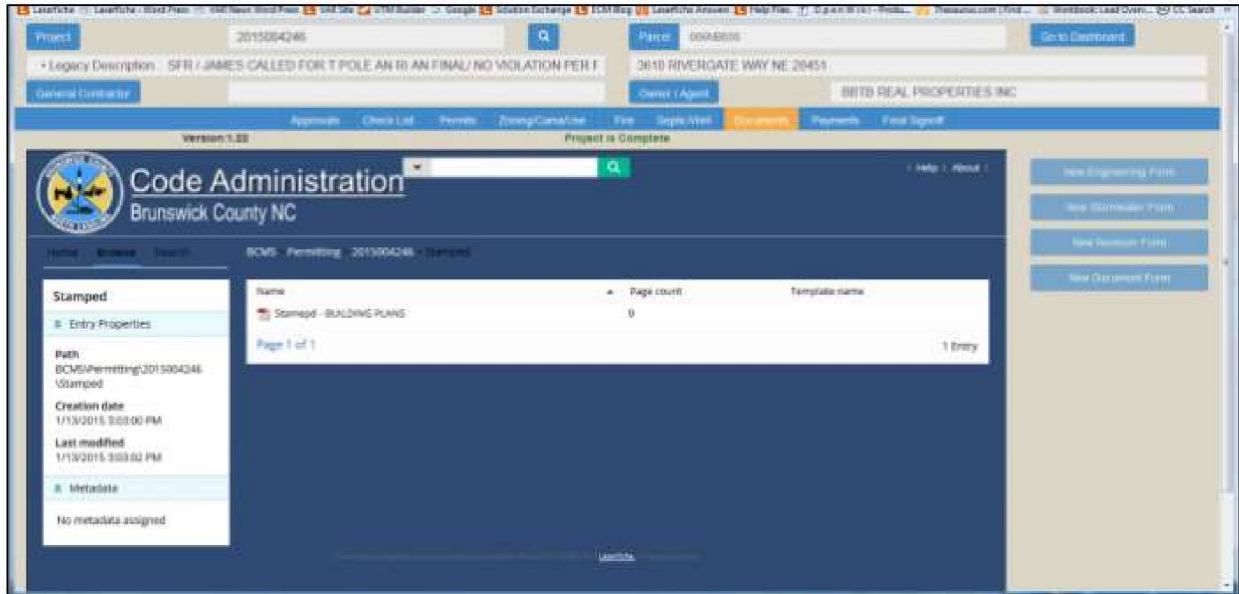
An integration with the GIS system allows an inspector to view all inspections that need to be performed on a map while he is in the field.

The image shows the 'Brunswick County Management System' dashboard with a table of inspection information. The table has columns for Project, Project Type, Address, Planning, Permitting, Fire, Health, Storm Water, Engineering, Utilities, Plan Review, and Days. The data is as follows:

Project	Project Type	Address	Planning	Permitting	Fire	Health	Storm Water	Engineering	Utilities	Plan Review	Days
400031	Permitting	3006 RIVERGATE WAY NE	Approved	Approved	Not Required	Not Required	Not Required	Not Required	Approved	Approved	116
400031	Final	3006 RIVERGATE WAY NE	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	116
2015004009	Permitting	3000 RIVERGATE WAY NE	Approved	Approved	Not Required	Not Required	Not Required	Not Required	Approved	Approved	130
2015004009	Final	3000 RIVERGATE WAY NE	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	130
2015004032	Permitting	3754 LITTLE BERRY PL NE	Approved	Approved	Not Required	Not Required	Not Required	Not Required	Approved	Approved	130
2015004032	Final	3754 LITTLE BERRY PL NE	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	130
2015004046	Permitting	3610 RIVERGATE WAY NE	Approved	Approved	Not Required	Not Required	Not Required	Not Required	Approved	Approved	130
2015004046	Final	3610 RIVERGATE WAY NE	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	130
2014007004	Permitting	3626 LEMON DROP LN NE	Approved	Approved	Not Required	Not Required	Not Required	Not Required	Approved	Approved	130
2014007004	Final	3626 LEMON DROP LN NE	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	130
2014007136	Permitting	3849 HALLMARK RD NE 38491	Approved	Approved	Not Required	Not Required	Not Required	Not Required	Approved	Approved	130
2014007136	Final	3849 HALLMARK RD NE 38491	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	130

Inspectors can view inspection information in a custom portal on their iPads.

Once all inspections for a new house have been approved, the permitting clerk opens the permitting system and launches a brand new certificate of occupancy form by clicking a button. When the form is submitted, the applicant receives an email with a link to the Laserfiche WebLink portal, where he can download the certificate of occupancy.



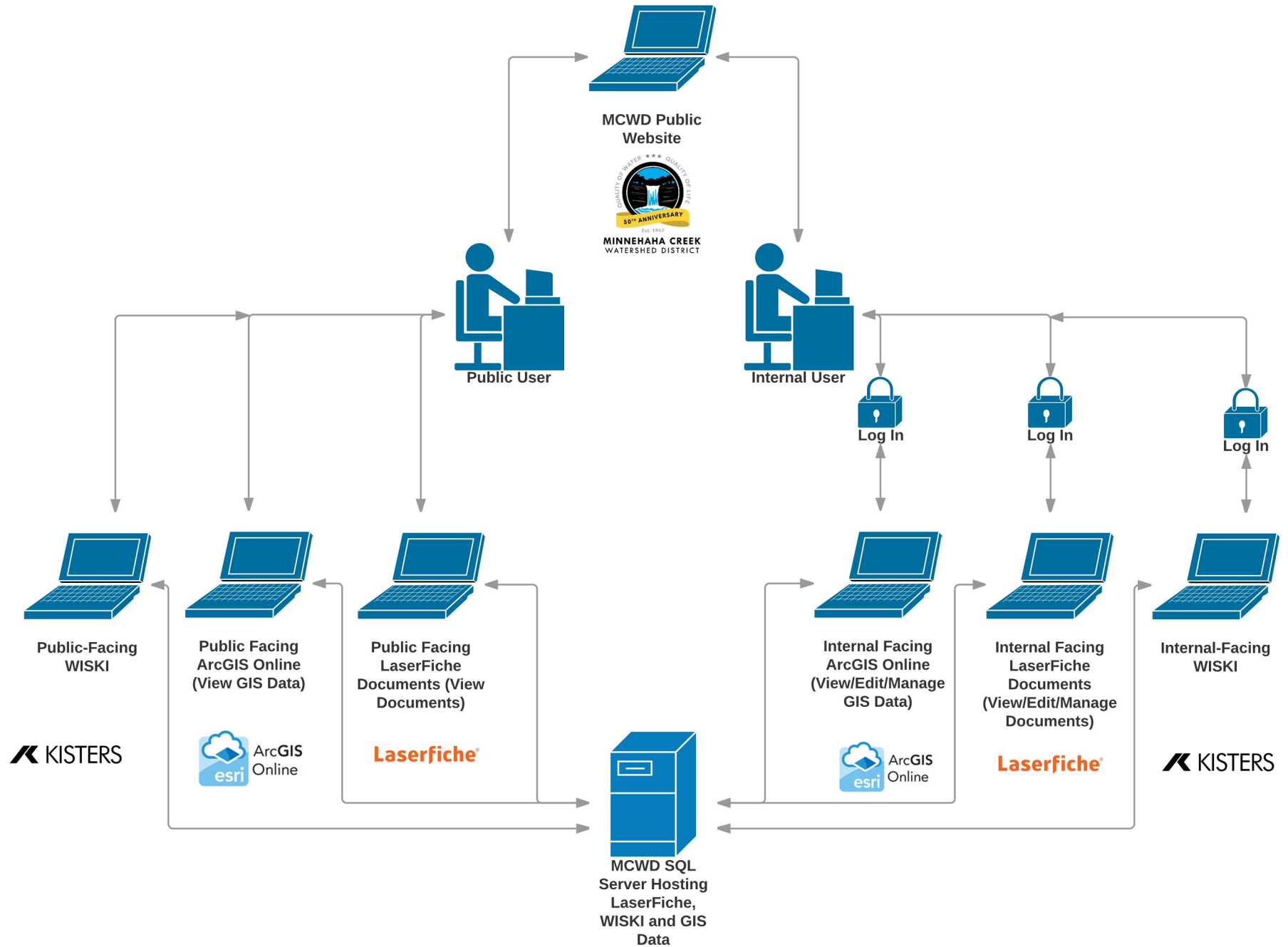
Contractors can download permits and other documents from a Laserfiche WebLink portal.

## Benefits of Laserfiche

Implementing Laserfiche in the Brunswick County building department resulted in the following benefits:

- Contractors have access to all inspection information while in the field via their iPads.
- Contractors no longer have to drive hours to submit permit applications or building documents in the office.
- All departments can perform their permit review at the same time, making permit generation much faster.





		2018 Total Annual Estimated Budget: \$105,000												2019 Total Annual Estimated Budget: \$125,000												2020 Total Annual Estimated Budget: \$45,000?																							
DATE		2018	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	2019	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	2020	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	2021	Jan	Feb	March	April							
DATABASE MGMT/PROJECT PLANNING	Permitting Application & Inspection Process; AGO Configuration: \$53,000	Laserfiche Web Portal and Website Updates and Efficiencies: \$20,000												Planning; Capital Projects: \$32,000												New MCWD Website: \$55,000												WISKI Web Module; SQL Database Upgrade: \$45,000											
	Database Review/Updates for 2018 Projects: Permitting: (MCWD & Vendor Labor)	Database Review/Updates for 2019 Projects: Capital Projects; Operations & Maintenance: (MCWD & Vendor Labor)												Database Review/Updates for 2020 Projects: TBD (MCWD & Vendor Labor)												SQL Database Hardware Upgrade?: \$15,000																							
	Planning for Permitting, Capital Projects and Operations and Maintenance Projects: (MCWD & Vendor Labor)																																																
WEBSITE	Website Vendor Coordination 2018: \$5,000		Website Vendor Coordination 2019: \$5,000												Website Vendor Coordination 2020: \$5,000																																		
	Update Website for Permitting Web Forms Integration: \$4,000	Update Website with AGO Access Link: \$1,000	Web Admin Efficiencies: \$5,000												Develop new Website: \$55,000																																		
GIS	GIS Vendor Coordination and Ad hoc Support 2018: \$8,000		GIS Vendor Coordination and Ad hoc Support 2019: \$8,000												GIS Vendor Coordination and Ad hoc Support 2020: \$8,000																																		
	Update to current ArcMap: \$1000	Customize Esri AGO for MCWD: \$11,000	Users and Roles Mgmt.: \$2,000	Permit Inspection Collector App: \$4,000												Develop Planning & Capital Projects Application(s)?: \$32,000												Develop GIS Projects for 2020 Based on MCWD Priorities and Needs: \$16,000 - \$32,000																					
	Hire a GIS Staff Person?		Upgrade to ArcPro and Training?																																														
LASERFICHE	Laserfiche Vendor Coordination 2018: \$8,000		Laserfiche Vendor Coordination 2019: \$8,000												Laserfiche Vendor Coordination 2020																																		
	Set up Permit Application Web Forms: \$20,000		Laserfiche Web Portal Access: \$15,000																																														
MCWD LABOR & LICENSING	Amazon Web Server Hosting 2018: \$8,000		Amazon Web Server Hosting 2019: \$8,000												Amazon Web Server Hosting 2020																																		
	ESRI Desktop & AGO License Fee - 3 Machines: \$9,000	Purchase Additional AGO Licenses: \$8,388	Update Website Content: (MCWD Labor)	ESRI Desktop & AGO License Fee - 3 Machines: \$2,200	Annual AGO Licenses: \$8,388													ESRI Desktop & AGO License Fee - 3 Machines: \$2,200	Annual AGO Licenses: \$8,388	ESRI Desktop & AGO License Fee - 3 Machines: \$3,000																													
	Digitize MCWD Paper Documents; Prep for Capital Projects: (MCWD Labor)		Laserfiche Annual Licenses: \$7,000												Laserfiche Annual Licenses: \$7,000												Laserfiche Annual Licenses: \$7,000																						