MEMORANDUM

To: MCWD Board of Managers

From: MCWD Information Technology Team

Date: August 5, 2019

Re: IT Planning Update and 2020 Budget

Purpose:

This memo is intended to facilitate a discussion at the August 8, 2019 OPC meeting of the Information Technology (IT) planning work to date, and the recommended budget for 2020.

Through this meeting staff would like to ensure the Board; 1) understands and is comfortable with the work completed to date; 2) can ask questions about the IT budget estimate for 2020, 3) discuss the possibility of completing the server replacement in 2019; and 4) can ask questions about the IT update process or findings.

Background:

In 2017 the Minnehaha Creek Watershed District (MCWD or District) adopted a strategic plan, with the purpose of aligning the organization around a vision of a built and natural environments existing in balance to create a triple bottom line of environmental, economic, and social value.

Since then MCWD has been working to eliminate programmatic silos, and to align organizational workflow. Programming and workflow is being refocused to integrate land use and water planning systems, to support the District's strategy of implementing high impact capital improvements and changing policy with its public and private partners.

In order for MCWD to fully deliver on its strategy it must also take steps to align IT systems around its realigned workflow.

To begin the process of aligning technology to support the organization's strategic focus, the District has taken the following steps:

- July 2018: Established an IT team representing all major work areas to develop a course of action to improve the District's workflow, ability to collaborate across departments, and capacity to engage with the public.

- September 13, 2018: An update was provided to the OPC, Managers Shekleton and Olson were appointed as Liaisons for the IT Plan.

- September 2018 – January 2019: The IT team initiated a business analysis process to refine the goals and needs of the organization, which was used to develop the RFP for IT consulting services.

- January 10, 2019: The IT team reviewed the results of the business analysis and discussed the plan for hiring an IT Consultant at the OPC.

- February 28, 2019: The Board approved the release of the RFP for an IT Consultant.

- May 9, 2019: The Board approved the contract with WSB for Phase I of the IT consulting contract, to complete the following work:

IT Update Phase I:

Phase I Scope of Work

The purpose of Phase I of the IT Update was to develop a preliminary roadmap to guide 2020 budgeting and the future implementation of MCWD IT systems. The work generally involved:

1. Analyzing and developing a common understanding of the District's business process or workflow

2. Completing a scan of the marketplace to identify the range of commercial off the shelf (COTS) systems that could support the District's strategy and workflow

3. Using the marketplace scan to inform MCWD's 2020 budget planning, and a potential phased approach to implementing technology solutions

The specific scope of work with WSB included:

- Project initiation and scoping
- Initial system identification
- Refine system requirements
- Risk management workshop
- Developing timeline and initial system phasing recommendations
- Budget estimate

Phase I Process:

Phase I included multiple meetings between the IT Team, MCWD Board Liaison, and WSB to review the findings of the business analysis, the organizational goals and needs, and risk assessment. WSB had additional meetings with focus groups for each of the identified functional needs to refine the functional requirements to compare against potential vendors. Based on these meetings WSB conducted research

identifying potential technology systems and vendors, and assessed the potential for systems to meet MCWD's needs, and cost.

Phase I Findings:

At the highest level the District's strategy relies on layering together land use and water resource information, to reveal insights that MCWD staff and the Board can use to drive capital project planning-implementation and policy development. This requires the alignment and integration of technology systems that facilitate critical components of the organization's workflow.

Through the Phase I analysis the recommendation was developed that MCWD focus on three main system components to bring the updated processing, collaboration and efficiencies sought through the IT update process.

- Geographic Information Systems (GIS): GIS will be the central backbone of the update bringing a unified platform to integrate all District data and provide the ability for staff across the organization to spatially visualize data throughout the district. This capability will enhance performance and integration across all functional areas. GIS will also provide the backdrop for sharing data through the website with the public enhancing communication and increasing transparency and accountability.

- Individual Systems: Program specific systems will be required to meet the unique needs of individual workgroups. These systems will support the acquisition, storage, and processing of workgroup specific information. For example, for Permitting and Research and Monitoring. These individual systems will integrate through a centralized geographic information system (GIS). This will allow the District to visualize and analyze information through a common platform, to support the organization's planning and decision making.

- Enterprise Resource Planning (ERP) System: An ERP is a modular system that incorporates multiple programs into a single unified platform. This type of system is preferred over the implementation of multiple stand-alone systems due to the pre-existing integration of the systems. An ERP can support areas from project management, land/asset management, customer relations and fiscal management. If an ERP system is not identified to fit the needs, individual systems will be researched and integrations established.

Attachment 1 is the Phase I report that reflects WSBs findings and the recommendations from the work conducted in Phase I. The results of Phase I have been used to inform the 2020 IT budget and will inform the work of the IT Team, with the assistance of WSB, as they move into Phase II of the project.

IT Infrastructure Needs**:**

A critical component to the successfully implementation of the District's IT update is the IT infrastructure needed to support the database and software systems identified and selected in Phase II.

One principal piece of MCWD's IT infrastructure that has been evaluated is the District's server. The server houses and runs all of the Districts software and data. The District's current server is a Microsoft 2012 server and was installed in May 2013. The server has had hard drive failures and is starting to show performance issues that are affecting staff performance on a weekly basis. Based on the rate of change within the technology sector, it is recommended best practice to update and replace servers on a cycle of no less than every five years.

In addition to recommended replacement cycles, as initial technology systems were identified through the Phase I process, the hardware requirements were analyzed against our current infrastructure. Staff and WSB's analysis determined that the systems being reviewed will require the District to deploy a server running a Microsoft Sever 2016 or newer platform and will require processing speeds that our current infrastructure cannot provide.

Staff has worked with our managed services provider (MSP) to obtain a recommendation and quote for replacing the existing server. The proposed recommendation was formulated based on existing conditions and informed by future infrastructure needs to support the IT update in coordination with WSB.

The recommendation provides for dual servers each running on a Microsoft Server 2019 platform with storage designed to optimize performance between the individual user and the server. This dual server structure will provide redundancy thereby minimizing staff down time and risk of data loss, and is in line with best practices for IT infrastructure.

The cost for the proposed server replacement is $91,321.44. This includes:

- $53,618.44 in equipment
- $27,703 in licensing fees
- $10,000 in labor to set up and install the server

Staff will be seeking Board authorization to move forward with the purchase of the new server in 2019. This purchase will require authorization to draw from the operational reserves as it is not in the current 2019 budget.

Completing the purchase in 2019 will keep the IT update progressing in accordance with the timeline set out in the Phase I report. If we delay the investment in infrastructure until 2020 all implementations will be delayed until the server is in place and will cause the timelines indicated in the Phase I report to be shifted to accommodate the delay. In addition, staff will continue to deal with the reduced performance and increasing down time of the current server.

Website Redesign:

The website redesign continues to move forward in parallel, as part of the Strategic Communications and Engagement Plan. Vendi Advertising (Vendi) has been involved with audience and analytics assessments and is conducting secondary audience research to help inform the Strategic Communications and Engagement Plan and the website redesign.

This work on the website is being closely coordinated, between WSB and Vendi, with the system requirements being identified as part of the IT planning. This communication will continue as Vendi moves forward with the website design process and as systems are selected for the IT update. Based on current discussions and research, Vendi has provided the District with a budget estimate to build the new website. This estimate will be further refined through 2019 with the website being designed and built in 2020. Based on the current budget estimate, staff has included $100,000 in the 2020 budget for the website redesign.

2019 - 2020 IT Budget:

2019 Budget:

The 2019 budget contained $125,000 intended for the IT update and website work in 2019. The contract with Vendi for website work in 2019 is $25,000 leaving the remaining for the IT update work. The WSB contract for Phase I work is $ 38,904. This will leave $61,096 in the 2019 budget for Phase II work. It is anticipated that these funds will be utilized in 2019, pending advancement of the recommended GIS implementation work in Phase II.

Also, as outlined above, it is recommended that the District advance the purchase and installation of a new server in 2019. This will require Board authorization to expend $91,321.44 from operational reserves in order to complete this work in 2019. Alternatively, this work could be postponed and incorporated into the 2020 IT budget.

2020 Budget:

The total IT budget for 2020 is currently recommended at $494,000. This includes:

- $27,000 for equipment replacement (staff computers and Board iPads)
- $100,000 for current IT contracts (Managed Services Provider, Website hosting)
- $57,000 for licenses (combination of existing and estimated future licensing costs)
- $210,000 for the IT Update (consulting and system purchase and installation)
- $100,000 for new Website design and build

Next Steps:

Following the 2020 budget discussion on August 8, Phase II of the IT planning process can be initiated. Phase II will involve the IT Team working with the IT consultant throughout the remainder of 2019 and into 2020 on finalizing recommendations to the Board for individual system selection and implementation. For the remainder of 2019 it is estimated that consulting services will be $19,500. This amount, along with the estimated expenses for beginning the GIS purchase and implementation in 2019

are within the 2019 IT budget. Pending Board discussion, staff anticipates requesting authorization to enter into a Phase II contract with WSB between August-September.

During this time the website update will continue to progress on a parallel track.

Phase II of the IT update will entail detailed review of systems against District/function requirements. This will include vendor demonstrations and interviews, system selection, implementation, integration, training and process development. The IT Team, working collaboratively with WSB, will assemble focused functional teams and begin the analysis of systems against the refined requirements.

The first step of Phase II will be to build the GIS platform which, as described in the Phase I report, will play a critical and central role in integrating MCWD data and facilitating planning and decision making. As such, implementing the GIS system first will provide the central foundation other systems will need to integrate with.

While the GIS platform is being installed the team will move forward in parallel with additional vendor reviews and recommending selections to the Board of Managers. At this point it is anticipated that the phased implementation will move from GIS to the permitting system, then data collection and analysis, and Enterprise Resource Planning (ERP) system.

This phasing will remain fluid and responsive to organizational needs and additional discovery, as MCWD moves through the process. More information on the phasing and budget for Phase II can be found in the phase I report at attachment 1.

If there are questions in advance of the meeting, please contact: Cathy Reynolds at 952-641-4503.

MINNEHAHA CREEK
WATERSHED DISTRICT

MCWD TECHNOLOGY UPDATE

VENDOR & BUDGET ANALYSIS REPORT

AUGUST 5, 2019

Prepared for:
Minnehaha Creek Watershed District
15320 Minnetonka Blvd
Minnetonka, MN 55345

WSB PROJECT NO. R-014169-000

wsb

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1. Executive Summary

1.1. Project Purpose

In 2017 the Minnehaha Creek Watershed District (MCWD or District) adopted a strategic plan, with the purpose of aligning the organization around a vision of built and natural environments existing in balance to create a triple bottom line of environmental, economic, and social value.

Since then MCWD has been working to eliminate programmatic silos, and to align organizational workflow. Programming and workflow are being refocused to integrate land use and water planning systems, to support the District's strategy of implementing high impact capital improvements and changing policy with its public and private partners.

In order for MCWD to fully deliver on its strategy it must also take steps to align information technology (IT) systems around its realigned workflow.

To begin the process of aligning technology to support the District's strategic focus, the Board of Managers engaged WSB in Phase I of a multi-phase effort to identify, acquire and integrate technology solutions that facilitate the MCWD's new workflow and the future success of the organization.

Phase I of the District's efforts to update its IT, detailed here in this report, focused on:

1. Analyzing, and developing a common understanding of, the District's business process or workflow

2. Completing a scan of the marketplace to identify the range of commercial off the shelf (COTS) systems that could support the District's strategy and workflow

3. Using the marketplace scan to inform MCWD's 2020 budget planning, and a potential phased approach to implementing technology solutions

Phase I work was not intended to select or recommend specific systems, but rather to identify the major system components, the range of possible individual systems, and to inform the 2020 budget planning and the District's next steps in phasing implementation.

1.2. Phase I Process

This project represents Phase I of MCWD's efforts to plan for and implement a comprehensive IT update. WSB's work with the MCWD IT Team and Board Liaison followed the steps outlined below.

WSB studied MCWD's workflow diagrams before meeting with the District's IT Team, comprised of staff representatives from each workgroup, to ensure there was a synchronized understanding of the District's business processes, and expectations regarding Phase I work. WSB then met with individual workgroups to assemble a more granular level understanding of needs.

This information was used to identify functional requirements of potential technology solutions, which then guided WSB's scan of the marketplace for a range of COTS that would meet the individual needs of workgroups. To identify potential risk and failure points for MCWD's technology planning and implementation, WSB facilitated a risk management discussion with the IT Team. All of this information was distilled into a range of potential IT solutions and costs, and options for phased implementation – summarized here in this report.

1.3. Phase I – Key Technology Findings

Existing Systems:

The District currently has a patchwork of technology systems assembled by individual workgroups over time to support historic workflow processes. Presently, systems don't fully support needs of individual workgroups, are heavily siloed, and don't allow information to be easily shared or integrated to support the comprehensive analysis or planning central to the MCWD's approach to its mission. **Figure 1**.

Systems range from aging custom coded databases with limited function (e.g. Permitting), to commercial off the shelf (COTS) systems (e.g. Research and Monitoring's use of WISKI), to the absence of IT systems where workgroups rely on manual processes and disparate data sets managed in excel spreadsheets (e.g. Project Maintenance and Land Management). Moreover, none of the existing systems readily communicate with each other or push information into a centralized geographic information system, or to the District's website.

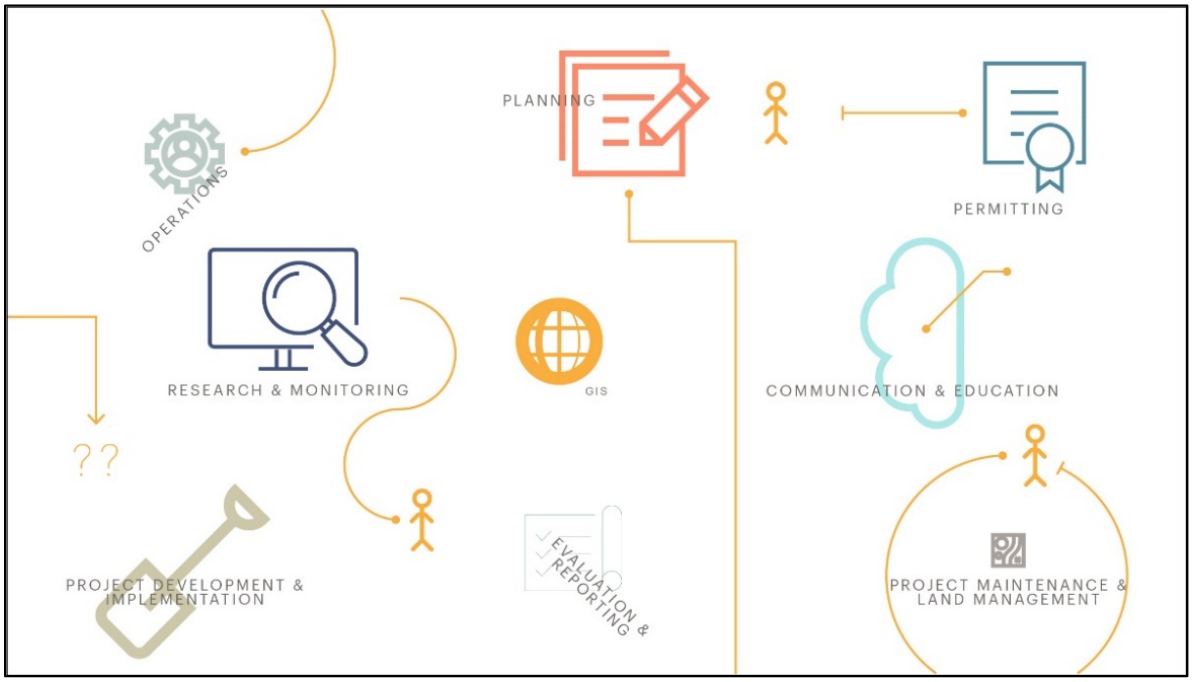


Figure 1: Current State

Overarching Needs:

At the highest level the District's strategy relies on layering together land use and water resource information, to reveal insights that MCWD staff and the Board can use to drive capital project planning-implementation and policy development. This requires the alignment and integration of technology systems that facilitate critical components of the organization's workflow, including:

- The geographic representation and analysis of:
  - Water quality, quantity and ecological information collected by the Research and Monitoring workgroup.
  - Land use information collected internally by the Permitting workgroup.
  - Land use information (infrastructure, open space, area plan, etc.) collected from external public and private partners by the Planning workgroup.
  - Partner/customer information collected by all departments.
- The integration and layering of all available information, for analysis by MCWD to drive policy and projects.
- The ability to pipeline available information and analysis into compelling stories and District communications, with specific linkages to MCWD's website.
- The operational processes required to implement the District's strategy (e.g. project management, asset management, accounting of time and money, etc.).

Together systems that support the District's workflow are envisioned to create:

> ***A centralized technology platform that will directly support the MCWD's realigned workflow, by facilitating the integration of land use, water resource and partnership information to drive capital project and policy development. This will be achieved through the integration of industry standard software and technology that will enhance organizational collaboration, customer service, and decision making – supporting MCWD's brand of focused, high impact, value creating work.***

This vision statement will be used throughout the course of this project to guide stakeholders and provide focus and direction.

Phase I Analysis – Future Systems Components:

In the first phase of this project, the MCWD/WSB team refined the business requirements identified in the strategic planning effort into a set of detailed functional requirements. These functional requirements represent the detailed technical requirements of the inputs and outputs of a software system or its components. Both WSB and MCWD staff have a strong preference to leverage commercial off the shelf (COTS) solutions wherever possible for the following reasons:

- COTS solutions have lower maintenance costs compared to custom software.
- COTS solutions steer organizations towards more streamlined/efficient processes.
- COTS solutions empower staff and reduce reliance on consultants.
- COTS solutions tend to have lower upfront costs.

The identified functional requirements were used to shortlist COTS software vendors based on their ability to meet the MCWD's needs, the software's integration capabilities, and cost. This information will be used in future phases during detailed evaluations and interviews with shortlisted vendors.

Based on the shortlisted vendors, best practices and staff needs, WSB developed an overall timeline and budgets for Phase 2 and future phases. The vision for the future state of technology at MCWD includes leveraging GIS as a centralized platform for data sharing throughout MCWD as shown in **Figure 2**.

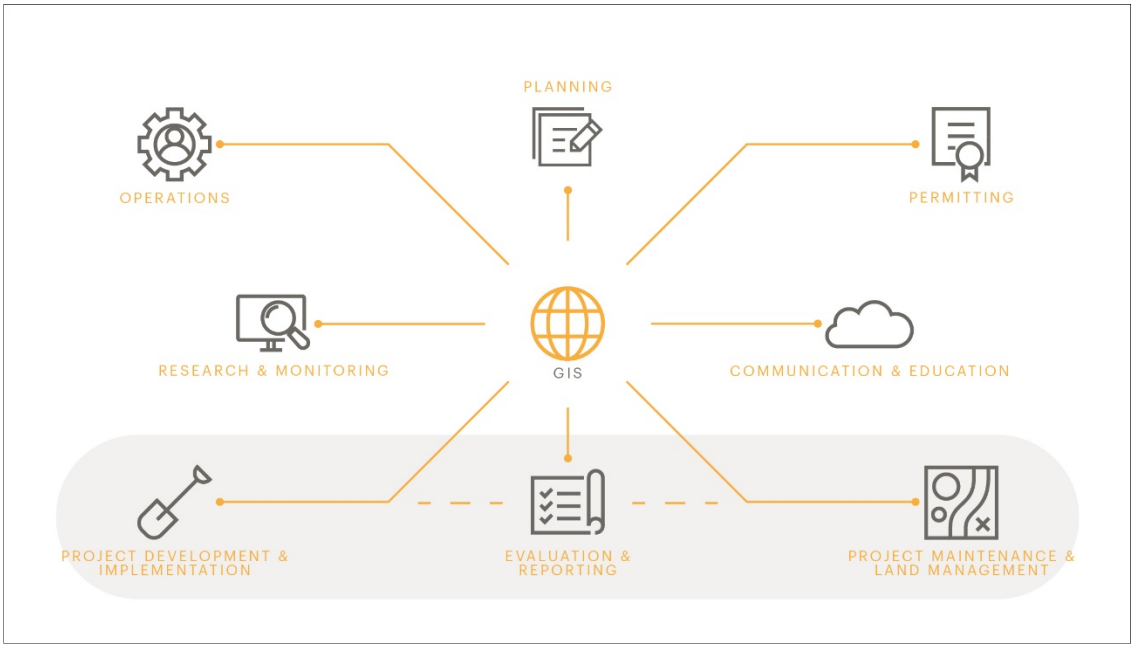


Figure 2: Future State

The principal categories, or components, of systems identified to support MCWD's workflow include:

- Geographic Information Systems
- Workgroup Specific Systems
- Enterprise Resource Planning Systems

Geographic Information Systems:
Essentially all of MCWD's mission related data is tied to a specific geographic location within the watershed. For example, information about a specific permit or a District capital project is associated with an individual property. Water quality data is associated with a specific lake, wetland, or section of stream channel, and all data collected can be compiled to characterize a subwatershed system. Therefore, it makes sense that a Geographic Information System (GIS) will be a central hub that stores and integrates spatial data from these various sources.

GIS will allow the District to layer data sets together to visualize, analyze, and interpret the relationships, patterns, and trends necessary to make project and policy decisions. The District has taken a first step in this direction by establishing a dedicated GIS position.

Enterprise GIS is referenced later in this report. Enterprise GIS is an all-encompassing term that includes the people, processes, and technology used to manage, share, and use spatial data seamlessly throughout an organization.

MCWD's Enterprise GIS will be based on an industry standard Esri ArcGIS Platform, called ArcGIS Enterprise. To avoid confusion, this Plan will clearly state ArcGIS Enterprise whenever referring to software and use Enterprise GIS to refer to the overall Enterprise GIS strategy.

Workgroup Specific Systems:
Individual systems will be required to meet the unique needs of each workgroup. These systems will support the acquisition, storage, and processing of workgroup specific information that cannot be tracked in the ERP. For example, these systems could be used for permitting, water quality, project, partner/customer, or project maintenance.

These individual systems will integrate through a centralized geographic information system (GIS). This will allow the District to visualize and analyze information through a common platform to support the organization's planning and decision making.

Enterprise Resource Planning Systems:
Like every other organization, the District also requires systems to support and integrate the operational processes it manages that underpin its mission.

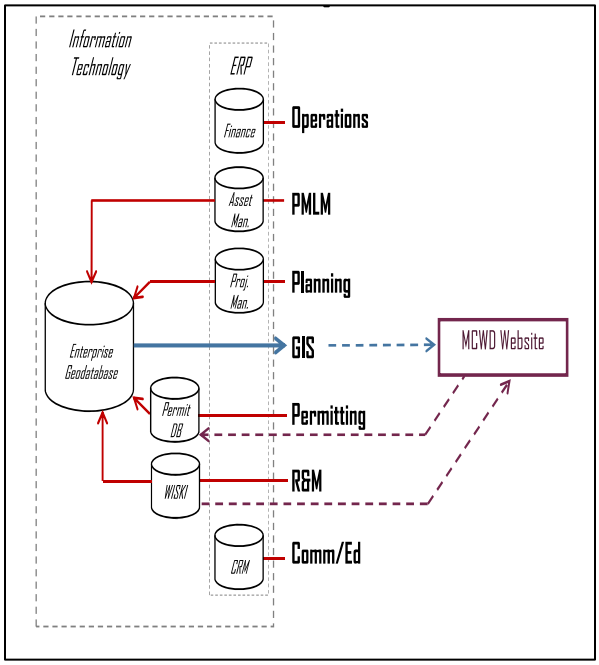
These include things like project management systems that support the collaboration of multi-disciplinary teams working on a common scope, schedule, and budget. It can also include systems to track and maintain the physical assets of MCWD, such as its land, projects, and facility. It includes the allocation and tracking of MCWD's resources, accounting for fiscal resources, and how people's time is allocated and spent. Systems also exist to manage customer relationships, tracking MCWD partners, interactions, and connections.

Enterprise Resource Planning (ERP) platforms are centralized, multifunction software applications designed to streamline processes and information sharing between primary business functions. An ERP platform is designed to replace stand-alone, single-function systems with a single system that increases efficiency and decreases total cost of ownership.

Overlap and integration between a potential ERP and workgroup specific systems will be evaluated in closer detail during Phase II, as MCWD begins making system selections.

Overview:
Below is a more detailed draft concept model for how the various independent systems may integrate through GIS and ERP.

Figure 3: Concept Model



1.4. Phase II Overview

Phase 2: Remainder of 2019

It is WSB's recommendation that MCWD's initial focus its Phase 2 efforts be on the implementation of an enterprise level GIS platform and the review and selection of a permitting vendor and system.

Developing a GIS backbone is a foundational task that will support all future software integrations. Because of the spatial nature of the MCWD work, GIS will also provide a platform for early operational successes and public engagement. The need for GIS improvements and integrations was identified throughout the business analysis and was a common discussion point during the discovery process. It is critical that this step be implemented in the next phase of this project given the organization-wide impact GIS improvements will have. Phase 2 of the project has the following GIS related goals:

- Leverage benefits of Enterprise GIS as soon as possible in 2019
- Update ArcGIS Desktop to support building a centralized GIS database
- Support existing priority operations
  - Implement field-to-office collection workflows
  - Update internal and external GIS web mapping
  - Implement strategic public engagement tools
- Build centralized GIS content management platform
  - Authoritative datasets
  - Third-party datasets (WISKI, existing Permitting database)
- Identify GIS operations and workflows to support other platforms
- Improve integration with other technology solutions in future phases

While the GIS is being implemented, concurrent efforts will be made to conduct in-depth vendor reviews of the commercial-off-the-shelf permitting and water quality solutions identified in this report in preparation for future phases beginning in early-2020. These solutions will both feature GIS integrations that allow users to access permit, and monitoring information through intuitive and easy to use GIS maps.

Phase 2A: Early-2020

Phase 2A will commence with final vendor selection and the implementation of the chosen Permitting solution. The Permitting solution will be a COTS product that integrates with GIS and is flexible enough to adapt to future changes to the MCWD Permitting process.

Phase 2B: Mid-2020

Phase 2B will commence with the finalization of a plan to implement changes to the Water Quality monitoring technology. It is our recommendation that this phase include updating the existing WISKI implementation and processes, tightly integrating WISKI with GIS and the MCWD's new monitoring hardware. GIS tools can be put in place to augment some data collection tasks as needed. This Phase will likely overlap with Phase 2A.

During Phase 2B, we will continue to evaluate and plan the implementation of an Enterprise Resource Planning (ERP) system that streamlines project planning and tracking.

Phases 2C-2D: Late 2020-2022

Phases 2C and 2D will focus on the planning, selection, and implementation of an ERP platform that will center on technologies to improve project management, resource planning, capital asset management, budgeting, and other operational functions. Leveraging a centralized ERP system that integrates with GIS, will reduce the districts reliance on disparate, third-party solutions to support the organizations goals. Phases 2C and 2D will be planned out in more detail throughout 2020.

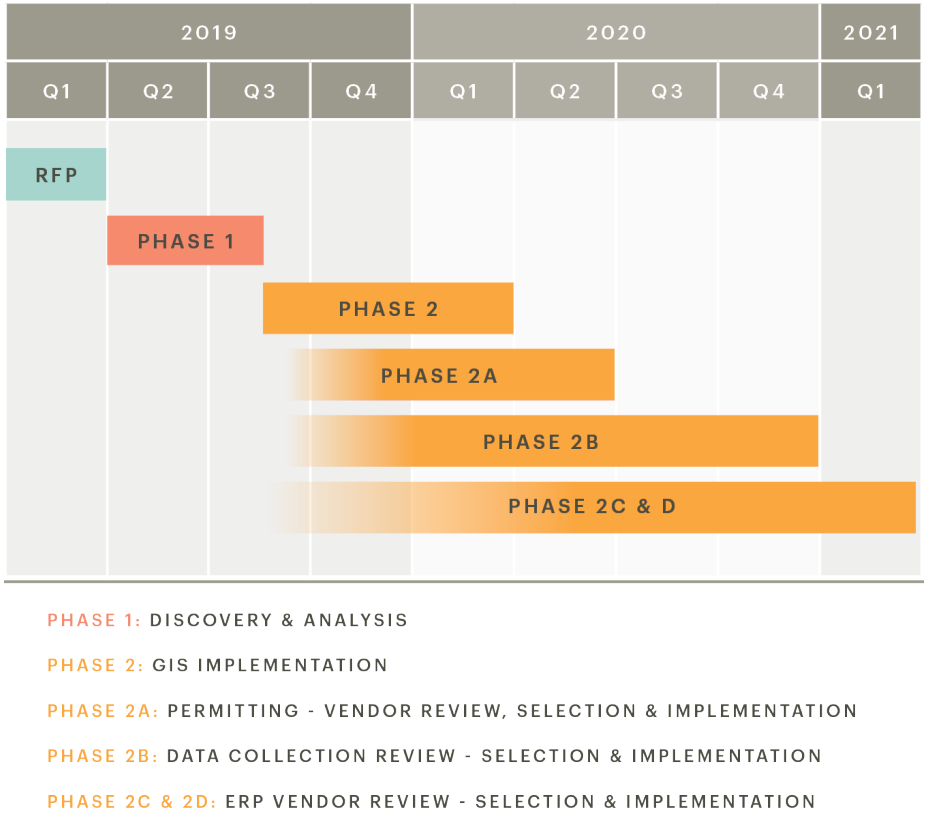


Figure 4: Timeline/Phasing

It is important to plan for flexibility given the breadth of needs identified and staff commitment to existing responsibilities. A complete implementation will take time and will need to be prioritized based on impact and budget. It will also be critical to consider change management throughout the implementation process to ensure staff alignment and to address organizational change fatigue.

The following sections of the report will:

- Summarize the discovery process broken down by functional area
- Identify and discuss potential vendors
- Provide a recommended timeline and phasing
- Provide vendor lists and budget estimates

2. Discovery Summary

This section summarizes the current and future state needs for the various functional areas within MCWD and identifies solutions that may be implemented to achieve organizational and program specific goals. An overwhelming theme throughout MCWD is a need for a comprehensive and well-integrated centralized geospatial database or Geographic Information System (GIS) that will act as the backbone by which all programs interconnect and coordinate efforts to achieve shared outcomes.

2.1. Geographic Information Systems (GIS)

Overview

GIS technologies are currently implemented and utilized by MCWD, but due to staff time constraints and a lack of in-depth GIS expertise, the District has relied on consultants for the development and maintenance of spatial data, databases and advanced spatial analysis. These factors have led to GIS data being saved across multiple file directories, in varying states of completeness, and without documentation. GIS software licenses haven't been updated and have since been retired by the vendor. Current software license levels are not sufficient to modify MCWD's organizational spatial database, which is hosted on a cloud server and delivers data via web to the District's interactive map on the website. MCWD hired a GIS Technician within the past year, in recognition of the need to update and centralize District spatial data and to develop an enterprise geographic information system which is integrated throughout the organization and across all functional areas.

Current State

The District utilizes GIS and GIS data across the organization to support various business needs across groups. The District currently has a full-time GIS Technician whose primary responsibility is to support the data maintenance, mapping, and related GIS needs for the District. The current GIS system is a combination of Enterprise GIS resources with local Desktop mapping, data, and analysis. The District's Enterprise GIS consists of a deployment of ArcGIS Server and a Workgroup Geodatabase in Amazon's Web Services. This environment supports the District's public-facing web mapping application and the internal version of the app. This environment is not managed by staff and is out of date. Data updates are uploaded manually. The District does utilize Esri's ArcGIS Online platform and has 5 Creator user types.

The District manages GIS datasets on premise in a variety of spatial formats. Mapping requests are fulfilled by the GIS Technician. The District's Desktop GIS is based on ArcGIS Desktop with two Desktop licenses that are out of maintenance. Staff rely on third-party data resources, either from direct downloads or web service integrations where possible. The District currently manages a small number of authoritative datasets with most data being managed at a project-level. Staff have identified numerous data gaps for permitting and project data in addition to a lack of GIS metadata.

Future State

MCWD must modernize and update its Enterprise GIS to meet its organizational goals for program collaboration. The District has identified a critical need for a centralized Enterprise GIS to be the hub for the management of authoritative geospatial data, field to office data workflows, integrations across multiple critical business systems, and public engagement. The District therefore should invest in an Enterprise GIS based on Esri's ArcGIS Enterprise platform. ArcGIS Enterprise allows MCWD to achieve its GIS goals of centralizing GIS content management, enterprise database support, support for modern Desktop GIS (ArcGIS Pro), secure access to GIS resources, web and field editing applications, and collaboration with other business systems and ArcGIS Online.

Recommendation

It is recommended that MCWD implement ArcGIS Enterprise on-premise given the requirements for third-party data integrations. MCWD has the option to implement ArcGIS Enterprise on premises or in a cloud environment such as Amazon's AWS or Microsoft Azure. Based on the requirements identified in this project it is recommended that MCWD implement ArcGIS Enterprise on-premises. This will allow tighter integration with other on-premises systems, support secure integration with cloud systems (if applicable) and provide better overall user experience.

It is also recommended that MCWD invest in ArcGIS Field Worker licenses to meet the needs for field data entry workflows using Esri's mobile applications. Also, MCWD should purchase ArcGIS Desktop licenses, including one Advanced and one Basic license to meet their Desktop mapping and GIS administration needs. It is recommended that MCWD keep its existing 5 licenses in ArcGIS Online to manage future public-facing content in ArcGIS Online. ArcGIS Online will be used as a publishing platform to securely share content with the public through web maps, forms and reports that will be accessed through MCWD's new website.

Goals and Objectives

- Modernize GIS platform for enterprise scale productivity.
- Centralize data resources for improved collaboration and transparency.
- Leverage mobile functionality to extend capabilities to field operations.
- Increase public awareness through the use of modern-GIS mapping and tools.
- Establish platform and process for cross-platform integration.

2.2. Permitting

Overview

The primary function of the permitting department is to review and process land-use applications, assess their conformance with district rules, and administer the applicable public process. Additionally, to ensure projects and permits are constructed as approved, the department implements a field compliance program to respond to concerns, complaints, and violations, as appropriate. These processes allow the district to protect key resources from degradation through regulation of land-use. The district also utilizes permitting to scan land-use applications for potential opportunities to expand natural resource benefits through partnership with public and private entities. The administration of permits is comprised of several processes including, application reception, risk analysis, plan set review, public notification, and finally issuance.

Current State

Currently, Permitting utilizes several independent and disconnected systems including spreadsheets, a custom-built SQL database application, maps and records to administer permit applications, assess their compliance and monitor sites undergoing construction. These systems are disjointed and outdated resulting in siloed data and redundant processes that hinder collaboration and efficiency. A lack of consistency in the permit administration and field compliance processes hinder identification of partnership opportunities. Permit data is isolated and inaccessible to other programs and staff who could leverage this data in their day-to-day activities and planning strategies.

Future State

The goal for Permitting is to streamline the permitting processes from the application through project closeout. This involves the selection and implementation of a modern, commercial-off-the-shelf (COTS), permitting application that is capable of integrating with MCWD's GIS, and other business critical systems. The new platform must accommodate a client portal that will allow for online applications and status updates, streamlined single point of entry for permit inspections, online permit fee payments, and consistent and repeatable processes that can be documented and adhered to by all staff. Collaborative, electronic plan review capabilities will also drive efficiency and improve feedback to applicants and staff and improve product deliverables.

Recommendation

To help achieve these goals, WSB will guide MCWD staff through an in-depth review and selection process of permitting software vendors. This process will include detailed demonstrations and discussions with vendors about the functional requirements, integrations needs, and implementation process and timelines. WSB will also assist staff throughout the implementation and go-live process to help ensure project deliverables are met, processes are defined and documented, training is adequate, and outcomes are being achieved.

Goals and Objectives

- Selection and implementation of commercial-off-the-shelf permitting solution.
- Standardize and document permit processes with a focus on efficiency.
- Integrate permitting activities with GIS for cross-collaboration.
- Streamline document review processes.
- Provide an excellent end-user experience and status updates for applicants through the use of a publicly accessible online portal.

2.3. Research and Monitoring

Overview

Research and Monitoring collects data detailing the state of water and natural resources within the district. Monitoring data collection comprises three distinct collection methods including real-time data collection, biological data collection, and discrete water quality sample collection. The collected data is used to investigate natural resource issues, identify projects, and communicate the effectiveness of completed projects.

Current State

Through MCWDs business analysis, Research and Monitoring's current data collection and analysis processes were identified as having numerous pain-points. The use of multiple, disconnected data collection tools and methodologies decreases efficiency and productivity. While the district is seeking to replace some of its data collection instruments with modern, IoT connected devices, manual collection processes will remain. Data sets are inconsistent between collection methodologies and processes and require them to endure multiple touchpoints at various stages. MCWD recently invested in Kisters WISKI, an industry standard water quality analysis platform, but has struggled with a lack of GIS data integration capabilities, data management practices, tracking biological and ecological data, and user training.

Future State

Data collection and analysis processes must be standardized and modernized to achieve the efficiency goals it is seeking. A second review of industry standard water quality applications should be conducted to validate MCWD is using the right application for the organization. Documentation of processes and best practices should be created and adhered to in order to avoid continued inconsistencies and disparities. A focus on integrating systems and workflows with GIS to achieve cross-functional collaboration is also a priority throughout these modernization efforts.

Recommendation

WSB recommends that MCWD continue to leverage its current investment and engage with Kisters for additional advanced end-user training and establish written process for repeatable and accurate data collection and data entry into WISKI. Key staff should be identified to take ownership of WISKI to ensure an appropriate level of application knowledge and documentation. Additionally, MWCD should explore investing in additional modules provided by Kisters to support their day-to-day activities including GIS integration, FieldVisits, and KiECO for biological and ecological data collection. Some customization for MCWD specific activities should be pursued to help support activities that are not currently handled by WISKI or explore third-party tools like GIS to supplement where WISKI falls short.

Goals and Objectives

- Obtain advanced level user training by key staff and document standard operating processes and procedures.
- Acquire and implement additional WISKI modules to achieve organizational goals of cross-functional collaboration and transparency.
- Establish clear ownership of WISKI product for additional in-house support and product management.

2.4. Planning

Overview

Planning plays a key role for the District by identifying, evaluating and prioritizing issues, strategies and opportunities across the watershed and with its partner communities. Planning leverages internal and external datasets across multiple spatial scales (watershed, sub-watershed, project) to influence projects and policies. Planning relies on high-quality data to make informed decisions quickly to meet strategic goals.

Current State

Planning relies heavily on the compilation and analysis of both internal and external datasets to drive project identification, prioritization, and the development of the District's 10-year plan. These datasets are disconnected and housed in multiple platforms, inside and outside the organization, making data aggregation difficult and time consuming. Planning lacks a systematic process for tracking, organizing and prioritizing project data to ensure alignment with strategic goals, sufficient staffing, and financial capacity.

Future State

The integration of Permitting, and Data Collection systems with GIS will drive efficiency in Planning's data analysis and project identification efforts and allow for integration with land use data from partner organizations. A centralized and systematic platform for project and resource planning will assist the department with coordination and communication efforts, driving organizational efficiency, and capacity planning.

Recommendation

Planning will achieve a number of its goals through the implementation of an Enterprise GIS system and the integration of key platforms for Permitting and Research and Monitoring as addressed previously in this report. These integrations will drive efficient access to vital watershed data and assist the department in their planning efforts. In addition, Planning would benefit from the use of a centralized and integrated, project and resource planning and management platform. By using an integrated and standardized platform, planning efforts can be organized in a single location and shared between departments to increase collaboration. Project management systems with integration capabilities as part of a larger enterprise resource planning platform should be evaluated prior to stand-alone systems being considered. Enterprise resource planning platform vendors with project management capabilities were contacted and evaluated for viability and budget as part of this process. Stand-alone systems were not evaluated as part of this initial effort.

Goals and Objectives

- Streamlined access to interdepartmental data to drive efficiency in opportunity evaluation.
- Systematic platform and processes to document and manage planning efforts.
- Increased planning data collaboration and distribution.

2.5. Project Development and Implementation

Overview

The primary function of Project Development and Implementation is to prioritize, design, and build high-impact capital projects. These goals are accomplished by assembling internal data, building partnerships, negotiating legal and financial agreements, leading internal and external project teams, and overseeing capital construction of the organization's investments.

Current State

Project Development and Implementation has limited access to internal and external data to inform project feasibility and design. Reliance on consultant analysis and reporting reduces efficiency and increases cost. Use of disparate and disconnected tools and workflows slow down information sharing and cause additional, unnecessary efforts. Historical information is often institutional knowledge and must be documented in a systematic way to become accessible across the organization. In addition to MCWDs own strategic planning efforts, partner CIP projects must be monitored and evaluated for overlap and impact.

Future State

Cross-functional data sharing is a basic requirement for the workflows and processes this group undertakes. Access to updated enterprise GIS systems and tools will improve project delivery and information sharing within the District and with its partners. Project planning and management processes should be centralized and integrated to increase collaboration and consistency, while reducing duplicative efforts.

Recommendation

Enterprise GIS improvements outlined in this report will significantly improve data sharing, analysis and collaboration organization wide. These changes will allow Project Development and Implementation to make data driven decisions quickly and inform project prioritization. Additional workflow improvements and data collaboration could be achieved through the use of a centralized and integrated project planning and management platform. A common platform between groups for project and resource planning and project management activities, will drive efficient collaboration and create a single source for project related data. Project management systems with integration capabilities as part of a larger enterprise resource planning platform should be evaluated prior to stand-alone systems being considered. Enterprise resource

planning platform vendors with project management capabilities were contacted and evaluated for viability and budget as part of this process. Stand-alone systems were not evaluated as part of this initial effort.

Goals and Objectives

- Centralized project development, and implementation to provide operational awareness.
- Tight integration with GIS for cross-functional collaboration and increased transparency.
- Evaluation of centralized and integrated project management platforms
- Systematic processes to track project goals and metrics for reporting

2.6. Evaluation and Reporting

Overview

Evaluation and Reporting is responsible for tracking and evaluating progress toward the District's goals across various programs and reporting information to internal and external audiences.

Current State

Current systems lack the ability to input and query many of the metrics that are needed to evaluate progress toward District goals (e.g. volume and nutrient load reduction associated with permits). Disconnected tools and workflows slow down information sharing and cause additional, unnecessary efforts. Historical information is often institutional knowledge and must be documented in a systematic way to become accessible across all programs. In addition to MCWD's own implementation efforts, progress achieved through partner projects and programming must be integrated.

Future State

To achieve systemic improvements in Evaluation and Reporting efficiencies and data accessibility, core District systems must be integrated, and data normalized. Recommendations for system improvements for GIS, permitting, data collection, project and asset management outlined in this report, strive to centralize much of the District's data into a common operating platform. These efforts will increase data accessibility, accuracy, and timeliness. Common data metrics and definitions should be agreed upon and documented to drive consistency in reporting.

Recommendation

As IT systems improvements are implemented across the District's functional areas, reporting functionality will improve incrementally. As more systems are updated and integrated, more data will become centralized and available for analysis and report development. Native reporting capabilities of updated IT systems should be fully investigated in the evaluation and selection process and utilized for program specific reporting requirements. Cross-functional spatial analysis and reporting capabilities will be enabled through enterprise GIS improvements. Business intelligence data visualization tools should be evaluated once significant IT progress has been made to integrate core business systems and native reporting functionality has been fully tested and deployed.

Goals

- Increase data accessibility through the integration of platforms and systems.
- Create a common data platform and reporting terminology.
- Leverage native metric dashboarding and reporting capabilities of updated IT systems.
- Evaluate, select, and implement business intelligence systems for dashboarding capabilities.

2.7. Project Maintenance and Land Management

Overview

Project Maintenance and Land Management is responsible for the inspection, evaluation, and management of the District's assets to ensure long-term functionality and operation. This includes over 1,000 acres of easements and fee title properties.

Current State

Inspection and performance assessment operations are conducted using a multitude of applications and tools perpetuating the disconnected nature of MCWDs operations. Access to historical project data is limited and spread-out amongst disparate data sources. Additionally, PMLM must manage staff and outside contractor maintenance activities and all Grays Bay Dam operations. These duties are time-intensive and disconnected from other systems and programs.

Future State

Project Maintenance and Land Management's operations must be streamlined and "systematized" in order to see long-term efficiencies and improved outcomes. An underlying theme for PMLM is Asset Management, a practice by which an organization leverages software to organize and implement strategies fundamental to preserving and extending the service life of infrastructure assets. PMLM's operations would benefit greatly through the use of an asset management application by housing and consolidating all asset information and related activities into a single, systematic, tool. Mobile field inspections, condition ratings and general data collection activities are also a key feature and requirement that will drive efficiencies and increase asset lifecycles. Integration with GIS must be a primary focus for these asset management process improvements and could be used to supplement some asset management related requirements.

Recommendation

WSB recommends that Project Maintenance and Land Management evaluate, select and implement a GIS focused, mobile centric asset management platform and processes. A robust asset management platform will provide the District with capabilities to perform reactive and proactive maintenance, lifecycle analysis and replacement planning, condition ratings, and criticality analysis. A focus on GIS integration will allow for cross-functional collaboration and predictive analytics. Mobile tools will bring the office into the field, streamlining activities, and improving workflows. Options for asset management capabilities may be created/integrated into enterprise GIS functionality or may be included in a full-service enterprise resource planning platform or stand-alone solution if selected. Asset management solutions with integration capabilities as part of a larger enterprise resource planning platform should be evaluated prior to stand-alone systems being considered. Enterprise resource planning platform vendors with asset management capabilities were contacted and evaluated for viability and budget as part of this process. Stand-alone systems were not evaluated as part of this initial effort.

Goals and Objectives

- Evaluate, select, and implement an integrated Asset Management system and processes.
- Streamline maintenance and management activities with mobile enabled inspection and data collection functionality.
- Reduce institutional knowledge by establishing and documenting clear asset management processes and guidelines.
- Efficiently manage asset lifecycle while reducing staff time.

2.8. Communications and Education

Overview

The function of communications and education is to effectively communicate to engage with internal and external audiences in the pursuit of the District's goals. In order to better and more efficiently serve our communities, government officials, land use community and internal staff, Board and CAC, communications, and education needs access to centralized information about MCWD's programs and initiatives including projects, permits, and monitoring data, as well as a centralized database of contacts. Communications and education is also implementing a website redesign, in coordination with the IT plan and strategic communications and engagement plan, to improve public accessibility to the district's data and to enhanced customer service.

Current State

Communications and Education has a wide variety of operational activities including maintaining MCWD's website and social media presence, interfacing and engaging with volunteers, master water stewards, citizen advisory committee members and the public, coordinating numerous educational and engagement events, administering past grants, and managing educational infrastructure assets. These activities suffer from similar ailments to other MCWD programs such as disparate data sources and a lack of systematic tools and processes to drive efficiency and accountability. Public engagement is a key focus for Communications and Education, and they are actively reviewing software vendors to supplement these activities.

Future State

Communications and Education has a strong desire to gain more insights from their current activities including analytics and expanding their reach to MCWD's target audiences using modern digital engagement tools. Public Engagement software was not researched or evaluated as part of the discovery process since MCWD has already been in discussions with vendors and custom tools may be available in GIS. Beyond a standardized public engagement platform to elicit the feedback of its community, government agency officials, and the land use community, the need for a centrally managed and accessible contact list was identified as a significant need for many programs, including Communications and Education. MCWD coordinates with many organizations that are changing regularly and makes contact with the public on a daily basis. A centralized contact management platform will provide consistency and context for all staff throughout their day-to-day activities. There is also a need to manage public requests to preserve educational displays, which can be accomplished through an online system via the redesigned website. These website enhancements already in-progress will provide Communications and Education greater ability to connect with their constituents and the public.

Recommendation

To help Communications and Education achieve their goals, WSB is recommending the implementation of a centralized contact management system within an Enterprise Resource Planning platform. By leveraging the power of an enterprise resource planning platform for contact management, MCWD can see increased transparency and data accessibility, while reducing the number of platforms it needs to maintain. Stand-alone contact management or customer relationship management (CRM) systems were not initially evaluated for this report.

Goals and Objectives

- Leverage the capabilities of an Enterprise Resource Planning platform to establish centralized Contact Management.
- Select and implement at standardized social engagement platform to elevate MCWD's capabilities for outreach.
- Establish an effective asset management platform and process in alignment with PMLM and other functional areas.

2.9. Operations

Overview

Operations covers many functional areas that provide services to the District as a whole. These include financial management, budget, human resources, facility management, asset management, and records retention. Effective implementation of technology solutions in support of the operations functions will find efficiencies and increase support and capabilities of staff across the organization.

Current State

Operations, along with most functional areas, supplements their activities through the use of disparate spreadsheets, historical documentation, and disconnected systems. Operations responsibilities for capital assets tracking and maintenance has little support from any of MCWDs current systems and provides no capabilities for budgeting or long-range asset planning. Current financial systems are isolated from staff creating inefficiencies in reporting and analysis. Records retention processes appear redundant and may counteract the benefits of the existing systems intended functionality.

Future State

Through the internal business analysis process and supplemental discovery conducted by WSB, Operations has identified numerous areas for improvement and is seeking to streamline its functionality through systematic processes and advanced analytics. Operations must focus on a centralized and systematic approach to managing its various activities in order to achieve operational efficiency and increase collaboration. This includes improving accessibility and transparency for budgeting and project accounting by program managers. MCWDs current financial package is readily showing its limitations and cannot continue to support its long-term needs. Improvements in the use of Laserfiche, MCWD's current document management system, and integration with updated systems will streamline records retention processes, clarify policies and improve records retrieval.

Recommendation

Through the internal business analysis and supplemental discovery conducted by WSB, it is our recommendation that MCWD pursue a centralized Enterprise Resource Planning (ERP) platform capable of aligning the various asset management, budgeting and financial tasks performed by Operations. A centralized ERP platform will allow for cross-functional collaboration between staff through a common operating platform and aligns with WSB's recommendations for other functional areas as well. This approach will reduce the District's reliance on disparate and disconnected systems, data fragmentation between teams, and a common user interface that can drive efficiency and adaptability.

Goals and Objectives

- Review, select, and implement a centralized ERP platform in alignment with other functional areas within MCWD.
- Increase efficiency and transparency through data sharing and collaboration.
- Decrease disparate data sources.
- Establish a capital asset management plan in alignment with other asset management activities.
- Streamline financial activities and budgeting processes.
- Integrate Laserfiche with updated support and operational systems to improve records retention practices.

3. Vendor Identification and Analysis

This section identifies and summarizes various software vendors and their platforms that can help achieve the Districts goals of operational efficiency, efficacy, and collaboration. The vendors are broken into four major functional areas, GIS, Permitting, Water Quality Data Collection and Analysis, and Enterprise Resource Planning. When possible, an effort was made to focus on industry standard, Commercial-off-the-Shelf solutions to provide the District the greatest chance for longevity of the platform and successful implementation and adoption. The vendor summaries below will give the District a high-level understanding of their capabilities, limitations, and estimated cost for initial purchase, implementation, and ongoing maintenance and support. This list will be the starting point for vendor review and final selection as subsequent phases get underway.

3.1. Geographic Information Systems (GIS)

Esri - ArcGIS

Esri's ArcGIS platform is the industry standard across state and local governments and the depth of their functionality is unsurpassed in the market. MCWD already leverages the ArcGIS platform for numerous activities including analysis and web-mapping, however, is limited by its current deployment and infrastructure. In order to continue to grow and improve cross-functional collaboration, MCWD must update its licensing and technology to Esri's Enterprise server platform and increase is utilization of ArcGIS Online. The breakdown below shows two approaches for making the infrastructure improvements necessary for the District to achieve its goals.

The first approach is to purchase individual product licenses from Esri using State Contract pricing. This option gets the District just enough licensing in an al-a-carte fashion. Additional licenses can be purchased on an as-needed bases if the Districts needs change over time. The second approach is to engage in an Enterprise Agreement (EA) with Esri. WSB has worked to negotiate a reduced rate on the District's behalf. The ELA approach would give the district access to all of Esri's tools and applications for all District staff and would only require renegotiation every three-years.

Table 1 – Enterprise GIS Pricing Summary

Vendor	License Cost	Annual License Maintenance	Current Annual Cost	Annual Subscription Cost	Estimated Implementation Cost
ArcGIS Enterprise Standard	$16,650	$5,050	$0	$0	$10,000
ArcGIS Enterprise Field Worker	$3,540	$3,540	$0	$0	$0
ArcGIS Online Subscription	$0	$2,470	$2,470	$2,470	$0
ArcGIS Desktop Advanced Concurrent Use	$7,443	$3,030	$0	$0	$0
ArcGIS Desktop Basic Concurrent Use	$2,914	$707	$0	$0	$0
Total	*$30,547*	*$14,797*	*$2,470*	*$2,470*	*$10,000*
ArcGIS ELA (estimated)	$25,000-$35,000	$25,000-$35000			$10,000

3.2. Permitting Vendors

WSB has identified a number of viable vendors in the marketplace who specialize in permitting solutions as well as some who have permitting solutions as part of a larger Enterprise Resource Planning software package.

Citizenserve

Citizenserve is a cloud-hosted permitting solution with an online portal for self-service permit applications, electronic plan review and workflow capabilities, online inspection scheduling, and custom report generation with graphing capabilities. Citizenserve offers REST APIs for third-party integrations such as GIS and natively integrates with 20 payment processing vendors. Existing local clients include The City of Elk River and The City of Orono, with North Branch to be online soon. They also have the Mississippi Department of Marine Resources as a client.

Vendor Summary

- Full-feature cloud-hosted solution
- Online portal for self-service applications and status updates
- Electronic plan and specification review
- Integration with 3rd-party payment providers
- Field enabled inspection capabilities and online scheduling
- Map-based reporting capabilities
- REST API GIS integration
- Laserfiche integration capabilities
- $12,600 annual subscription costs
- $15,000-$20,000 estimated for implementation

Table 2 – Citizenserve Table Matrix

Client Portal	Online Payments	GIS Integration	Plan Review	Inspections	Mobile Accessibility	Laserfiche Integration
Meets	Meets	Meets	Meets	Meets	Partially-Meets	Meets

Harris – CityView Suite – Permits and Inspections

CityView Suite is a full-service application provider specializing in local government solutions for building, licensing, permitting, inspections, and work order management. Their goal is to reduce issuance times, increase citizen self-service, and increase inspector productivity by reducing manual and paper-based processes.

CityView Permits and Inspections is a premium permitting solution that offers both on-premise and cloud-hosted solutions. CityView Electronic Plans Review uses Bluebeam for online collaborative plan review that MCWD will be able to leverage internally and with external engineering firms. CityView Mobile will bring inspections directly into the field on mobile device and tablet. CityView Portal will allow applicants to login, apply for and check the status of their permits, throughout the permitting process. CityView Cashiering uses third-party vendors for online payment processing to remain PCI compliant. Existing local clients include the City of Bloomington.

Vendor Summary

- Full-service permitting solution with cloud or on-premise options
- Online client accessibility for applications and status updates – CityView Portal
- CityView Electronic Plans Review leveraging Bluebeam
- Online payment processing through CityView Cashiering
- CityView Mobile enables field inspections

- Integration with GIS through CityView GIS
- Laserfiche supported through CityView EDMS
- On-Premise license purchase fees are estimated at $98,500 with annual fees of $27,800
- Cloud-hosted subscription fees are estimated at $74,250 annually
- Implementation costs are estimated at $135,000

Table 3 – CityView Matrix

Client Portal	Online Payments	GIS Integration	Plan Review	Inspections	Mobile Accessibility	Laserfiche Integration
Meets	Meets	Meets	Meets	Meets	Meets	Meets

LOGIS – Permit & Inspection Management (PIMS) and ePermits

LOGIS (Local Government Information Systems) is a Joint Powers, intergovernmental consortium of Minnesota local government units. LOGIS offers a suite of solutions for local governments including Public Safety, Financial, Payroll, Capital Asset Management Permit and Inspections, and more.

PIMS and ePermits is utilized by numerous agencies in and around MCWD, including the City of Minnetonka, Edina, Richfield, and St. Louis Park. ePermits offers citizens an online portal for permit applications, inspection scheduling, and status updates and is PCI compliant for online payment processing. PIMS integrates with ESRI GIS. It also offers mobile inspection capabilities and advanced reporting functionality.

Vendor Summary

- LOGIS hosted full-service permitting and plan review solution
- Bluebeam is used for online-collaborative plan review
- ePermits is the online permit application portal and supports fee payments and inspection scheduling
- Integrates with GIS
- Capable of Laserfiche integration
- Mobile enabled access to PIMS for field use
- Utilized by numerous local government agencies
- No price estimates at this time

Note, pricing information could not be included in this report due to lack of vendor communication. Multiple attempts to contact LOGIS have been made since WSB's initial vendor discovery but have not been responded to.

Table 4 – PIMS/ePermits Matrix

Client Portal	Online Payments	GIS Integration	Plan Review	Inspections	Mobile Accessibility	Laserfiche Integration
Meets	Meets	Meets	Meets	Meets	Meets	Meets

Dude Solutions – SmartGov

Dude Solutions is a multi-solution software vendor specializing in operations management solutions. Dude Solutions purchased SmartGov in 2018 to expand it Asset Management offerings into the Permitting and Licensing vertical. SmartGov's cloud-hosted solution streamlines permitting and inspections activities through workflow automation. SmartGov offers mobile/web-based inspections, client/customer portal for self-service applications, and online fee payments through third-party providers. SmartGov facilitates online plan review activities leveraging industry standard Bluebeam solutions.

SmartGov offers one-way ESRI mapping integrations but offers alternative data integration solutions to bring permitting data into GIS for cross-functional analysis. SmartGov's mapping interface leverages ESRI mapping layers for display and information sharing functionality.

Vendor Summary

- Cloud-hosted permitting solution
- Electronic plan review leveraging Bluebeam
- Online portal for application and status updates
- Integration with 3rd-party payment providers
- Mobile accessibility for inspections
- GIS integration is one-way enabled
- Annual subscription pricing is estimated at $18,600
- Implementation services is estimated at $40,700

Table 5 – SmartGov Matrix

Client Portal	Online Payments	GIS Integration	Plan Review	Inspections	Mobile Accessibility	Laserfiche Integration
Meets	Meets	Partially-Meets	Meets	Meets	Meets	Does Not Meet

Houston Engineering – MS4Front

MS4Front is a custom-build cloud-based permitting solution provided by Houston Engineering, a local engineering firm with a strong focus on water resources services. MS4Front is currently in use by 8 Minnesota Watershed Districts including Capitol Regions Watershed District. Each implementation of MS4Front is tailored to their client's requirements and processes. Tailored customizations for additional functionality allow MS4Front to serve many of their client's needs in a single application, including contact management and data visualization. MS4Front integrates with ESRI GIS and is mobile friendly for field inspections and data collection and is capable of integrating with 3rd-party payment vendors, but not financial systems. MS4Front does not have electronic plan review capabilities native to the application. Houston is in the process of overhauling MS4Front with a more modern platform and updated user interface, this should be completed by January 1, 2020.

Vendor Summary

- Custom build and configured cloud-hosted permitting solution
- MS4Front does not have a build-in electronic plan review option and would require additional software purchase
- Online portal for application and status updates
- Integration with 3rd-party payment providers
- Mobile accessibility for inspections
- GIS integration
- MS4Front is also capable of housing additional custom-build functionality including Contact List management

- Annual subscription pricing is estimated at $4,000
- Optional annual budgeting for additional services is optional
- Implementation services is estimated at $35,000-$40,000

Table 6 – MS4Front Matrix

Client Portal	Online Payments	GIS Integration	Plan Review	Inspections	Mobile Accessibility	Laserfiche Integration
Meets	Partially-Meets	Meets	Does Not Meet	Meets	Meets	Meets

Custom GIS Centric Permitting Platform

An alternative to the commercially available solutions listed above would be to work with WSB to develop a custom, GIS centric, permitting solution that fits the exact needs of MCWD based on a common data platform. By leveraging GIS as the backbone for this tailor-made permitting solution, MCWD will find immediate benefits through streamlined workflows that do not require additional integration. Field operations and data collaboration will be seamless and future modifications can be made by in-house GIS staff if desired.

Vendor Summary

- Tailored permitting solution based on ESRI GIS platform
- On-premise implementation with option to migrate to cloud when ready

Additional Vendors for Review

WSB has also made contact with several additional vendors that should be reviewed by MCWD and ranked for value, flexibility, and responsiveness.

ViewPoint Cloud – Cloud-first is a permitting provider with a focus on flexibility and adaptability. It provides an online application portal, status updates, and payments and is highly-mobile friendly. ViewPoint Cloud does not provide an electronic plan review platform so a third-party tool like Bluebeam would need to be acquired separately.

GovPilot – GovPilot is a permitting provider with a custom GIS solution and no ESRI API integrations. GovPilot works with 3rd-party online payment providers and no applicant portal (updates are provided via email). GovPilot has no user limits or limits on support or training. They do not charge for implementation but are in the median range for annual cost.

OneGov by RTVision – RT Vision is a local software firm specializing in platforms for local government. OneGov has been deployed by several local Counties to complement their use of OneOffice. Integrations for electronic plan review (ePlanSoft) and GIS (ESRI) are available however others may require custom programming. WSB does have experience with RT Vision OneOffice and their development and support teams.

Elements XS from Novotx – Elements XS is a GIS centric permitting and asset management platform offering cloud and on-prem solutions. Elements is in use by Rochester and Eden Prairie for Asset Management. Online payments and financial integrations are available. Bluebeam is used for electronic plan review. Elements asset management functionality comes with the product and would increase the value proposition of this vendor.

GovSense – GovSense is an Enterprise Resource Planning platform with permitting and asset management functionality and native GIS integration. GovSense is based on Oracles NetSuite cloud platform providing a robust ecosystem. GovSense should be evaluated early in the permitting selection process as it may influence the overall direction of the District's system implementations.

Table 7 – Permitting Pricing Summary

Vendor	Cloud/On-Prem	License Cost	Annual License Maintenance	Annual Subscription Cost	Estimated Implementation Cost
Citizenserve	Cloud	N/A	N/A	$12,600	$22,200
Cityview	Both	$98,500	$27,800	$75,250	$135,000
LOGIS - PIMS/ePermits	Hosted	*Pricing Information not available at this time			
Dude Solutions - SmartGov	Cloud	N/A	N/A	$18,600	$40,700
Houston - MS4Front	Cloud	N/A	N/A	$4,000	$35,000
Custom GIS Platform	On-Prem	N/A	N/A	N/A	$45,000

3.3. Data Collection and Analysis

WSB, having heavily researched the marketplace for water quality applications and vendors has identified a small handful of viable vendors for MCWD to review and consider. Most notably, Kisters WISKI must be reevaluated for viability, but the existing investment must be considered in the final decision.

Kisters – WISKI

Kisters WISKI was evaluated and selected by R&M in 2015 after a review of existing processes and was conducted and analysis of vendors completed. At that time, R&M reviewed several options including a custom build application, AQUARIUS, and WISKI. While WISKI was not the low-cost option selected, it was chosen due to its perceived analytical capabilities, lower total cost of ownership over a 5-year period and strong local users presence by other watersheds and agencies.

WISKI has not been well adopted by R&M, in-part due to staff turn-over and a lack of in-depth knowledge and training around best practices and standard operating procedures. To fully realize the capabilities of WISKI, MCWD must invest in advanced product training and additional modules to extend its functionality into the field, web, and GIS. R&M staff must be identified to take on the role of product owner/super-user. These individuals must be responsible for documenting MCWD processes and procedures, ensure accountability, overall application administration, and configuration and create a culture of adoption for all staff.

Vendor Summary

- Fully-functional water quality and analysis software application
- Additional modules required to extend functionality
  - GIS Integration
  - Field Notes Mobile Solution
  - Web Portal and Web Services
  - Report Editor
  - Asset Tracker
- Additional training should be conducted to increase staff capabilities
- Workflows and processes should be documented
- Additional module investment will range from $4,500-$20,000+
- Training and services are estimated at $10,000-$15,000
- Existing maintenance fees have been included in the vendor breakdown below

AQUATICS Informatics - AQUARIOUS

AQUARIOUS by AQUATIC Informatics is a browser-based water data management and analytical application and is a direct competitor to Kisters WISKI. AQUARIOUS was originally evaluated in 2015 and was ranked "fair" against WISKI, ultimately being deemed more expensive over the lifespan of the application. AQUARIOUS has been substantially updated since its initial consideration in 2015 offers a suite of functionality similar to WISKI.

AQUARIOUS also offers direct API integration with ESRI GIS and R for statistical analysis. Additional capabilities include error correction and rating curve capabilities, data visualizations, real-time sensor connectivity and anytime/anywhere access through mobile device browsers.

Vendor Summary

- Fully-functional water quality and analysis vendor and direct competitor to WISKI
- Previously evaluated by MCWD and meets nearly all requirements
- Cloud-hosted and on-premise implementations available
- Major overhaul completed recently with a focus on functionality
- Integration with GIS and mobile accessible
- AQUARIOUS on-premise is estimated at $85,000 license purchase and $33,000 annual maintenance
- AQUARIOUS cloud-hosted offering is estimated at $48,500 annually
- Implementation is estimated at $46,000

Waterloo Hydrogeologic – Hydro GeoAnalyst/AquaChem

Hydro GeoAnalyst and AquaChem are the water quality and environmental analysis from Waterloo Hydrogeologic. Waterloo Hydrogeologic has specialized in managing water quality for over 25 years with powerful and cost-effective software technologies. Waterloo is a competitor to MCWD's existing Kisters WISKI application, however, it achieves this through the use of two independent applications, Hydro GeoAnalys and AquaChem. These appear to be disconnected from one another and have separate hardware and software requirements and configurations.

Vendor Summary

- Basic on-premise only water quality and analysis applications
- Provides basic functionality for water quality and ecology data collection and analysis
- Requires two applications to fulfill MCWDs requirements, systems seem to be not fully integrated
- GIS integration would likely need to be done at the database level
- Purchase pricing is estimated at $20,000 with annual maintenance around $4,120
- Implementation is estimated at $30,000

Additional Vendors for Review

In addition to the vendors identified above, WSB has also reached out to ERA Environmental. ERA Environmental specializes in environmental software solutions, however through discussions, they are recommending their custom form platform for this implementation with a focus on automation and reducing "human touch-points." ERA is familiar with the service area and the regulator and reporting requirements for water quality. This vendor should be pursued if WISKI is to be replaced. Pricing is based on the number of sample locations but is not available at this time. API or SFTP integrations are also available.

Table 8 – Data Collection & Analysis Pricing Matrix

Vendor	Cloud/On-Prem	License Cost	Annual License Maintenance	Annual Subscription Cost	Estimated Implementation Cost
Kisters WISKI	Both	$4,500-$20,000	$16,000	N/A	$10,000
AQUATIC Informatics	Cloud	$85,000	$33,250	$48,475	$46,320
Waterloo HGA/Aquachem	On-Prem	$20,600	$4,120	N/A	$30,000

3.4. Enterprise Resource Planning

WSB has leveraged its resources to present a wide variety of Enterprise Resource Planning (ERP) vendors for MCWD. These vendors are focused on small/mid-sized organizations and offer a wide variety of services at various price points. Most of these vendors are cloud focused but a few offer on-premise solutions as well. WSB has chosen to focus on ERP vendors first since the implementation and integration of stand-alone systems increases the complexity of the Districts IT infrastructure and introduces multiple points of failure. ERP systems provide a common user interface for cross-functional teams that can increase collaboration and a common data source for reporting and analysis. Stand-alone systems can be evaluated should viable ERP vendor capabilities not meet the Districts functional requirements. A definition of ERP can be found in the Executive Summary section of this report.

LOGIS – JDE1

LOGIS (Local Government Information Systems) is a Joint Powers, intergovernmental consortium of Minnesota local government units. LOGIS offers a suite of solutions for local governments including Public Safety, Financial, Payroll, Capital Asset Management, Permit and Inspections, and more.

LOGIS's ERP solution is a finance focused offering called JDE1. JDE1 is an enterprise level, full-service financial solution offering complete general ledger, accounts payable and receivable, budgeting, payroll, and capital asset management capabilities. This offering from LOGIS provides full functionality for all financial services activities, while sharing the cost through their Joint Powers agreement with other member organizations. The local government-only approach from LOGIS makes JDE1 an intriguing offing in the ERP market.

Vendor Summary

JDE1 offered by LOGIS offers a full-financial ERP solution including GL, AP, AR, and budgeting. Pricing estimates for JDE1 were not made available at the time of this report.

- JDE1 is a fully capable financial focused ERP solution

Note, pricing information could not be included in this report due to lack of vendor communication. Multiple attempts to contact LOGIS have been made since WSB's initial vendor discovery but have not been responded to.

Table 9 – JDE1 Matrix

Project Management	Resource Planning	Payroll	Grant Management	Capital Asset Management	
Meets	Does Not Meet	Meets	Meets	Meets	
Financial	**Budgeting**	**Permitting**	**Inspections**	**Human Capital Management**	**Timesheet**
Meets	Meets	Does Not Meet	Does Not Meet	Meets	Meets

Sage Intacct – Complete ERP

Sage Intacct is a fully capable ERP solution with functionality that covers most of the Districts core functional needs including project management and resource planning, grant tracking, cost and billing, and advanced budgeting and planning. Intacct is a cloud hosted ERP solution, alleviating the need to maintain high-availability IT infrastructure and brings increased efficiency and visibility to program and project managers.

Vendor Summary

- Sage Intacct is a fully capable cloud-hosted ERP solution
- Intacct offers capabilities for project management and resource planning
- Grant tracking and billing is available as an add-on service
- Advanced budget planning capabilities are optional
- Payroll and timesheets are serviced through 3rd-party vendors
- Sage does not have an existing integration with Laserfiche
- Annual subscription fees range from $9,000-$40,000
- Implementation fees are estimated at $30,000

Table 10 – Sage Intacct Matrix

Project Management	Resource Planning	Payroll	Grant Management	Capital Asset Management	
Meets	Meets	3rd-Party	Meets	Meets	
Financial	Budgeting	Permitting	Inspections	Human Capital Management	Timesheet
Meets	Meets	Does Not Meet	Does Not Meet	Does Not Meet	3rd-Party

GovSense – Complete ERP with Permitting

GovSense is a local government focused solutions provider offering a complete, end-to-end ERP platform including functionality for Project Management and Planning, GIS, Permitting, Asset Management, as well as Fund Management, Budgeting, Payroll and Accounting, and Human Capital Management. GovSense is based on the Oracle NetSuite platform offering a robust set of tools and capabilities, with a cloud-first approach.

GovSense is broken into modules, allowing it to be purchased and implemented in phases, while leveraging the same back-end platform for continuity and cross-functional transparency. GovSense can be customized by the end-user to meet the changing needs of an organization, without the need to contract for custom services by the developer.

Vendor Summary

- GovSense is a full-service cloud-hosted ERP solution with service offerings above-and-beyond other vendors
- Project management and resource planning capabilities
- Permitting and inspection module with mobile functionality
- Grant/fund management, Asset Management, Human Capital Management
- GIS integration
- Core financial functionality including budgeting, payroll and timesheets
- Annual subscription costs range from $62,000-$80,000
- Implementation is estimated at $100,000-$135,000

Table 11 – GovSense Matrix

Project Management	Resource Planning	Payroll	Grant Management	Capital Asset Management	
Meets	Meets	Meets	Meets	Meets	
Financial	Budgeting	Permitting	Inspections	Human Capital Management	Timesheet
Meets	Meets	Meets	Meets	Meets	Meets

The table below summarizes available budget estimates for the ERP vendors outlined in this report. LOGIS JDE1 pricing was not made available at the time this report was published.

Table 12 – ERP Pricing Summary

Vendor	Cloud/On-Prem	License Cost	Annual License Maintenance	Annual Subscription Cost	Estimated Implementation Cost
LOGIS - JDE1	Hosted	* Pricing information not available at this time			
Sage Intacct	Cloud	N/A	N/A	$9,000-$40,000	$30,000
GovSense	Cloud	N/A	N/A	$62,000-$80,000	$100,000-$135,000

4. Timeline and Phasing

Based on WSB's discovery and analysis of MCWD's requirements, priorities, and funding capabilities, a multi-year, programmatically-phased approach is being recommended to implement these technology solutions to ensure the highest opportunity for success. This phased approach was developed to increase the likelihood of successful implementations, end-user adoption and to minimize institutional change fatigue. It is WSB's experience that the implementation of IT systems can be challenging for organizations and that simultaneous systems implementations can introduce issues and prolong timelines. Figure 4 illustrates a high-level approach to a multi-year phased approach, beginning with GIS in late-2019.

Phase 2 – September – December 2019

GIS was a common theme throughout the business analysis and the discovery phase of this project. Each program indicated some level of need for a comprehensive geospatial database in which cross-functional collaboration would occur. With the reliance on highly-accessible, geographic based data for each group to make better informed decisions faster, WSB is recommending that Phase 2 commence with improvements to the GIS infrastructure and data modelling. By starting with a solid GIS foundation, all other application implementations can build on this success and achieve a higher-level of integration and improved workflows for all programs. It is WSB's recommendation that MCWD begin Phase 2 by investing the remaining technology update budget for 2019 into Esri's Enterprise GIS licensing and consulting services for implementation and general consulting services.

Paralleling the Phase 2 GIS improvements, detailed vendor evaluations and selection can continue for Permitting, Data Collection and Analysis, and ERP platforms. While the exact phasing will depend on selection, prioritization and funding allocation, staff can continue the short-list vendor evaluation and selection process with the expectation that Phase 2A implementation will commence in early-2020. Subsequent phases will commence as funding allocations occur and previous implementations are wrapped up and shifted into production. A conservative approach has been laid out to ensure success and not burden the organization with change fatigue.

Goals and Objectives

- Update required technology infrastructure
- Implement Enterprise GIS platform
- Update and migrate existing datasets and infrastructure
- Expand ArcGIS online tools and capabilities
- Explore mobile applications and functionality
- Conduct in-depth review and demo of "short-list" vendors
- Complete objective and subjective review of vendors
- Make vendor selection
- Begin contract negotiations

Phase 2A – January - December 2020

Phase 2A is expected to commence in early-2020 with the finalization of a contract for the purchase and implementation of the selected permitting platform and data collection system improvement components. This selection, however, may impact the overall timeline and phasing approach should an ERP based permitting vendor be chosen. The implementation process will vary depending on vendor availability and approach. A high-level process has been outlined below.

First, a cross-functional implementation team will be established to ensure transparency and collaboration. Data conversion requirements will be completed, and an initial translation will be conducted. Configuration of the new platform will commence with the project team to prioritize data requirements. GIS integration steps will be conducted and validated throughout the process to ensure other, cross-functional areas are able to access the desired data. Processes will be documented, and training materials will be created. User acceptance testing will be conducted throughout to validate desired outcomes and users-experiences. Project management will be provided by WSB to ensure schedules are adhered to and deliverables are met by both parties. This process can take 4-18 weeks depending on vendor specifics and data conversion requirements.

To achieve the highest likelihood of success, WSB is recommending only implementing one technology solution at a time. However, to maintain momentum and achieve milestones, WSB will also work with other teams to continue their vendor evaluation and selection process concurrently with ongoing implementations.

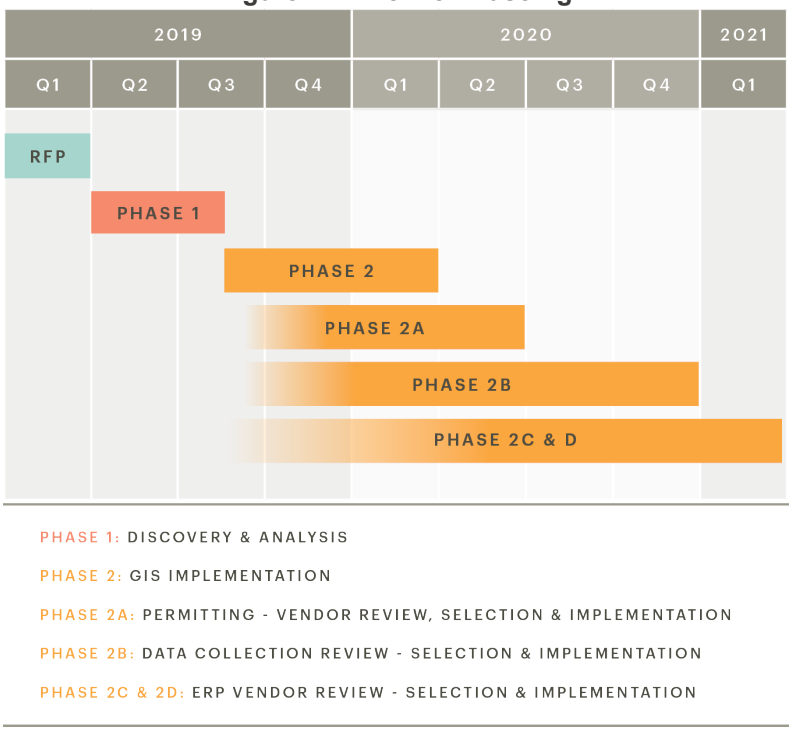
Goals and Objectives

- Implement prioritized technology solution to achieve organizational transformation.
- Improve GIS integration and cross-collaboration.
- Continue vendor review and selection process for other prioritized technology areas to continue momentum.
- Establish budgets and milestones for future phases.

Phases 2B-2D – Mid-2020 thru 2021

Phases 2B-2D will continue through mid-2020 and throughout 2021 with the goal to complete MCWD's technology transformation by the end of 2021. This will include the review and selection of an Enterprise Resource Planning platform and any additional solutions that may be required to modernize MCWD's operations. While final timelines and phasing will be determined by their capacity to adopt new platforms and respond to significant change, funding will also be a driver for implementation.

Figure 4: Timeline/Phaseing



5. Budget Recommendations and Vendor Breakdown

This section summarizes WSB's 2019 and 2020 budget recommendations and provides several 5-year budget models for review. These models are examples of estimated costs to purchase and implement various solutions and their impact to MCWD's budget for ongoing support and maintenance. A breakdown of the various vendors and their estimated costs has also been provided.

Budget recommendations were derived through the analysis of information collected through the listening and discovery sessions, vendor discovery process and WSB's understanding of the District's needs and priorities. By analyzing this information and cross-referencing it with high-level budget estimates provided the vendors evaluated, WSB developed several budget models and recommendations for the remainder of 2019 and 2020.

5.1. 2019 & 2020 Budget Recommendations

2019 Budget Recommendation

Through the discovery and analysis process, WSB is recommending that the District focus the remainder of its 2019 financial investment on GIS improvements and completing the vendor review and evaluation process for Permitting, Data Collection & Analysis, and Enterprise Resource Planning platforms. Investing in GIS improvements will lay the foundation for future technology systems and integrations. The district can immediately begin to migrate its GIS data and leverage the expanded capabilities of the centralized Enterprise GIS platform. Additionally, efforts will begin to evaluate identify key systems that can be implemented in Phase 2A in early-2020

Table 13 – 2019 Budget Recommendation

Budget Item	2019	Description
GIS Software	$30,500	Software license **purchase** for Enterprise ESRI GIS. Alternate option is an Enterprise Agreement at $25,000-$35,000/yr
GIS Implementation	$10,000	Implementation services for Enterprise ESRI GIS
Consulting Services	$19,500	Additional Consulting Services (Final vendor selection, negotiations, implementation preparation; GIS platform transition and solutions development)
Total	**$60,000**	

2020 Budget Recommendation

WSB is recommending that MCWD budget approximately $182,000 for Phase 2A beginning Q1 2020. While the final decision about which platform(s) to select will be made after the vendor review and selection process is completed, this budget amount will be sufficient to allow MCWD to keep the process moving toward achieving its goals. This proposed budget covers estimated licensing and implementation fees as well as consulting fees to continue driving the technology update project forward.

This 2020 budget recommendation takes a conservative approach to the Districts financial investment and is the result of WSB's analysis of the District's needs and priorities, vendor capabilities and organizational fit and financial value.

Future budget recommendations will be determined in concert with MCWD staff as work progresses.

Table 14 – 2020 Budget Recommendation

GIS	2020	Description
GIS Software Maintennace	$15,000	Annual GIS Maintenance and Support for Enterprise GIS software. Alternate option is an Enterprise Agreement at $25,000-$35,000/yr
GIS Consulting Services	$10,000	Additional GIS Consulting Services (development of field data collection tools, other third-party integrations, advanced data modeling, additional solution/application development)
GIS Total	**$25,000**	

Permitting	2020	Description
Permitting Software	$12,600	Based on CitizenServe vendor selection (this may vary if another vendor is chosen)
Vendor Implementation	$22,200	Includes Imeplementation, Data Migration and Integration
Permitting Consulting	$10,000	Includes filling in gaps in vendor services, GIS Integration (project management and coordination, project deliverables, documentation, process and training materials, etc...)
Permitting Contingency	$15,000	A higher than normal 25% contingency was applied here in the event that a vendor other than CitizenServe is selected
Permitting Total	**$59,800**	

Data Collection & Analytics	2020	Description
WISKI Maintennace	$11,532	Assumes staying with WISKI
Additional WISKI Module Purchase	$20,000	Additional WISI Modules including ArcGIS, Field Notes Mobile Solutions, Data Acquisition and Telemetry, range of cost is $4,500 - $20,000
Vendor Implementation	$10,000	Includes Imeplementation, Data Migration and Integration (this is an estimate for on-site training service from Kisters for advanced training and process creation)
Data Collection and Analytics Consulting	$15,000	Includes filling in gaps in vendor services, GIS Integration (project management and coordination, project deliverables, documentation, process and training materials, etc...)
Data Colletion and Analytics Contingency	$0	No contigency
Data Collection & Analytics Total	**$56,532**	

General	2020	Description
Consulting	$25,000	Planning for future phases
General Contingency	$15,000	
GIS Total	**$40,000**	
2020 Total	**$181,332**	

5.2. 5-Year Budget Models

Below are several 5-year budget models that layout funding requirements needed to purchase and implement the identified technology solutions and their on-going annual costs. These budget models were developed to illustrate the range of potential expenditures and the long-range impact the District can anticipate based on final vendor selections and contract negotiations. They cover low-cost, best-in-class, and recommended budget scenarios for MCWD to consider. The District can use these budget models throughout the vendor evaluation and selection process to forecast investments and ongoing costs for technology solutions. Detailed descriptions of the models are also included.

Budget Model Descriptions

Recommended Budget Model – This budget blends together cost-effective solutions implemented over a modest timetable. This approach helps to mitigate some risk, both financial and organizational, which will elevate the likelihood of success and the transformational impact to MCWD. This model is only an estimate and will change as decisions are made and final pricing is negotiated.

15 – 5-year Recommended Budget Model

	2019	2020	2021	2022	2023	2024
GIS*	$40,500	$25,000	$15,000	$15,000	$15,000	$15,000
Permitting (CitizenServe)	$0	$34,800	$13,250	$13,913	$14,608	$15,339
Water Quality (WISKI)	$0	$41,532	$16,000	$16,800	$17,640	$18,522
ERP (Intacct)	$0	$0	$70,000	$42,000	$44,100	$46,305
Consulting Services	$19,500	$50,000	$25,000	$15,000	$0	$0
Contigency	$0	$30,000	$25,000	$10,000	$10,000	$10,000
Total Budget Estimate	$60,000	$181,332	$164,250	$112,713	$101,348	$105,166

Best-in-Class Budget Model – This model illustrates the investment required by MCWD if higher-cost solutions are selected with an aggressive implementation schedule. It reflects a significant investment in the early-years of this project with elevated financial costs for ongoing support and services. This solution offers no guarantee of a higher-rate of success for the long-term impact to MCWD.

Table 16 – 5-year Best-in-Class Budget Model

	2019	2020	2021	2022	2023	2024
GIS (EA)	$55,000	$50,000	$35,000	$35,000	$35,000	$35,000
Permitting (CityView)	$0	$261,300	$29,200	$30,700	$32,200	$33,700
Water Quality (AQUATIC)	$0	$0	$128,000	$34,900	$36,645	$38,477
ERP (GovSense)	$0	$162,000	$65,100	$68,355	$71,773	$75,361
Other	$0	$0	$15,000	$10,500	$11,025	$11,576
Consulting Services	$19,500	$40,000	$35,000	$20,000	$0	$0
Total Budget Estimate	$74,500	$513,300	$307,300	$199,455	$186,643	$194,115

Low-Cost Budget Model – This budget model was developed to illustrate a minimal financial investment over an extended period of time. This approach assumes low-cost vendors will be chosen and with minimal-implementation services over an extended period of time. This has the least impact financially over time but may not yield long-term success.

Table 17 – 5-year Low-cost Budget Model Table

	2019	2020	2021	2022	2023	2024
GIS*	$40,500	$15,000	$15,000	$15,000	$15,000	$15,000
Permitting (MS4Front)	$0	$39,000	$4,000	$4,000	$4,000	$4,000
Water Quality (WISKI)	$0	$14,500	$16,000	$16,800	$17,640	$18,522
ERP (Intacct)	$0	$0	$42,000	$12,600	$13,230	$13,892
Other	$0	$10,000	$5,000	$5,000	$5,000	$5,000
Consulting Services	$5,000	$20,000	$15,000	$10,000	$0	$0
Total Budget Estimate	$45,500	$98,500	$97,000	$63,400	$54,870	$56,414

5.3. Conclusions

In summary, the Minnehaha Creek Watershed District is seeking modern technology solutions to improve their business processes and outcomes across the organization. These changes are significant, but the district has demonstrated their commitment to change by examining their own internal processes, defining their needs, and engaging with WSB to find a pathway forward.

This report summarizes WSB's understanding of the Districts current and future state for the individual functional areas, how they will integrate for improved, shared outcomes. A phased approach for implementation has been identified to ensure the highest likelihood for success and the financial investment necessary to implement and sustain these changes.

As the District begins to move into Phase II of this endeavor, they must be open to change and prepared to adapt. Updates to the information technology infrastructure will be necessary to achieve its identified goals and objectives. Investing in an Enterprise GIS foundation will enable the District to build on small successes and see immediate improvements in their operational capabilities. The evaluation and selection of vendors, both functional capabilities and financial investment, will be a crucial step toward establishing the District's successful implementation and sustainment of these technology improvements.