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## Wildlife-Data Systems Assessment

Response Prepared for:



# WVDNR

West Virginia Division of Natural Resources

West Virginia Division of Natural Resources

738 Ward Road, Elkins WV 26241

Client RFQ Number: 855856

JMT Number: 21-01122



April 20, 2021

Mr. James H Adkins  
West Virginia Division of Natural Resources  
Property and Procurement Office  
324 4<sup>th</sup> Avenue  
South Charleston, WV 25303

RE: Wildlife-Data Systems Assessment  
Solicitation Number: ARFQ DNR21\*42  
JMT Number: 21-01122

To Whom It May Concern,

Johnson, Mirmiran & Thompson, Inc. (JMT) is pleased to submit our response to the West Virginia Division of Natural Resources (WVDNR) for Wildlife-Data Systems Assessment. JMT has supported WVDNR and its electronic licensing program for eight years.

We are excited to continue supporting WVDNR and have assembled a team of JMT subject matter experts with extensive experience providing similar services. Our proposal highlights our business analysis, data analysis, GIS, and natural resources background and support of related projects.

On behalf of JMT, we look forward to this opportunity to work with WVDNR. If you have any questions, please contact Jon Harrison, Vice President, at (410) 316-2316 or [jharrison@jmttg.com](mailto:jharrison@jmttg.com). Thank you very much for your consideration.

Sincerely,  
JOHNSON, MIRMIRAN & THOMPSON, INC.

A handwritten signature in black ink, appearing to read 'NJM', is written over the typed name of Nicole J. Miller.

Nicole J. Miller  
Vice President

NJM/jsp

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## 1. Introduction

Johnson, Mirmiran, & Thompson, Inc. (JMT) is well positioned to provide professional services to support the West Virginia Department of Natural Resources (WVDNR) Wildlife-Data Systems Assessment project. JMT has a highly qualified team that is prepared and committed to support this project. Our team members have a solid understanding of WVDNR's business drivers and culture gained through our development and support of the WVDNR Licensing and Game Checking system. We have an in-depth knowledge of the Electronic Licensing System and a deep bench of GIS experts and expertise in reviewing Enterprise Geodatabases. Our team has driven the analysis and development of data governance policies and can help to identify data governance practices that should be implemented or strengthened. Our database development and management expertise in both SQL Server and Oracle puts us in a strong position to be immediately effective for WVDNR and identify potential areas in which systems may not have kept up with best practices.

Our team is experienced in large assessment projects comparable with our understanding of the Wildlife-Data Systems Assessment project. We have demonstrable experience with similar projects for clients such as the Maryland Department of the Environment (MDE), Maryland Department of Natural Resources, and Anne Arundel County, Maryland. Finally, should there be the need for follow-on support, JMT is well suited to assist WVDNR in future endeavors.

## 2. Company Overview

**JMT is a 100% employee-owned S-Corporation** that provides a full range of multi-disciplined engineering, architectural, and related services to public agencies and private clients throughout the United States. JMT was incorporated in **1971** and employs **over 1,500 professional and support staff** in offices strategically located throughout the US. JMT is headquartered in Hunt Valley, Maryland, with an additional 38 offices throughout the United States. The JMT family of companies include the following wholly owned subsidiaries:

- **Atlantic Engineering, LLC**, a New Jersey limited liability company (100%)
- **JMT of New York, Inc.**, a New York corporation (100%)
- **Kennedy Consulting, Inc.**, a Texas corporation (100%)
- **Kupper, LLC**, a New Jersey limited liability company (100%)
- **Tidewater Environmental Services, Inc.**, a South Carolina corporation (100%)
- **JMT Architecture & Interior Design, Inc.**, a Maryland corporation (33%)

**JMT Corporate Office:**  
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Hunt Valley, MD 21030  
410-329-3100

**Websites/Email:**  
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As a division of JMT, the Technology Group is a progressive project management, GIS, business analysis and information technology services and solutions provider that assists government agencies in solving complex business challenges with the use of mobile, web, and desktop technologies. **With over 30 years of experience providing technology services, JMT provides clients with immediate and measurable return on investment while ensuring the best solution for each unique challenge.** JMT puts the needs of the customer first by taking an in-depth look at available and emerging technologies that meet clients' specific business needs and can work effectively within the client's information technology environment.

JMT has qualified professional staff that specializes in providing technology driven solutions. Our staff holds certifications that address the wide and ever-changing needs of the technology industry and are committed to continuous professional development to ensure our consulting services provide our clients with knowledge and expertise required in such a fast-paced industry. Certifications include:

- Project Management Professional (PMP)
- Certified Scrum Master (CSM)
- Agile Scrum Master (ASM)
- Entry Certificate in Business Analysis (ECBA)
- Microsoft® Certified Systems Engineer (MCSE)
- Microsoft Certified Professional (MCP)
- Microsoft Certified Technology Specialist (MCTS)
- Geographic Information Systems Professional (GISP)
- Enterprise Content Management Practitioner (ECMp)
- Certified OnBase® Installer
- Certified OnBase® Workflow Engineer
- Certified OnBase® Systems Admin

### 3. Qualifications

#### 3.1 Project Team

JMT is proposing a strong team with in-depth experience for this task. Our depth of staff ensures that the project will remain well-resourced throughout its duration, and additional staff are available if needed. We qualify for all the requested criteria as follows:

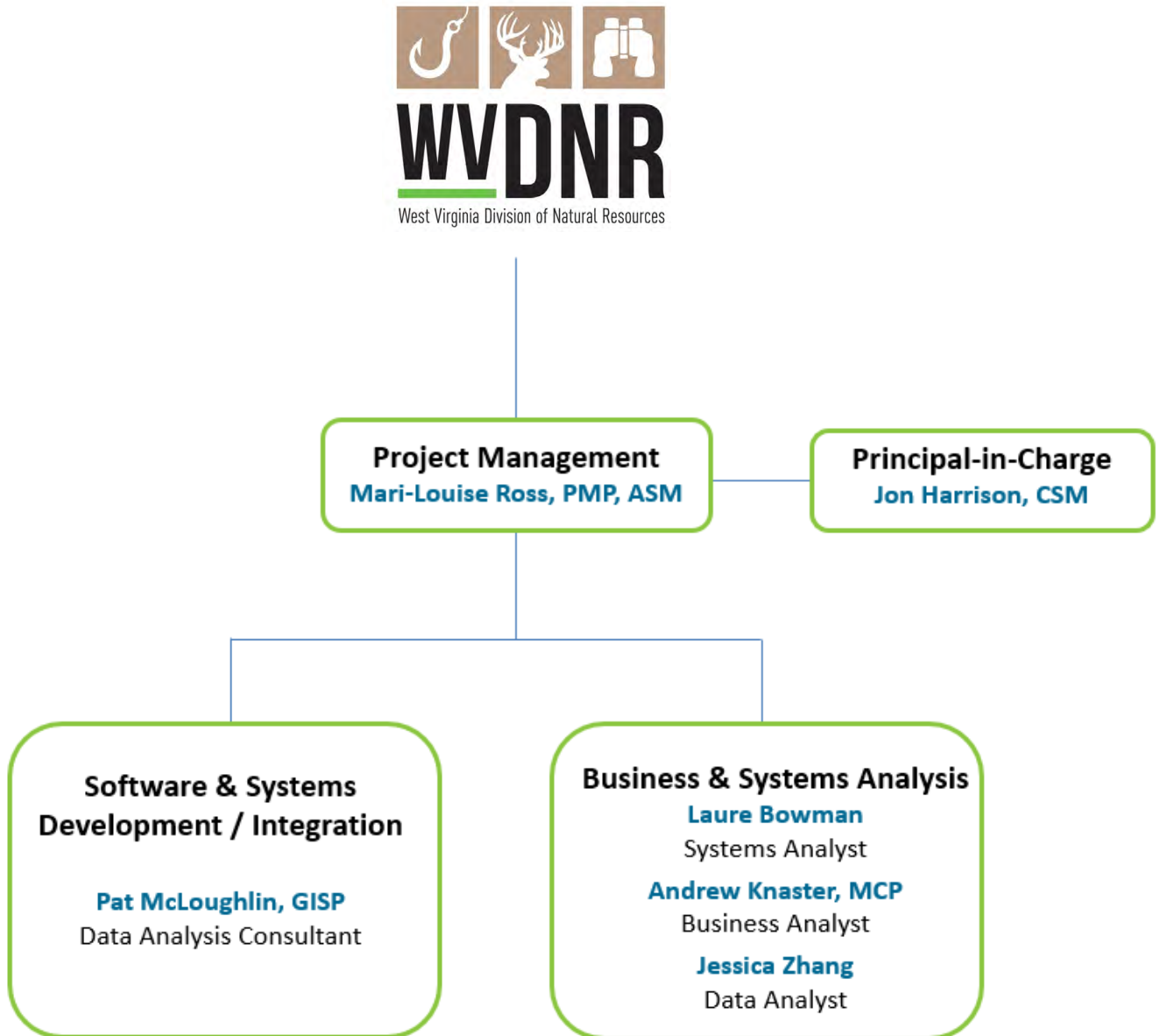
Section	Criteria	Qualification	Notes
3.1.1	Vendor must be an established information technology and consulting firm with a minimum of 10 years of experience.	✓	JMT has been in existence since 1971.
3.1.2	Vendor must have appropriate staff and experience to perform data systems assessment	✓	JMT has the qualified staff and experience necessary to perform data systems assessment. Please see the staff resumes and project examples included with this proposal.
3.1.3	Vendor must have a minimum of ten (10) years of experience in project management.	✓	JMT Technology Group has a strong project management team who follow project management standards and best practices as directed by the Project Management Institute. We have over 30 years of experience in project management and 8 certified Project Management Professionals.
3.1.4	Vendor must have a minimum of five (5) years of technology expertise at advanced level.	✓	JMT Technology Group has over 21 years of technology expertise at an advanced level across many disciplines.
3.1.5	Vendor must have a minimum of five (5) years of experience in web and mobile development at advanced level.	✓	JMT Technology Group has over 15 years of experience in web and mobile development at an advanced level across many disciplines.
3.1.6	Vendor must have a minimum of five (5) years of experience in database development and management at advanced level.	✓	JMT Technology Group has over 21 years of experience in database management and development at an advanced level.
3.1.7	Vendor must have a minimum of ten (10) years of experience with Natural Resources Management Data and/or Biological Data and processes.	✓	JMT Technology Group has extensive experience with Natural Resources data management, most specifically with the state of West Virginia, and has over 10 years of

			experience with natural resource management data and biological data and processes.
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### 3.2 Qualifications and Resumes

#### Organizational Chart

Below is JMT’s organizational chart for the proposed project team. The personnel listed have been identified for this project, and their resumes have been provided for a more in-depth review of their qualifications. JMT Technology Group has a deep bench of over 63 technology professionals to call upon if additional resources are needed.



## Resumes

**Jon Harrison, CSM****Education**

BS/Information Systems Management  
AA/AutoCAD Design and Customization

**Certification(s)**

Certified Scrum Master (CSM)

**Years of Experience**

21 Years

**Role on Project**

Principal-In-Charge

As Practice Leader for the Technology Group and Director of Application Development, Mr. Jonathan Harrison oversees an innovative, highly skilled, and growing team of professionals with extensive experience designing, developing, and managing database and application systems for multiple state and local government clients. Mr. Harrison manages the group's activities by providing leadership, integrating best practices, and identifying opportunities for greater efficiencies. Mr. Harrison has 21 years of experience designing, developing, and implementing enterprise IT, GIS, and business and data collection applications. As a leading expert in application systems, Mr. Harrison oversees the design, development, and implementation of all major projects and has demonstrated proficiency in quality oversight and code review for various projects related to the size and scope of the client.

**Land Management Core Systems Replacement, Anne Arundel County, MD****Software Development Manager**

The Anne Arundel County Land Management Board contracted JMT Technology Group to support a project to replace their land management systems. The first phase of the project was a comprehensive requirements study across four county divisions. The second phase involved the writing of the RFP document for the implementation and support as subject matter experts for the vendor selection and implementation phases. Mr. Harrison worked with the business and systems analysts on the requirements for the land management system replacement. After the functional and system requirements were elicited and documented, Mr. Harrison work with the team to identify and document possible architectural solutions to be included in the final RFP deliverable.

**Electronic Game Checking System Platform Upgrade, West Virginia Department of Natural Resources****Applications Manager**

Mr. Harrison led the design, development, testing, and deployment of the Electronic Game Checking System for the West Virginia Division of Natural Resources. The system was designed as a service-oriented architecture built on top of multiple SQL Server 2012 databases. Mr. Harrison led the design and implementation of the databases utilized for the system. The web services and web portal were developed utilizing Microsoft's .NET 4.5 technology. As part of the design phase, Mr. Harrison worked with the UI team to build mock-ups based on the requirements of the system. Once vetted by the client, Mr. Harrison worked with a team of UI specialists, applications developers, and database developers to build the system from the ground up. As each piece of the architecture was finished development, Mr. Harrison worked with the testing team to thoroughly test the code against the requirements. Once the development and testing were complete, Mr. Harrison led the deployment of the application which consisted of a hosted solution and a warm back-up site powered by Microsoft's Azure technologies. After the release, Mr. Harrison worked with the development team to support operations and maintenance, including such tasks as; disaster recovery, database maintenance plans, application enhancements, customer data support, and support provided directly to the client.

**Compass Operations & Maintenance, Maryland Department of Natural Resources****Applications Manager**

Mr. Harrison provided operations and maintenance support to the Maryland DNRs Compass system. Compass is a licensing system that JMT designed, developed, and implemented in 2012. Operations and support were provided through application enhancements, database maintenance, and system maintenance. Mr. Harrison worked with the project manager, business analysts, system analysts, database administrators, and developers to provide the support needed daily.

**WDFW Licensing and Registration Program, Washington Department of Fish and Game****Applications Manager**



JMT implemented and maintained Washington’s WILD Outdoor Licensing and Recreation solution that generates over \$50 million in revenue each year. Mr. Harrison provided leadership on the project; both as the application manager and as the lead data migration specialist. In the role of application manager, Mr. Harrison met weekly with the lead architect to go over major design decisions as well as any resource issues. He also met with the project managers on a regular basis to provide insight and assistance on topics such as resource planning, testing, production releases planning, and overall development procedures. In the role of lead data migration specialist, Mr. Harrison analyzed the existing data, created entity and field mappings between the old and new systems, wrote migration procedures, validated results, wrote implementation plans, and met with the Washington leadership team bi-weekly to report progress, elicit requirements, and discuss any data related issues.

**Mari-Louise Ross, PMP, ASM****Education**

BS / Chemical Engineering  
BS / Process Control Engineering

**Certification(s)**

Project Management Professional (PMP)  
Agile Scrum Master (ASM)

**Years of Experience**

28 Years

**Role on Project**

Project Manager

Ms. Ross has 28 years of international experience in project management, business analysis, contract management, and engineering. She has been a certified project manager since 2008. Since joining JMT, she has led projects for various state clients such as West Virginia Department of Natural Resources, Anne Arundel County, Maryland Department of the Environment, Maryland Aviation Administration, and Maryland Department of Natural Resources. Prior to JMT, she has led international projects in engineering software development and ERP systems.

**Electronic Game Checking System, West Virginia Department of Natural Resources****Project Manager**

Ms. Ross was the project manager for JMT's O&M support of the WVDNR Licensing and Game check system. She was responsible for communication with WDNR's teams by completing internal review of maintenance activities, reviewing, documenting, and planning new functionality requests, and ensuring that the Operations & Maintenance team had adequate resources to be successful. She managed project staff, sub-consultants, customers, and all other project stakeholders. Ms. Ross reported project progress, resolved risks and issues, and ensured compliance to the Service Level Agreement.

Ms. Ross also led JMT Technology Group's implementation of the upgraded Licensing and Game check system. She led the implementation team, worked with WVDNR to ensure the functional requirements and business processes were fully implemented, developed project plans and implementations schedules, and ensured effective communication with clients. She led all project status meetings and escalated risks and issues to the project sponsors where needed.

**Land Management Core Systems Replacement, Anne Arundel County, MD****Project Manager**

The Anne Arundel County Land Management Board had contracted the JMT Technology Group to support a three-phased project to replace their current Land Management Systems. For the first two phases, Ms. Ross was responsible for the delivery of the project on time, on budget, and within the documented scope. The county formed a project steering committee that met bi-weekly, and Ms. Ross served on the committee, advising on decisions, and keeping the committee informed on all matters related to the project. She led the development of the project management plan, requirements management plan and schedule as well as the planning and scheduling of the requirements sessions. She was responsible for all status updates and the management of any issues during the implementation. She provided oversight to all documentation that was developed and reviewed documents for quality adherence. She was the first point of contact for communication with the client and controlled the budget. Ms. Ross also led the phase 2 work that involved the development of the RFP document as well as a tool to evaluate vendor responses once received. She led the development of the change management and communication plan, which will serve as the basis for end user communications during the implementation phase. Ms. Ross is currently supporting the third, implementation phase of the project as needed by the County.

**Compass Hosting & Infrastructure, Maryland Department of Natural Resources****Project Manager**

This project was the Operations and Maintenance contract for the Maryland DNR Compass electronic licensing system. This project started in July 2020. Maryland DNR had exhausted the contract extensions for their present Operations and Maintenance contract and opted to elect JMT to continue to host the Compass solution. The code and system changes and maintenance transferred to Maryland DNR on June 30, 2020 and JMT continued to host the system in Microsoft Azure, perform all System Maintenance per Microsoft's directives and maintain security actions needed to ensure ongoing SOC compliance. Ms. Ross was the project manager for this contract.

**Environmental Permit Tracking System Modernization Requirements Analysis and Documentation, Maryland Department of the Environment****Project Manager**

MDE embarked on an effort to update their permit tracking system. The project was executed per the DOIT project methodology which requires separate phases for requirements analysis and implementation. JMT conducted the requirements analysis phase which included detailed requirements analysis and documentation and strategic and implementation planning support for the implementation phase. Ms. Ross was the project manager throughout the requirements analysis and RFP development phase of the project. Her tasks included planning and oversight of the kick-off meeting, planning the implementation of the requirements phase, drafting, and maintaining the project management plan and the schedule, drafting weekly progress reports, schedule, risk register updates, and attending status meetings with the client. Ms. Ross was responsible to ensure the project was executed according to project management best practice, and in accordance with MDE, JMT, and DOIT quality metrics. She was responsible for the project close out drafting of the lessons learned report. Ms. Ross also led the development of the RFP, WBS, staffing estimates and RAM development, as well as developing the PMP for the implementation phase. Various minority partners participated in this project and Ms. Ross managed all interactions with MBE partners.

**Pat McLoughlin, GISP****Education**

BS/ Geography/Geographic Information Systems

**Years of Experience**

16 Years

**Certification(s)**

Geospatial Information Systems Professional (GISP)

**Role on Project**

Senior Business Process Consultant

Mr. McLoughlin is an enthusiastic data management and data analytics professional with 16 years of experience, working with customers and state/county agencies to optimize the way they use data, visualizations, and analytics to support their program's mission and drive user engagement. He has experience developing data strategies, data management processes, and data quality standards, having successfully led Maryland's statewide Open Data Program. Mr. McLoughlin has launched and directed the State of Maryland's Business Intelligence and Analytics Program through the Department of Information Technology. He has extensive experience in data analysis, reporting and system integration, as well as opensource technology, project management software, and relational databases. He has a background in GIS and had previously served as the GIS Program Manager for the Maryland Department of Information Technology.

**Enterprise GIS Data Governance, Anne Arundel County, MD****Project Manager**

Mr. McLoughlin has led the development of an Enterprise GIS Data Governance program for Anne Arundel County's Office of Information Technology's GIS Division. This effort included completing discovery and working sessions with County stakeholders to identify and document the goals and objectives around data management. The results of these enhancement, along with regular communication from the County, were the development of a Countywide Data Management Plan, which included development of a Data Management Strategy, Data Governance, Data Policies, Standards, and Procedures, Data Management Committee and Organizational Body, and a Data Inventory.

**Implementation of Bots to Improve Customer Service, Anne Arundel County, MD****Project Manager**

JMT developed a bot for Anne Arundel County to augment website searches on the County's website content. Mr. McLoughlin is providing project management and subject matter expertise services to support bot framework recommendation and bot development using the AWS Lex and Google Dialog Flow bot platforms. Mr. McLoughlin's work included overall project management, bot framework evaluation, documenting the pros and cons of each platform, and recommending platform to adopt for production.

**Data Governance Program, MDOT – MD State Highway Administration****Consultant**

Mr. McLoughlin has provided consulting services and subject matter expertise in support of the Maryland Department of Transportation's (MDOT) State Highway Administration's (SHA) Data Governance Program. This effort included development of a Data Management Strategic Plan, Data Governance Policies, Standards, and Procedures, and a Data Governance Implementation Plan. Additionally, Mr. McLoughlin provided Data Governance consulting support the SHA's Asset Management Integration Program. Mr. McLoughlin also provided Business Intelligence support, developing a Power BI Dashboard, displaying SHA's ArcGIS Online Organizational items, and assigning quality assessments of those items to be addressed.

**GIS Strategic Plan, Anne Arundel County, MD****Consultant**

Mr. McLoughlin provided subject matter expertise in support of Anne Arundel County's Office of Information Technology Geographic Information Systems Division (OIT GIS) Countywide GIS Strategic Plan. He provided support in identifying and developing recommendations for improvements to the staffing, business processes, data, and technologies. This included a Data Management Plan to include data organizational committees, roles and responsibilities, types of data, standards for data and metadata, Quality Assurance/Quality Control, access, sharing, and privacy, policies and provisions for re-use and re-distribution, data storage and archiving, and analytics and administration.

**Business Intelligence and Analytics, Maryland Department of Information Technology****Director**

Mr. McLoughlin was responsible for planning, directing, and administering the strategic and operational aspects of the Business Intelligence and analytics program. He was charged with expanding the use of data and analytics in support of decision making and process improvement, and consulting with Executive Branch Agencies on the use of data, analytics, and visualizations to meet their organizational mission. Mr. McLoughlin managed the State's enterprise business intelligence and analytics platforms (Power BI, Qlik), as well as evaluated and piloted emerging platforms (ThoughtSpot). He was also responsible for administering, supporting, and training state employees in the use of business intelligence and analytics software platforms (Power BI, Qlik, Google Data Studio). Performed dashboard development for the Department of Information Technology, Department of Labor, Governor's Office of Performance Improvement, Department of Budget and Management, Department of Planning, and Department of Natural Resources.

**Andy Knaster, MCP****Education**

PhD /Education (Curriculum and Instruction)  
MS /Information Systems

**Certification(s)**

Microsoft Certified Professional (MCP)

**Years of Experience**

32 Years

**Role on Project**

Business Analyst

Mr. Knaster has extensive experience in business and systems analysis in both the public and private sectors. He is skilled in Systems Development Life Cycle (SDLC) methodologies to include Agile, Agile Unified Process, Disciplined Agile Delivery, Test-Driven Development, Feature-Driven Development, and Waterfall. He has proven success in customer-facing requirements gathering, business process documentation and re-engineering in the public, private, and DOD sectors. Mr. Knaster is experienced with various tools used to support SDLC that include DOORS, Rally, Rational Quality Manager, Rational Team Concert, Rational Requirements Composer and has database experience that includes design, administration, and data modeling. He can generate effective and concise requirements artifacts to facilitate the transfer of stakeholder needs to application development staff, and has significant experience in writing test plans, test cases, and test scripts. He is a trainer, educator, instructional designer, and mentor in information systems and technology in academic and professional contexts. He is a resourceful and tenacious problem solver that can leverage existing tools to resolve issues in the problem domain where the introduction of new tools is not an option. His leadership skills were developed and demonstrated during eleven years of Active Duty and Reserve service in the U.S. Army.

**Electronic Game Checking System, West Virginia Department of Natural Resources****Systems Analyst**

Mr. Knaster brought his expertise in requirements management to the project where he developed an end-to-end requirements traceability matrix (RTM). Using a connection to Microsoft Azure DevOps (ADO), the RTM that Mr. Knaster developed could be updated in real time by any member of the team. He also mentored other members of the team in the use of ADO so they could use it for their own work products.

**Building Permit Application Development, MDOT Maryland Aviation Administration****Systems Analyst**

Mr. Knaster was responsible for eliciting the information necessary to develop the seven, key cross-functional workflows that the Building Permit Application needed to support. He also developed the functional requirements necessary to develop the product that would support those workflows. Mr. Knaster also developed the wireframes that would lead to the development of the user experience.

**Relationally Integrated Computer System (RICS), Ohio Department of Natural Resources****Systems Analyst**

As a systems analyst, Mr. Knaster was responsible for the assessment of user stories and developing complex workflows in the proprietary RICS Form Builder based on the content of those stories. This involved the development and application of conditional logic, regular expressions, user experience engineering, and database querying. Mr. Knaster also worked in testing and quality assurance in the detection, troubleshooting, and remediation of software defects. In addition to these duties, Mr. Knaster applied his knowledge and experience in instructional design for developing training aids to assist the team in applying consistent work processes.

**Premise Addressing Regulation Update, Maryland-National Capital Park and Planning Commission** **Systems Analyst**

In his role as a senior technical writer, Mr. Knaster was responsible for the meticulous review of the draft regulation for the M-NCPPC's Addressing Manual. Many people provided detailed input with the objective of moving the draft to final form. As the first major revision since 1972 the draft contained hundreds of edits and discussion points. Mr. Knaster was responsible for a broad spectrum of activities to include legal research, assessment of the discussions, determining if issues were resolved or needed further action, and conducting technical writing and proofreading to make the final product as useable as possible.

## Laure Bowman



### Education

BS / Wildlife Biology

### Years of Experience

39 Years

### Role on Project

Natural Resources Systems Analyst

Ms. Bowman has 39 years of experience in GIS, database management, and systems analysis. Ms. Bowman is experienced with the software development lifecycle as illustrated by her involvement in projects from requirements analysis to applications design and development to documentation and training. Most recently, Ms. Bowman has been involved with managing the testing of the applications the JMT team develops.

#### **Electronic Game Checking System, West Virginia Department of Natural Resources**

#### **Systems Analyst**

Ms. Bowman worked closely with the project manager, applications development team, and interactive design specialist to ensure the application met or exceeded all requirements and end-user expectations. As a systems analyst, Laure identified any gaps between application functionality and client requirements. She was also responsible for developing the test plan and all cases for three iterations of applications development. In her role as a trainer, Ms. Bowman supported the project manager in delivering training to the 180 license agents, as well as DNR staff and help desk staff. She was responsible for writing the user documentation provided via the application. In the operations and maintenance phase of the contract, Ms. Bowman continued to assist the project manager and WV ELS help desk staff to support the application. Ms. Bowman has been instrumental in the analysis and testing of the regular software updates that address issues and enhancement requests that are agreed upon with the client.

#### **Compass Operations & Maintenance, Maryland Department of Natural Resources**

#### **Systems Analyst**

Ms. Bowman worked closely with the client project manager and stakeholders, JMT program manager, and applications development staff to support and enhance the Compass application. She held regularly scheduled weekly meetings with the client to determine any issues that arise and determine course of action needed and facilitates resolution of the issues. She also reviewed work orders to understand additional requirements for enhancements or new functionality, discussed with client and JMT team to ensure what is needed for implementation was captured and communicated with the JMT team. All deficiencies, enhancements, and new development tasks were logged and tracked in Microsoft's Team Foundation Server (TFS). Ms. Bowman coordinated work planned for each release and worked to ensure the items are completed for each. She coordinated and performed testing for each release and worked with the development staff to deploy releases to production. She also provided post-release client support.

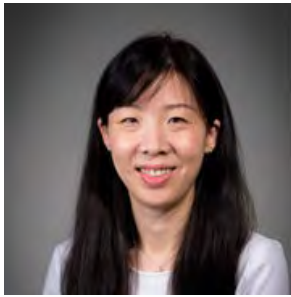
#### **Land Management Core Systems Replacement, Anne Arundel County, MD**

#### **Systems Analyst**

Ms. Bowman worked closely with JMT's project manager and business analysts as well as the Anne Arundel County Land Use Technology Board (LUTB) to perform requirements elicitation and data and systems analysis to deliver a requirements document that the County can then use to develop an RFP for an enterprise land management system. Her role as systems analyst for the requirements elicitation sessions was to assist with planning the sessions, request and review documentation for existing disparate systems and databases, design questions for the elicitation sessions, and facilitate and/or scribe for the elicitation sessions. Ms. Bowman developed Visio as-is process flow diagrams and worked with the JMT team to develop the proposed to-be process flows for the new land management system. She performed interface analysis for the current and proposed system. Ms. Bowman also performed data analysis to provide a logical data model for the proposed system and as part of the JMT team wrote requirements for the new land management system. With other JMT team members, she facilitated the requirements review session and developed the questionnaire to facilitate interviews with potential COTS solutions and was involved with the COTS analysis. For the second phase of this project, RFP development, Ms. Bowman provided input for the Change Management Plan.



## Jessica Zhang



### Education

MS/Bioscience  
BS/Bioscience

### Years of Experience

14 Years

### Role on Project

Data Analyst

Ms. Zhang has 14 years of experience including four years of hands-on experience with Microsoft SQL Server and Microsoft business intelligence tools (SSIS/SSAS/SSRS). She has extensive large dataset experience by serving as data analyst. She also has extensive professional experience in handling huge databases and working on performance tuning and query optimizations. Ms. Zhang has strong experience in data management, data loading, and reporting experience on quantitative analysis, she is expert in data warehouse development starting from inception to implementation and ongoing support and has a strong understanding of BI application design and development principles.

### Electronic Game Checking System, West Virginia Department of Natural Resources

**Data Analyst**

Ms. Zhang worked as the business intelligence developer on the WV ELS project, she was responsible for translating business needs to technical specifications. She designed, built, and deployed a BI solution through BI and data tools (SQL server, SSRS, Report Builder, Power BI). She was mostly responsible for troubleshooting, evaluating, and improving old reports, queries, and RDL designs. Ms. Zhang was also responsible for creating and deploying new quality reports and dashboards to end-users and performing quality assurance checks on reports and dashboards.

### Compass Operations & Maintenance, Maryland Department of Natural Resources

**Data Analyst**

Ms. Zhang worked as the Business Intelligence developer on the Compass project, and she was responsible for translating business needs to technical specifications. She designed, built, and deployed solutions through BI and data tools (SQL server, SSRS, Report Builder). She was mostly responsible for troubleshooting, reviewing, and upgrading old reports, queries, and RDL designs. She also maintained reports and created new reports.

### WDFW Licensing and Registration Program, Washington Department of Fish and Game

**Data Analyst**

JMT implemented and maintained Washington's WILD Outdoor Licensing and Recreation solution that generates over \$50 million in revenue each year. Ms. Zhang worked as the Business Intelligence developer on the WDFW ELS project and was responsible for report migration from an old server to a new server. She migrated all stored procedures and RDLs on SSRS from the old server to the new server, and she was responsible for crafting and executing queries upon request for data and presenting information through reports. Other responsibilities included developing new reports, troubleshooting, and performance tuning of reports.

### Oregon Electronic Licensing System, Oregon Department of Fish and Wildlife

**Data Analyst**

Ms. Zhang worked on the Oregon electronic licensing system designing, developing, and maintaining reports and dashboards in Business Intelligence (BI) tools (SSRS, PowerBI, Tableau). She was also responsible for the full life cycle development, implementation, production support, and performance tuning of the enterprise data warehouse, data marts, and Business Intelligence reporting environments.

### Relationally Integrated Computer System (RICS), Ohio Department of Natural Resources

**Data Analyst**

The Ohio Department of Natural Resources Division of Oil & Gas Resource Management has asked JMT to build a web-based system for them to track their activities, allow for their customers to request permits and provide the public information about oil and gas activities in the State of Ohio. For this project, Ms. Zhang is responsible for extracting application data and legacy database data, then transforming and loading the data into a new relational database. She is also responsible for analysis of data, constructing a conceptual dimensional data model, and designing and implementing an analyst-friendly, BI-specific data warehouse.



Projects

<p><b>ELECTRONIC GAME CHECKING SYSTEM</b>  <b>West Virginia Department of Natural Resources</b></p>	
<p><b>Client Contact:</b>                  Charlie Kennedy                  Director of Customer Relations                  WV Division of Natural Resources                  324 4th Avenue                  South Charleston, WV 25303                  304-558-3315                  Charles.E.Kennedy@wv.gov</p> <p><b>Project Dates:</b> 10/2013 – 02/2021</p>	<p><i>How project meets minimum requirements for the Wildlife Data Systems Assessment</i></p> <ul style="list-style-type: none"> <li>• Data systems assessment</li> <li>• Project management</li> <li>• Advanced technology</li> <li>• Web and mobile development</li> <li>• Database development and management</li> <li>• Natural resources management data and/or biological data and processes</li> </ul>

In 2013, the West Virginia Division of Natural Resources selected JMT to develop, implement and support West Virginia’s new Outdoor Licensing and Game Checking System, Go Wild! West Virginia’s objective was to replace their legacy system, a combination of paper-based and online sales, with a next generation license system that would streamline customer demographic and sales data into a singular, integrated web-based solution. Towards this end, they were focused on identifying a partner that had a proven, established Licensing and Recreation solution. Additional objectives were to develop a rich, integrated customer data store that would support marketing and customer relationship building, as well as establish a flexible, customizable environment allowing administrators to configure and manage the system. They needed a partner that would deliver a system that was 100% customized to sell licenses according to their unique laws and regulations. After careful evaluation of all vendors, JMT was selected as that partner.



JMT began the execution of this complex, multi-faceted project in early 2014, and successfully led West Virginia stakeholders through project implementation culminating with an on-schedule deployment of the ELS into production on January 1, 2015. The first transactions were executed through the new Go Wild system minutes after the New Year arrived.

The West Virginia Electronic Licensing System allows sportspersons the opportunity to purchase annual and lifetime hunting and fishing licenses via the internet, at DNR, or via one of West Virginia’s more than 225 point of sale (POS) agents. The ELS includes a robust Quota Hunt / Lottery capability and successful hunters can check their game at an agent location, over the internet, or by telephone via an Interactive Voice Response (IVR).

JMT’s ability to successfully deliver a fully featured License and Recreation solution that met all of West Virginia’s expectations was a testament to its strong project management practices, the effectiveness of its proven, structured

iterative development approach. In fact, this project approach became a model for JMT's Licensing and Recreation product deployment projects. It began with a comprehensive elicitation and analysis of the State's unique business and functional requirements. A design phase followed this whereby all system integrations and other unique architectural elements were planned and documented. System development / customization commenced using an agile development philosophy that ensured client stakeholders were continuously engaged and then transitioned to a multiphase client acceptance period whereby the system was validated as ready for production release.

The project scope included:

**System Development and Implementation:** The WV ELS was built on top of JMT's outdoor licensing and registration solution and customized to fit DNR's business needs. The JMT Technology Group executed the full system development lifecycle including requirements, design, development, user acceptance testing, and deployment.

**Data Migration:** JMT migrated customer demographic and sales data from the legacy database using its proven data migration and cleaning approach. This included developing a data migration plan which mapped the legacy schema to the new ELS schema and developing ETL (extract transform and load) scripts to migrate the data using an automated process. Once migrated extensive validation procedures were executed to ensure the completeness and accuracy of the new dataset.

**End-User Training:** JMT staff were responsible for delivering end user training to all WV Administrative staff and retail agents. Training was delivered as in person classroom style training. JMT established a training instance that is a mirror of the production ELS. Students that completed training were given a login to this training environment to allow them an opportunity to reinforce their skills prior to production release.

**POS Hardware Configuration and Deployment:** The JMT team procured, configured, and deployed all POS agent hardware and software required to support the ELS through the agent sales channel. This involved onsite visitation of all agent locations by JMT staff to complete the initial installation and to ensure that each agent was ready to sell licenses on day 1.

**Interactive Voice Response:** The JMT Technology Group solution provided integrated interactive voice response services to WV hunters wishing to report their harvest via telephone. The IVR was integrated with the Electronic Licensing solution via an application programming interface (API) so that all data reported via the IVR was stored in a consolidated dataset with data reported online or at agent locations.

**Help Desk:** JMT provided Tier 2 help desk services for customers and Tier 1 help desk services for WV staff and WV agents. This included supporting any issues with hardware operation or configuration and the replacement of defective POS hardware within 24 hours.

**Operations and Maintenance:** JMT provided operations and maintenance support for the ELS from January 2015 through February 2021. This included system hosting, help desk, and application maintenance. Operations and maintenance also included new development and systems enhancements requested by WV DNR.

**State Park Lottery:** In 2018 West Virginia implemented their State Park Lotteries in addition to the existing lottery functionality for general lotteries. This functionality allows hunters to enter up to 18 State Park Lotteries for hunts held in the fall with an associated fee. The lottery administrative module allows DNR manages to create, edit, and manage the lotteries, as well as update the dates on the State Park Informational page each year. Following the lottery drawing, hunters can view the lotteries they were selected for. This new functionality provides hunters with greater hunting opportunities, and for West Virginia to generate additional revenue by charging for each state park lottery entry.

**Organ Donation:** New West Virginia state legislation provided sportsman the opportunity to elect to be organ donors when they purchased their hunting or fishing license. JMT's electronic licensing system was equipped with the functionality for this election, allowing the customer to print their Organ Donation designation on their annual license.

**LAND MANAGEMENT CORE SYSTEMS REPLACEMENT**

**Anne Arundel County, MD**

**Client Contact:**

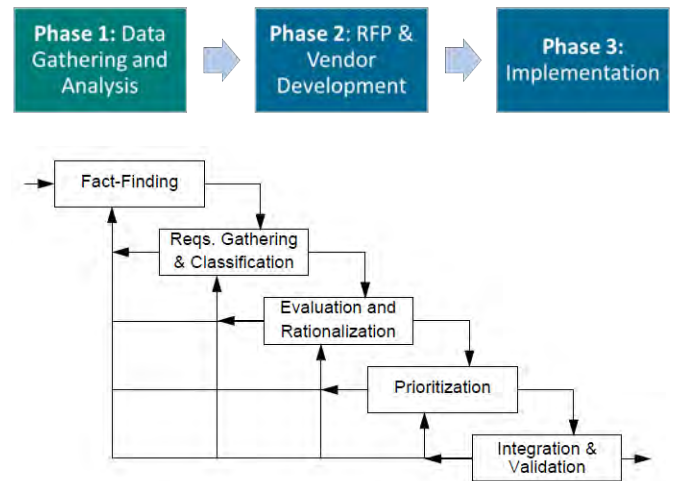
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**Project Dates:** 5/2017 – Present

*How project meets minimum requirements for the Wildlife Data Systems Assessment*

- Data systems assessment
- Project management
- Advanced technology
- Database development and management

Anne Arundel County began the process of selecting a COTS software application to replace the core elements of the existing Land Management Software in use at the county. Four departments combined to perform this task. These were Inspections and Permits, Planning and Zoning, Environmental Health, and Public Works. JMT was enlisted to assist to define the requirements, workflows, and business functions that the new software must perform. This project had three phases. Phase 1 involved requirements analysis and documentation. Phase 2 involved RFP development, vendor analysis, and procurement support. Phase 3 involves support for the COTS implementation.



In Phase 1 JMT performed a comprehensive analysis of the business processes and operating procedures for all land use functions (AS-IS). The analysis was focused on functions specific to each agency, as well as all cross-functional processes between Inspections and Permits, Planning and Zoning, Environmental Health, and Public Works. The objective of JMT’s analysis was to identify redundancies across legacy and disparate systems and manual processes. Having all data in one centralized repository that could meet many of the primary land use functions and interface with associated systems such as financial processes for payments, credits, and refunds, would satisfy the project objectives. Once the AS-IS analysis was done and all the business processes mapped, a high level TO-BE analysis was also conducted. This was not a design but provided high level comprehensive processes that the COTS vendor would need to provide accurate estimates for the development project. Separate AS – IS and TO-BE analyses were done to focus on data analysis and issues pertaining to data migration since this is a critical part of such a project.

As part of Phase 1, the team also provided a market analysis of some of the current solutions and solution providers in the Land Management arena to help the LUTB assess potential vendors for the implementation phase.

Company	Solution(s)
Accela	Land Management
Adept Technologies	Land Management Software
Computronix	POSSE
CSDC Systems	Amanda
GovPartner	CommunityDevelopmentPartner & PermitPartner
Harris	CityView

Harris	Govern Land Management
Hyland	OnBase
Infor (previously Hansen)	Infor Public Sector Suite
Tyler Technologies	EnerGov

All these solutions provide workflow functionality for the following land management activities:

- Permitting
- Plan Review
- Complaints
- Commercial Licensing
- Inspections
- Development Projects
- Zoning Applications/Requests

Aspects such as how the solutions handled agreements, documents, electronic plan reviews and integration into other systems such as GIS, IVR (Interactive Voice Response) systems, financial management systems and others were explored and documented.

All solutions provided deployment options that allowed the system to be hosted off site through a cloud-based deployment or an on-premises deployment in which the County would physically host the system.

In addition, many of the vendors JMT contacted provided rough cost estimates for software licensing and in some cases a pricing for implementation services to give the County an idea of the overall cost of a project of this size along with time estimate for project completion. Note that JMT did not contact the companies with a view to solicit a price for the County implementation, specifically. We only investigated pricing models and general pricing policies of each vendor. Our investigation was performed under the supervision of Anne Arundel County and with their approval.

The final analysis provided the board with criteria by which to select a solution to support all land use activities. JMT's analysis identified the best course for the Land Use Technology Board (LUTB) to move forward when considering a variety of factors such as functional and non-functional system requirements; the expertise of its in-house and consultant resources; short term and long-term financial cost implications as well as established IT policies and procedures. The analysis was primarily focused on ensuring the best selection for a commercial off the shelf (COTS) land management solutions. Extensive research was conducted in the form of interviews with potential Land Management COTS software providers, product literature reviews, and product demonstration/trial evaluations.

JMT developed a matrix that ranked each existing solution against the evaluation criteria and prepared a summary report with additional detail. The final deliverables provided the LUTB with "TO-BE" processes that offered a view of the necessary features required in a COTS solution that would meet their needs. To provide this, all AS-IS processes were identified and drafted. JMT developed a detailed requirements document and a requirements workbook. The workbook can be used to develop user stories, use cases, and test cases during the implementation phase.

Phase 2 entailed the development of the RFP document for the implementation phase. JMT worked in close collaboration with the LUTB and the Anne Arundel County procurement teams to develop an RFP for the COTS implementation of the requirements identified in Phase 1. JMT also developed a system for assessing and scoring the proposals received from the vendors. An additional component of Phase 2 was drafting a communications plan for the County user community that would help the LUTB ensure that communication to the user community was done effectively and at the appropriate times.

Phase 3 of this project entailed the support of the COTS implementation. The implementation phase started in August 2018 and JMT is acting as subject matter experts in this phase. The JMT team is supporting the county in various areas as needed. The data migration is a large and integral portion of the implementation project and JMT is supporting the county with data preparation for upload into the Accela Land Management system. JMT is also providing implementation advice and project management and business analysis support per the county's request. Phase 3 is ongoing.



## ENVIRONMENTAL PERMIT TRACKING SYSTEM MODERNIZATION REQUIREMENTS ANALYSIS AND DOCUMENTATION

### Maryland Department of the Environment

**Client Contact:**

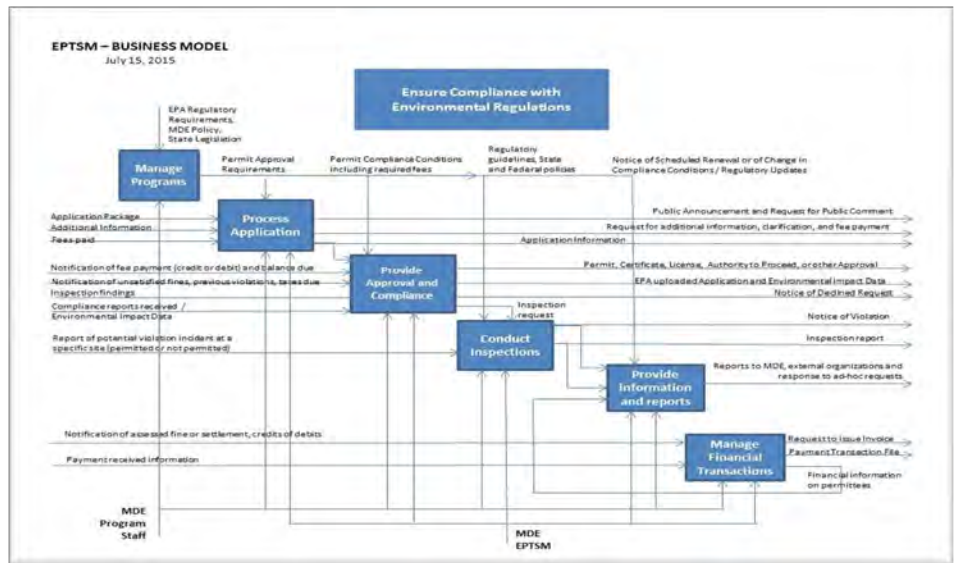
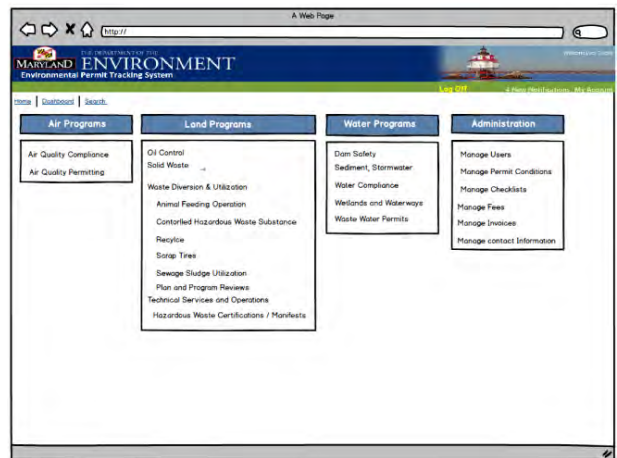
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**Project Dates:** 9/2014 – 8/2017

*How project meets minimum requirements for the Wildlife Data Systems Assessment*

- Data systems assessment
- Project management
- Advanced technology
- Database development and management
- Natural resources management data and/or biological data and processes

The Maryland Department of the Environment (MDE) embarked on a major IT initiative to modernize its Tools for Environmental Management and Protection Organizations (TEMPO) permit tracking system. The primary goal was to replace the existing application front end with a .NET web application to provide a user-friendly and efficient user experience. The modernization project had two phases in accordance with Maryland IT policy, and JMT performed the first phase of this project. JMT developed a Requirements Management Plan and conducted pre-workshop elicitation activities including documentation review, job shadowing and interviewing, as-is and to-be process modeling, and interface analysis. JMT conducted requirements workshops to discover, define, prioritize, and document functional requirements. With the information gleaned during the requirements workshops, JMT prepared requirements documentation including a systems requirements document, requirements workbook, business process models, and wireframes. JMT developed the RFP document in collaboration with MDE for the implementation phase of the project as well as a responsibility matrix (RACI) for the second phase of the project to help the implementation vendor ensure that all project team members are clear on their responsibilities. JMT also created an example project management plan and work breakdown structure for a typical implementation effort, leveraging our subject matter expertise.



## COMPASS LICENSING SYSTEM - OPERATIONS & MAINTENANCE

### Maryland Department of Natural Resources

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Project Manager  
Maryland Department of Natural Resources  
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**Project Dates:** 09/2008 – 02/2021

#### How project meets minimum requirements for the Wildlife Data Systems Assessment

- Data systems assessment
- Project management
- Advanced technology
- Web and mobile development
- Database development and management
- Natural resources management data and/or biological data and processes

In 2011, The Maryland Department of Natural Resources (DNR) selected the JMT Technology Group to design, develop, deploy, and support Maryland's Outdoor Licensing and Recreation solution, Compass, a web-based, licensing and recreation solution for purchasing hunting and fishing licenses, commercial licensing, vessel registration and titling, registering off-road vehicles, reporting harvest information and more.

Maryland was looking for a customer-centric, technology forward solution that would embody its vision for a comprehensive customer service and product delivery platform. More than just a modernized replacement of DNR's legacy COIN application, Compass was developed as a scalable, flexible platform upon which DNR could continue to grow its product offerings and customer services. It captures the high-quality data that is a critical component of holistic resource management.

The screenshot shows the 'Manage Customers' page in the Compass system. The main content area displays a form for editing a product. The form includes the following fields and options:

- Product Code: R0033
- Product Name: Full Season Hunting
- Product Description: Must have completed ALL requirements for license Education and Safety Certification before applying
- Product Type: License
- Product Category: Hunting
- Product is Seasonal: YES
- Season Start Date: 08/01/2015
- Season End Date: 07/31/2016
- Short Term Product: YES (with 'NO' button)
- Number of Days: 7
- Exclusion: None
- Fixed Term Product: YES (with 'NO' button)
- Active: YES (with 'NO' button)
- Selectable: YES (with 'NO' button)
- Available to Businesses: YES (with 'NO' button)

On the right side of the form, there are links for 'Manage Purchasing Information', 'Manage Related Products', 'Manage Requirements', and 'Manage Advanced Properties'. At the bottom of the form are 'Save' and 'Cancel' buttons.

JMT delivered on the vision it proposed, executing the complex system development effort on a compressed schedule, migrating hundreds of thousands of customers and sales transactions from the legacy mainframe-based database, supporting documentation and training efforts, and establishing a secure and reliable hosting environment.

JMT's ability to successfully deliver a custom developed, fully featured License and Recreation solution within nine months of commencing development was a testament to its strong project management practices, the effectiveness of its proven, structured iterative development approach, and the maturity of its software development environment and processes. In addition to promoting the development of efficient, reliable, and robust code consistent with industry standards and best practices, JMT's software development approach directly engaged DNR stakeholders throughout the process to ensure that all aspects of the ultimate solution were aligned with DNR expectations.

The next generation Compass Outdoor Licensing and Recreation solution was successfully released into production in early 2012 and remains in use for online customers, by the Compass telephone sales team, at all seven of DNR's regional service centers, and at hundreds of sports license agent locations throughout Maryland.

A fundamental business objective of Compass was to improve customer service through the provision of an intuitive, self-service sales environment through which customers can purchase the products they need via a variety of computing devices. JMT successfully delivered on this objective by providing an environment through which customers could self-register for accounts, manage their accounts over time as information changed, and purchase products through a product catalog that enforced Maryland’s Hunting and Fishing regulations.

JMT implemented a responsive design framework to ensure Compass worked just as well on tablets and mobile phones as it did on personal computers. Customers were now empowered to create an account, purchase the license they needed, and subsequently report their successful harvest all on their mobile phones. Opening new sales channels and providing customers great convenience contributes directly to the generation of revenue through the system. Since the Compass production release, JMT used user feedback and user testing to enhance the user interface with the objective of optimizing user experience.

A second fundamental business objective of Compass was to empower DNR to manage all aspects of the system including customers, internal system users, license agents and the product catalog. JMT provided an intuitive and powerful suite of “back office” functionality that allows DNR to manage nearly all aspects of Compass without JMT involvement and without the need for code changes. This includes creating users with specific roles that dictate their system permissions, creating new agents and managing agent accounts over time, and, of course, managing all aspects of the product catalog including the presentation of products in the product catalog and all business rules that control the “purchase-ability” of products.

JMT was responsible for Compass operations and maintenance for more than four years, beginning with its original product release and continuing through February of 2021. All option years on the original contract were executed and JMT successfully won the contract for these services when procurement rules dictated it be subjected to competitive bid. Operations and maintenance included the ongoing provision of secure, reliable system hosting, day to day management of the Compass application and database, provision of a replicated database environment to support DNR’s internal data analysis needs, as well as enhancements.

Operations and maintenance also included planning for and establishing the infrastructure to ensure continuity of operations in the event of a natural or human-caused disaster. JMT understood that availability was paramount and maintained availability of the Compass system at 99.982% since production release. Toward that end, the JMT team established a “warm site” within Microsoft’s Azure cloud computing platform. The warm site, established at Microsoft’s Eastern United States datacenter, has an identical architecture to that of the production system. JMT established database replication from the production database to the warm site database that ensures that the warm site database is never more than 15 minutes less current than the primary database and updated its production release utility to ensure that code and schema changes are in sync with production at all times.



<b>ENTERPRISE GIS DATA GOVERNANCE</b>	
<b>Anne Arundel County, MD</b>	
<p><b>Client Contact:</b>            Dave Gillum            GIS Manager            Anne Arundel County Office of Information Technology            44 Calvert Street, Arundel Center, Mail Stop: 1335            Annapolis, MD 21401            itgill00@aacounty.org            410-222-4023</p> <p><b>Project Dates:</b> 3/2020 – Present</p>	<p><i>How project meets minimum requirements for the Wildlife Data Systems Assessment</i></p> <ul style="list-style-type: none"> <li>• Data systems assessment</li> <li>• Project management</li> <li>• Advanced technology</li> <li>• Database development and management</li> <li>• Natural resources management data and/or biological data and processes</li> </ul>

The Anne Arundel County Office of Information Technology’s GIS Division was looking for assistance in developing governance for their Enterprise GIS content. The County engaged JMT to develop a Data Management and Governance Plan in alignment with the County’s Strategic Plan. The project included the following tasks:

### **Task 1. Discovery/Working Sessions**

In developing the GIS Data governance plan, JMT worked with Anne Arundel County stakeholders to review, identify, and confirm the following:

- Strategy to include the governing body
- Policy framework
- Standards and quality
- Stewardship
- Data inventory components
- Data management projects
- Consumers/customers of County GIS data

Each of these items were related to Anne Arundel County’s GIS Strategic Plan and included best practices related to maintaining high quality GIS data elements.

### **Task 2. Develop GIS Data Governance Plan**

With insights gathered from County staff, JMT developed a GIS Data Governance Plan to include findings and recommendations for the Data Governance Program at Anne Arundel County.

This plan included the following components defining policies and standards:

- **Data Management Strategy** – The plan for maintaining data quality, data integrity, data access, and data security
- **Data Policies** – Rules governing the creation, acquisition, integrity, security, quality, and use of data
- **Data Standards and Data Quality Plan** – High-level requirements to enforce data completeness and quality throughout the data management lifecycle
- **Identify Roles and Responsibilities/Stewards/Organizational Structure** – Champions of data management and governance at varying levels including Management (Executive) Enterprise, Operational, Technical (position only, no names associated)
- **Data Inventory** – Detailed list of County datasets and pertinent information including, but not limited to data type, data owner, data update cycle, data availability (access constraints), time period of data, and data retention period



**DATA GOVERNANCE**

**MDOT Maryland State Highway Administration**

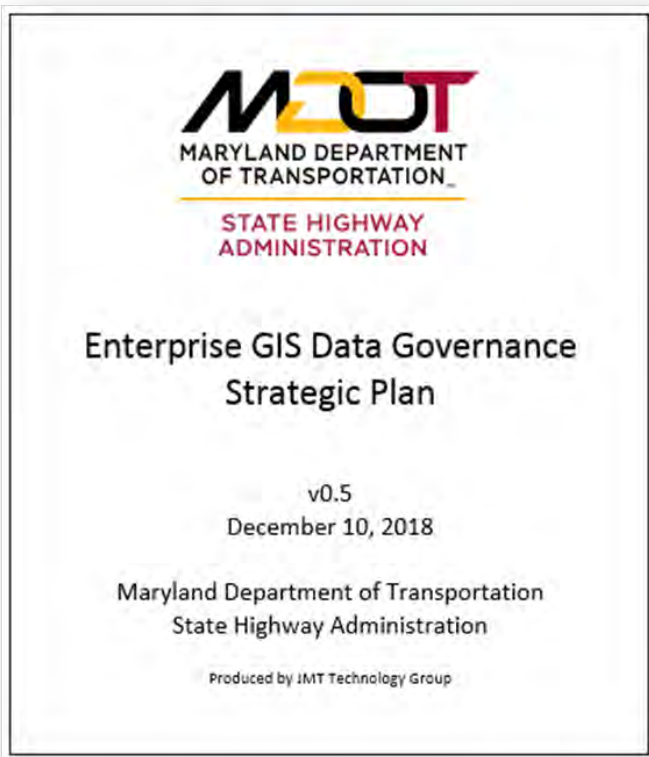
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**Project Dates:** 09/2015 – 03/2021

*How project meets minimum requirements for the Wildlife Data Systems Assessment*

- Data systems assessment
- Project management
- Advanced technology
- Database development and management



JMT supported MDOT SHA in the development and implementation of a Data Governance Plan which documents the agency-wide approach for how SHA collects, manages, disseminates, utilizes, and archives its enterprise data and related applications. The Data Governance Plan defines the agency’s overarching goals and objectives under which all other SHA data governance plans must align. In support of this goal JMT first developed a Data Governance Roadmap which summarized the results of a gap analysis between the established goals and current data and provided recommendations for the way ahead. Building on the roadmap, JMT developed the Enterprise GIS Data Governance Strategic Plan which defines the organizational structure for data governance at the agency, as well as policies, standards, and procedures for different categories of datasets. JMT then developed an Implementation Plan with activities and milestones and is conducting a pilot implementation using ArcGIS Online products managed by DGD. To aid in this pilot, JMT developed a Power BI dashboard which summarizes the types of data governance issues by item owner and provides a report that can be used to address them.

## 4. Mandatory Requirements

### 4.1 Understanding

This proposal addresses the details to complete the tasks as outlined by WVDNR in the RFQ. JMT recognizes that the department is looking for a consultant to assist them to document, assess, rank, and offer options for the future of each application or database for various wildlife programs. This support will involve the following high-level tasks:

- Kickoff meeting and initial Interviews
- Program interviews
- Application and database analysis and documentation
- Prepare matrix to rank applications
- Draft recommendations to include alternative options and level of efforts
- Final recommendations and presentation

WVDNR will realize a significant advantage by selecting JMT to support this project given our recent and relevant experience performing similar services as described throughout our proposal response. JMT's approach to the requested tasks are further detailed in the task descriptions below.

JMT understands that what is required is not a detailed systems analysis effort of all the WVDNR systems, but a level of analysis sufficient to perform the risk analysis, scoring, and recommendations requested by WVDNR. A detailed in-depth system analysis of all the WVDNR systems will require an effort that is an order of magnitude larger than what the RFQ allows. The time allowed and reflected in our attached schedule is also consistent with this understanding of the level of effort. We estimated this work to be completed in four months. JMT believes that our familiarity with WVDNR and with similar systems will bring substantial effectivities to this work.

#### 4.1.1 Task 1- Initial Interviews and Project Kick-off

##### 4.1.1.1 Notice to Proceed

The JMT project manager will contact the WVDNR project manager to coordinate an appropriate time for the project kickoff meeting, and for the initial staff interviews.

The JMT team will begin work to:

- Prepare a draft schedule
- Prepare draft questionnaires and inventory matrices upon receipt of list of databases and applications
- Review and organize the list of applications and databases
- Prepare project kickoff agenda and initial interview material

#### 4.1.1.2 Project Kickoff

The JMT team and Wildlife Resources Section (WVDNR) team will be present at the kickoff meeting. A notional kickoff meeting agenda is below.

**1. Project Purpose and Overview**

The project purpose as well as the envisioned benefits to the department is reviewed. A brief overview of the vision of the project is discussed.

**2. Stakeholders**

The project stakeholders are introduced, as well as their roles within the project. The stakeholders are aligned to project objectives, as well as the expected interventions of the stakeholders are discussed.

**3. Team**

The project team will be introduced, and the organization chart presented.

**4. Roles and Responsibilities**

Team roles and responsibilities are presented and agreed upon. Typically, this is done in either a Responsibility Assignment Matrix (RAM) or in RACI (Responsible, Accountable, Consult, Inform) Matrix.

**5. Plan/Agenda**

The overview of the project plan and draft agenda is discussed.

**6. Scope**

The scope reviewed at a high level. A scope review aligns expectations for stakeholders and contractors and allows for a review and discussion of assumptions.

**7. Risks**

The first draft of the project risk register is reviewed with all stakeholders.

**8. Key Success Factors**

The key success factors for the project, and the required contribution of all stakeholders to these, are reviewed. This also outlines the time requirements needed from the Commission to ensure project success. Draft templates, matrices, strategic goals KPI's will be discussed.

**9. Progress Reviews**

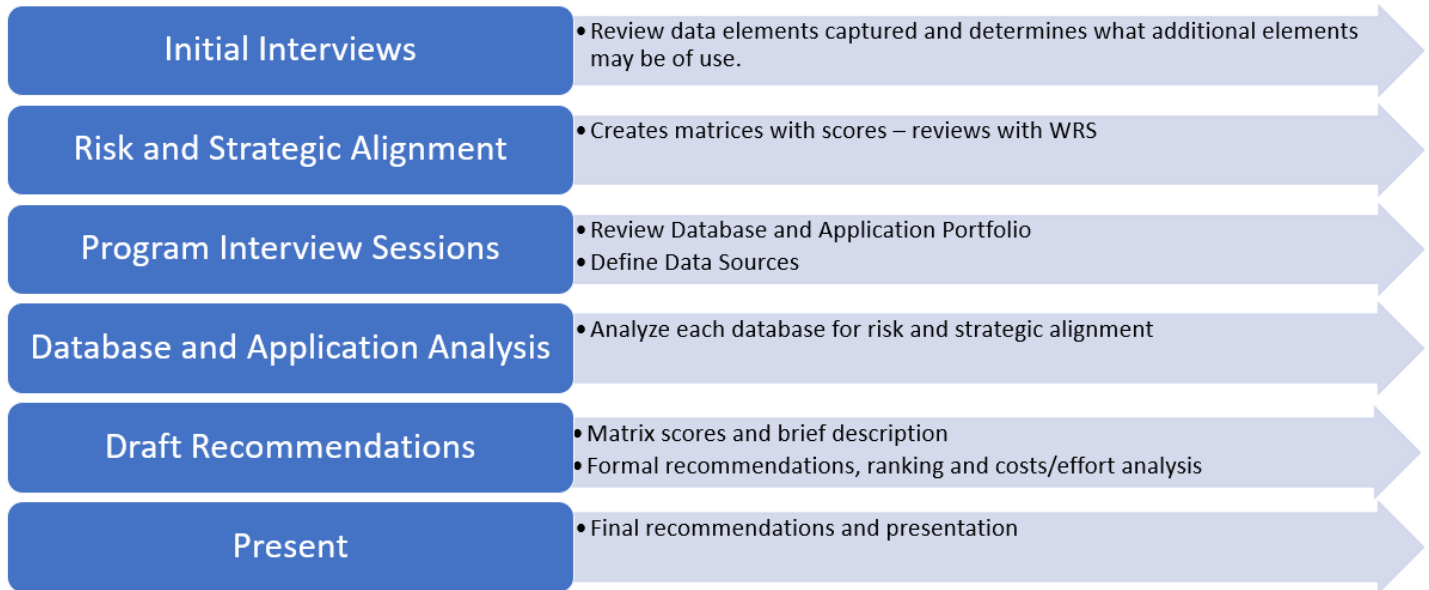
The progress checkpoints for the project will be discussed and established, and progress specific to the initiation phase is reviewed.

**10. Next Steps**

Immediate next steps are agreed upon and leads assigned. This includes immediate risks that need to be addressed, items forthcoming from the meeting, any new meeting dates that must be set up and the drafting and distribution of the minutes. The JMT project manager will prepare the minutes for the meeting and distribute it to all parties.

### 4.1.1.3 Initial Interviews

JMT will follow the process as set out in the RFQ and outlined in Figure 1 below to analyze and assess the databases. JMT’s business analyst and data analyst will conduct the initial interviews with representatives of the WVDNR programs to confirm our initial understanding of the data provided and gather first impressions of additional data elements needed, as well as the general ranking of the databases. The initial interviews will be conducted as two-hour virtual meetings with each WVDNR unit. During the initial interview, JMT will update the matrix to reflect discovery during these interviews. A quick review will ensure that applications or databases are assigned to the appropriate unit and establish points of contact for further information. Specific tasks will be reviewed, and a date set for Task 2 Program Interview Sessions.



**Figure 1 WVDNR Process Analysis**

### 4.1.1.4 Risk and Strategic Alignment

JMT will prepare a matrix as shown in Figure 2 with applicable criteria to score applications and databases against stated WVDNR strategic goals, objectives, and risks. During the preparation for the interviews, the format and content of this matrix will be reviewed with the WVDNR team. JMT will develop information sheets for detailed data capture per application as well as tables and charts to represent the data in multiple settings. This format will account for the application or database name, responsible unit, relevant programs, data elements captured, and additional data elements recommended. It will further include risk metrics and alignment with strategic goals as agreed with WVDNR, and a score will be calculated that indicates the measure of overall strategic alignment and importance. The WVDNR team will be required to provide JMT with the main strategic drivers for the programs, or the relevant strategic plan.

Application/Database Name	Unit/Program	Program(s) cross reference	Purpose	Secondary elements	Risk (1)	Risk (2)	Risk (3)	Strategic Alignment Score	Overall Score	Notes

**Figure 2 Sample Scoring Matrix**

**Task 1 Deliverables:**

- Kick off meeting minutes
- Draft templates of database inventory and matrices
- List of additional elements (per database) required for program interview sessions
- Two-hour initial interviews with programs (8 total)
- Updated matrices for lifecycle discussions

**Task 1 Assumptions:**

- JMT assumes that all meetings will be virtual as confirmed in Amendment 2. Travel time and travel costs have not been included in this proposal.
- The initial interviews and the program interviews will be captured in the matrices and artifacts as described in the deliverables. Additional meeting minutes have not been included in this estimate.
- JMT requires that one Subject Matter Expert (SME) be identified for each of the following stakeholder groups: Game Management Unit, Game Research Program, Fish Management Unit, Fish Hatchery Program, Wildlife Diversity Unit, Natural Heritage Program, Environmental Coordination Program, and GIS and Technical Support Program. The SMEs will be active participants throughout the duration of the project. The SMEs will be the primary point of contact for all documentation and quality reviews and will attend all meetings as required. Should an SME become unavailable, this may require additional time to introduce a new person and may lead to an impact on the project schedule and cost.
- WVDNR will provide the specific goals, objectives, and priorities for applications to be assessed against during the kickoff meeting.
- JMT's price proposal assumes that there are four large applications (Electronic Licensing System, Biotics5, and two enterprise geodatabases); approximately 10 medium sized systems (Access database, file geodatabase, or Excel spreadsheet with 13-60 tables); and approximately 116 small Excel or Access databases with 12 or fewer tables.

**4.1.2 Task 2: Program Interview Sessions**

During the initial interviews with each program or unit, JMT will establish the expectations and date for an in-depth interview. JMT will create and assign assessment forms per application or database with the expectation that the forms will be filled out by the responsible department within WVDNR prior to the interview sessions designated for Task 2. JMT will conduct a total of 8 four-hour program interview sessions in which we will jointly review the application and database portfolio associated with a particular program or unit; review the supplied documentation; gather additional information and assess data sources; identify technical debt; and process concerns at a high level. During these interviews WVDNR team members are welcome to provide print outs from the databases, screenshots, and walk throughs.

**4.1.2.1 Review of Database and Application Portfolio**

As part of the program interview sessions, JMT will assess the application and databases for the agreed upon risk and alignment rankings. These interviews will follow the same structure as the initial interviews but will expand on the level of detail and follow up on items initially identified in the risk and strategic alignment. WVDNR personnel will have the opportunity to identify needs for additional data elements and refine information for the risk and strategic alignment aspects. Items discussed during the interviews will be properly annotated for each application or database to ensure an accurate representation.

#### 4.1.2.2 Define Data Sources

As applications and databases are reviewed, JMT will define data sources for each of them based on the information that was provided in the interviews and will expand the matrix with notes about the use and management aspects of the data. Typically, the data source definition is focused on the location of the data. Standard attributes to capture will vary depending on the type or format. JMT plans to capture the following fields based on the information provided during the interviews.

- Source – location data originated from, how the data was originally collected
- Source organization
- Type/format – flat file, spreadsheet, SQL Server, etc.
- URL
- Host/server, port
- Credentials, if needed/applicable
- Database name
- Classification (public/open, private)

#### Task 2 Deliverables:

- Updated information on database and application portfolio
- Data source definition matrices

#### Task 2 Assumptions:

- Program interview sessions will be conducted via virtual meetings.
- All relevant information will be captured in the matrices. Additional meeting minutes will not be provided.
- SMEs will come to program interview sessions prepared to discuss their applications, databases, and processes and will answer follow up questions in a timely manner.

### 4.1.3 Task 3: Database and Application Analysis

Once all interviews are completed, the JMT business analyst and data analyst team will review the information gathered and complete the analysis for all the systems with respect to the risk and strategic analysis. Risk parameters will be discussed with the WVDNR team, but we believe data risks and technology readiness will be acceptable measures to analyze overall risk for the given systems. These follow standard data management procedural standards found in the Data Management Body of Knowledge (DMBOK 2) from DAMA.

The data risk assessment will examine the potential for data loss through technical errors, deficiencies in processes for maintaining and storing the data, or through malicious actions. Assessments of the data follow three general risk categories. The risks are predicated on vulnerabilities for unauthorized data access.

<b>High Risk</b>	Data that contains personal identifiable information (PII), employment records, or has high financial value that, if lost, would cause harm to WVDNR.
<b>Moderate Risk</b>	Data contains information that is internal and protected, but not considered High Risk, such as data considered operational or intellectual property. Loss of this data or application could have a mildly adverse impact on WVDNR.
<b>Low Risk</b>	Possesses minimal risk to WVDNR team if made available to public. Data may already be publicly available through websites or data portals.

Technology readiness risk is assessed to determine vulnerabilities to the organization based on the type of database or application being used. These vulnerabilities can include data redundancy or duplication, antiquated or obsolete data or systems, or storage and security concerns.

After the identification of WVDNR strategic drivers for the programs, JMT will design specific scoring criteria to determine an overall score for each of the listed databases or applications. The score will be the combination of the various risk factors as identified, and the degree of strategic alignment. This will render an overall score for each application. The overall scores will then be mapped to the categories as stated in the RFQ, namely discontinue, migrate, or continue. Additional context will be provided for each system as needed. For example, systems that could be combined or migrated will be indicated via cross references.

### Task 3 Deliverables:

- Analysis and risk matrix

### Task 3 Assumptions:

- Although our team has the capability to review all data elements in the given systems in depth, it is our understanding that the RFQ calls for a higher level analysis and thus we have assumed that the analysis will be done solely based on the information provided to us during the client meetings. We believe that this will suffice to provide WVDNR with the information requested in the RFQ. Should more in-depth system analysis be required, JMT will provide additional estimates to WVDNR.
- The technical debt and process review will be performed at a high level and will not involve a code review or process mapping exercises.

## 4.1.4 Task 4: Draft Recommendations

Upon completion of tasks one, two, and three, JMT will draft a report with the development of a set of recommendations, actions, and anticipated high-level efforts for each application or database reviewed. The recommendations to discontinue, migrate, or continue will be presented as a draft document for WVDNR's review.

The report shall include:

- Executive summary
- Chapters organized by unit or program listing
  - Application summary narrative
  - Scores derived during Task 3
  - Brief narrative
  - Approach/recommendations
  - Alternatives
  - LOE for recommended alternative
- Matrices developed in Tasks 1-3
- Appendix with detail sheets

WVDNR will review the draft report and provide detailed commentary. JMT will incorporate agreed upon changes into the final version.

### 4.1.4.1 Recommendations per Database or Application

The primary source of the recommendation will come from the responsible unit or program with oversight by JMT. In cases where the responsible program cannot align the application or database to a required business function or

strategic goal or objective, JMT may request further justification to support a decision to continue an application or database. In cases where a process or procedure introduces a risk, JMT will present alternatives. Each recommendation will be documented and supported through standards such as the DMBOK 2.

#### 4.1.4.2 Recommended Approach

Based on the information provided to JMT and the analysis of this information, and the input received from the WVDNR team, JMT will develop a recommended approach for each application or database analyzed. Per the directive given in the RFQ, all applications and databases will be categorized as follows:



### Discontinue

Application is at 'end of life' and has exhausted the business value it brings to WVDNR



### Migrate

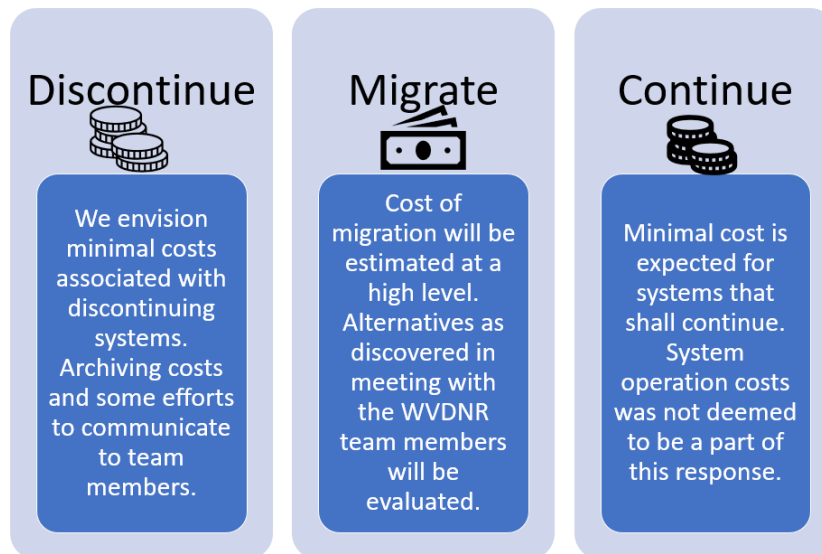
The application continues to bring business value but can be improved by integrating or migrating with other solutions



### Continue

Application is strategically well aligned and brings the required business value. It will continue as is.

For each application or database, the recommendations will include additional details related to cost as illustrated below.



For systems that will be migrated, specific options will be given about the way forward, as well as a first pass cost analysis for the recommendations we present. The draft report will be sent to WVDNR for their review and comment. Comments received will be incorporated into the report, and a final report will be issued.

#### Task 4 Deliverables:

- Draft recommendation report
- Final recommendation report



**Task 4 Assumptions:**

- LOE and budgetary estimates will be developed for a preferred course of action for an application or database. These estimates will be of a level sufficient to ensure that strategic decisions can be made, but firm cost estimates will require more analysis than has been provided for in this response.
- WVDNR will provide the specific goals, objectives, and priorities for applications to be assessed against.
- WVDNR will provide final comments on the draft recommendations developed in Task 4 within 15 working days. JMT is assuming that there will be one round of edits made to the draft documents to be incorporated as a final deliverable.
- WVDNR must review the draft report within the stated timelines to ensure that the schedule does not slip.

**4.1.5 Task 5: Final Recommendations and Presentation**

The information collected and recommendations will be distilled into a PowerPoint presentation with summary tables and organized to provide both a holistic view of the portfolio as well as a view by program or department. JMT will present our findings to WVDNR stakeholders and will discuss recommendations, LOE, and budgetary estimates.

**Task 5 Deliverables:**

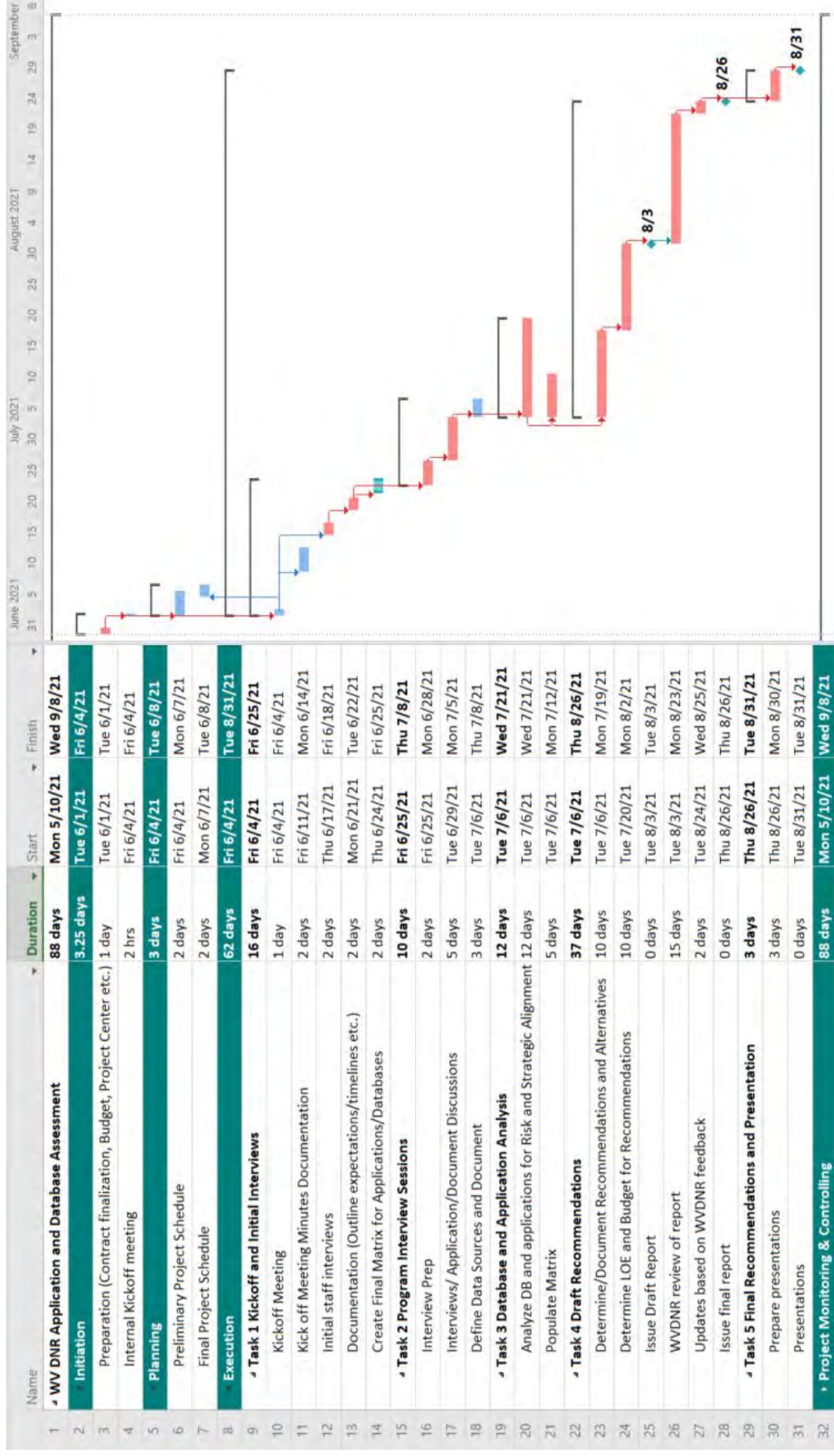
- PowerPoint presentation of recommendations

**Task 5 Assumptions**

- JMT has allowed for only one presentation of the final recommendations to the WV DNR stakeholders. If all WV DNR team members cannot attend a single meeting, additional meetings will result in a scope change.

### 4.1.6 Schedule

JMT understands that WVDNR would like to complete this project within four months. An initial schedule based upon our understanding of the project is below. This schedule, although realistic, is fairly aggressive and can only be attained with the full cooperation and engagement of the WVDNR team.



### 4.1.7 Project Meetings

The JMT project manager will meet with the WVDNR project manager virtually for the duration of the project. During these meetings, the following items will be discussed:

- Activities performed to date
- Activities scheduled and upcoming
- Hurdles or items needing attention
- Administrative Issues needing attention

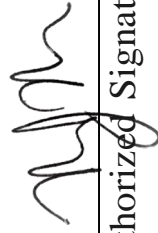
Project meetings will occur monthly at a minimum but may occur more frequently due to project activity or concerns. In addition to meetings with the WVDNR project manager, the JMT team will meet bi-weekly to coordinate tasks, review ongoing efforts and ensure coordination among team members.

5. Pricing

**REQUEST FOR QUOTATION**  
**West Virginia Division of Natural Resources**  
**WVDNR Data Systems Assessment**  
**Exhibit A - Pricing Page**

Item No.	DESCRIPTION	Unit of Measure	Quantity	Amount
4.1	WVDNR-Data Systems Assessment	Job	1	\$93,300.00
<b>TOTAL:</b>				<b>\$ 93,300.00</b>

Company Name: Johnson, Mirmiran, & Thompson, Inc.



\_\_\_\_\_  
 Authorized Signature

4/20/21

\_\_\_\_\_  
 Date

## 6. Attachments

- Contract Manager
- Designated Contact / Certification and Signature
- Addendum 1
- Addendum 2

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## Contract Manager

**11.1 Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor’s responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

**Contract Manager:** Jon Harrison, Vice President

**Telephone Number:** 410-316-2316

**Fax Number:** 410-472-0731

**Email Address:** jharrison@jmttg.com

## Designated Contact / Certification and Signature

**DESIGNATED CONTACT:** Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

 Vice President  
\_\_\_\_\_  
(Name, Title)

Nicole Miller, PMP, GISP – Vice President  
(Printed Name and Title)


40 Wight Avenue, Hunt Valley, MD 21030  
(Address)

443-0662-4260 / 410-472-0731  
(Phone Number) / (Fax Number)

nmiller@jmttg.com  
(email address)

**CERTIFICATION AND SIGNATURE:** By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor’s behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Johnson, Mirmiran, & Thompson, Inc.  
(Company)

 Nicole Miller, PMP, GISP – Vice President  
\_\_\_\_\_  
(Authorized Signature) (Representative Name, Title)

Nicole Miller, PMP, GISP – Vice President  
(Printed Name and Title of Authorized Representative)

4/20/2021  
(Date)

(Phone) 443-0662-4260, (Fax) 410-472-0731  
(Phone Number) (Fax Number)

Addendum 1

**ADDENDUM ACKNOWLEDGEMENT FORM  
SOLICITATION NO.: ARFQ DNR21\*42**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification. **Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

*(Check the box next to each addendum received)*

- |                                                    |                                          |
|----------------------------------------------------|------------------------------------------|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2            | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor’s representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Johnson, Mirmiran, & Thompson, Inc.

Company

  
Authorized Signature

4/6/2021  
Date

**NOTE:** This addendum acknowledgment should be submitted with the bid to expedite document processing.



Addendum 2

ADDENDUM ACKNOWLEDGEMENT FORM  
SOLICITATION NO.: ARFQ DNR21\*42

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification. Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

*(Check the box next to each addendum received)*

- |                                                    |                                          |
|----------------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Addendum No. 1            | <input type="checkbox"/> Addendum No. 6  |
| <input checked="" type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor’s representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Johnson, Mirmiran, & Thompson, Inc.  
Company

  
Authorized Signature

4/6/2021  
Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.