State of Montana

Department of Natural Resources and Conservation

Agency Information Technology Plan
2016

July 2016 – June 2021

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1. Executive Summary

The mission of the Montana Department of Natural Resources and Conservation (DNRC) is to ensure that Montana's land and water resources provide benefits for present and future generations. The nature of this mission drives a diverse set of responsibilities that presents unique challenges for the agency's information technology (IT) systems. DNRC's technology solutions must support a geographically dispersed workforce, often operating in remote areas, with an extensive portfolio of program requirements across multiple professional domains, such as scientific, financial, real estate, engineering, emergency services, legal, and administrative.

DNRC programs support all of the primary State of Montana objectives to varying degrees: education; jobs; efficient and effective government. Program business needs directly drive the agency's IT strategy:

1. Improve network capacity and performance at DNRC sites to enable efficient and effective access to state and agency resources and premier citizen services.
2. Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology solutions.
3. Ensure critical data and systems meet program requirements for disaster recovery and continuity of service.
4. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability.
5. Deliver web and mobile access to DNRC services for citizens, businesses, and employees.
6. Develop systems that support program requirements across diverse geographic and operational environments.
7. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate.
8. Share systems, components, and functionality across Montana agencies, Montana political subdivisions, and other states *where common business requirements exist*.
9. Leverage cloud, open source, emerging technologies, and existing systems where appropriate to maximize business value; deploy custom built systems when necessary to meet specialized business requirements.
10. Implement an agency cyber security program.

2. Environment, Success and Capabilities

DNRC's mission is to help ensure that Montana's land and water resources provide benefits for present and future generations. The department fulfills this mission through a myriad of programs and services geared toward enhancing citizens' ability to both enjoy and prosper Montana. These programs are primarily focused around forestry management, state water resource management, management of state lands held in trust for public education, managing grants and loans in

partnership with local governments and conservation districts for conservation and resource improvement projects, and protecting citizens from the impact of oil and gas activities.

The Montana Department of Natural Resources and Conservation (DNRC) employs approximately 550 FTE, although that number grows to as much as double with the yearly hiring of seasonal firefighters for the state's 4-5 month wildfire season. Four divisions make up the core of DNRC – Forestry, Trust Lands Management, Water Resources, and Conservation and Resource Development. Ten boards, commissions, or programs are attached to the department. Six of them – the State Board of Land Commissioners, Reserved Water Rights Compact Commission, Board of Oil and Gas Conservation, Board of Water Well Contractors, Flathead Basin Commission, and Montana Grass Conservation Commission – have decision-making authority. Three – the Resource Conservation Advisory Council, Rangeland Resources Committee, and Drought Advisory Committee – act in an advisory capacity only. In addition and new to 2016, the Greater Sage Grouse Habitat Conservation Program is administratively attached to DNRC and reports to the Montana Sage Grouse Oversight Team.

The **Director's Office** provides central administrative and operational services to divisions and programs throughout the agency. It includes the Director's staff, Public Information Office, Safety Office, Financial Services Office, Human Resources Office, Legal Office, and the Office of Information Technology. Most Director's Office staff are located in Helena, although OIT staff are also located in Missoula, Kalispell, and Billings. The functions of the Director's Office provides the foundation for the divisional programs to effectively serve that state's citizens through their respective areas of natural resource management.

The **Conservation and Resource Development Division** is focused on providing local governments and private citizens the needed financial and technical support to strengthen their leadership and management of the state's natural resources. The Division provides extensive support to the state's 58 Conservation Districts, set up under state law and responsible for the management of natural resources within their boundaries. The division also manages a significant number of resource development programs including renewable resource grants and loans, reclamation and development grants, regional water coordination assistance, conservation district water reservations, and drinking water and waste water systems. The division consists of 3 Bureaus – Conservation Districts, Resource Development, and Financial Management, and the Montana Sage Grouse Habitat Conservation Program.

The **Forestry Division** promotes responsible and proactive stewardship of Montana's forests and rural lands. The programs help private landowners manage their forested lands, and help cities and towns develop vibrant parks, boulevards and natural areas. Staff respond to wildfires, insect pests and diseases, and advocate for sustainable forest management practices on private, state, tribal and federal forestlands. DNRC forestry division values Montana's integrated forest industry and its social, economic and environmental benefits. The division is headquartered in Missoula and consists of 3 Bureaus – Fire and Aviation Management, Forestry Assistance, and Business Management – and 19 Field Offices.

The **Trust Lands Management Division** oversees 5.2 million acres of state trust land and 6.2 million acres of mineral resources. Through programs including sustainable forestry, agriculture, grazing and energy leasing, DNRC generates millions of dollars annually for K-12 public education, including school facilities and classroom technology. Montana's Trust Lands are a vital component of local economies and also provide tremendous recreation opportunities for hunters,

anglers, hikers and horseback riders. The division consists of 4 Bureaus – Real Estate Management, Forest Management, Agriculture and Grazing Management, and Minerals Management.

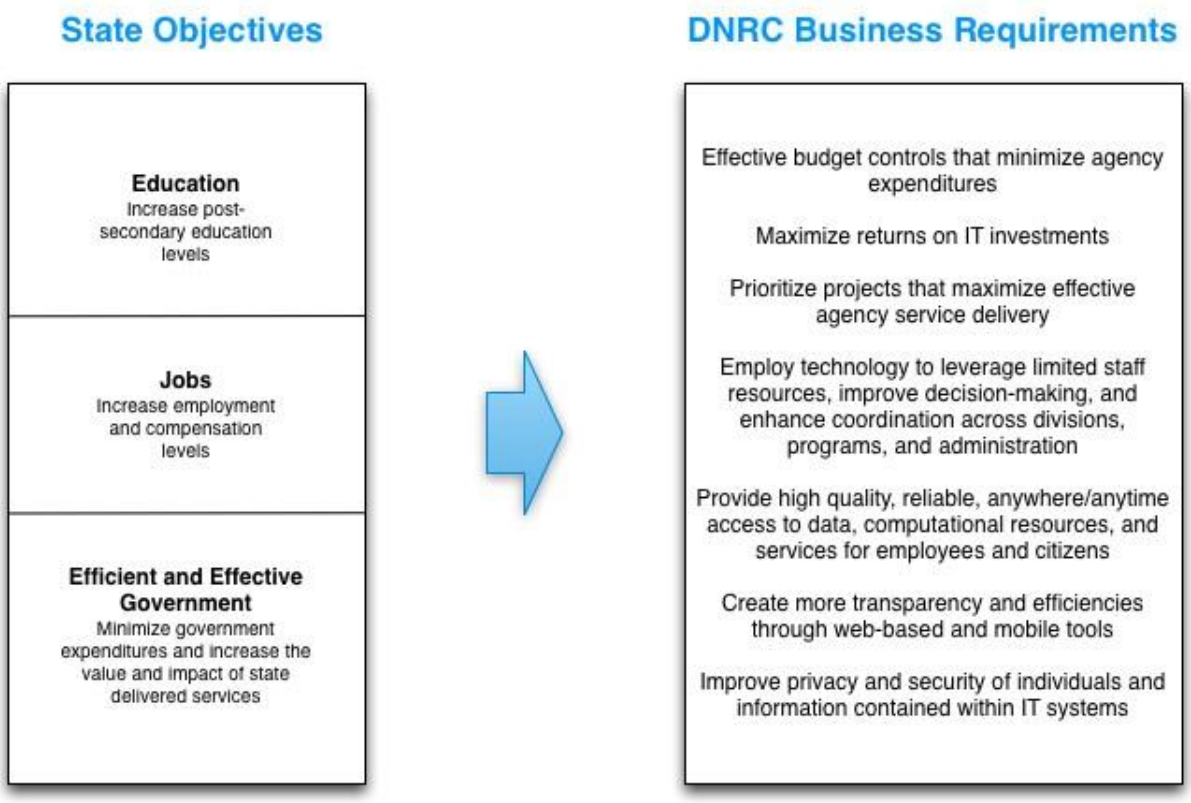
The **Water Resources Division** is responsible for managing Montana's water for the present and future needs of its people through the State Water Plan. The division compiles accurate, up-to-date stream flow data from more than 90 monitoring gages, providing critical data for managing reservoirs, irrigation schedules, water rights permitting and adjudication, floodplain management and other services for farmers, ranchers, citizens and communities. DNRC also manages the operation and maintenance of 24 state-owned dams and 250 miles of irrigation canals. The division consists of 5 Bureaus – Water Adjudication, Water Rights, Water Operations, State Water Projects, and Water Management – and 8 Regional/Unit Offices.

The **Board of Oil and Gas Conservation** and its technical support staff are attached to the department for administrative and regulatory purposes and have statutory authority under the Oil and Gas Conservation Laws. The Board protects citizens and the environment from the impacts of oil and gas activities, and is responsible for permitting all oil and gas wells and regulates the underground injecting program. Staff identify projects and hire contractors for remediation efforts such as plugging orphaned wells and restoring abandoned well sites. The Board is also responsible for inspecting oil and gas wells and operations to ensure they comply with all state environmental laws. The Board is headquartered in Billings and consists of 2 Programs – Oil and Gas Regulatory Program and Underground Injection Control Program.

DNRC management is dispersed across the state to focus activities where they will have local impact for citizens and communities. The Department maintains six area offices providing joint Forestry and Trust Land services. Area offices include the Northwest Land Office, headquartered in Kalispell, the Southwest Land Office, headquartered in Missoula, the Central Land Office, headquartered in Helena, the Southern Land Office, headquartered in Billings, the Northeast Land Office, headquartered in Lewistown, and the Eastern Land Office, headquartered in Miles City. Each area office is responsible for a number of unit and field offices. Regional Water Offices responsible for integrating and implementing Water Resources Division programs are located in Kalispell, Havre, Glasgow, Missoula, Helena, Lewistown, Bozeman, and Billings.

The success of the DNRC mission depends in part on the agency's capacity for generating and delivering a wide range of information to partner organizations, stakeholder groups, government agencies and the general public. The quality of information, as well as the efficiency with which it is created and managed, is a key element for agency success. DNRC faces challenges in the areas of staffing and funding IT capabilities needed to produce, manage, and share important technical information with the groups mentioned above.

Montana's goals and objectives align with the agency's mission and directly lead to a number of DNRC business requirements. These business requirements are essential to meeting the agency's diverse responsibilities and drive DNRC's IT strategy.



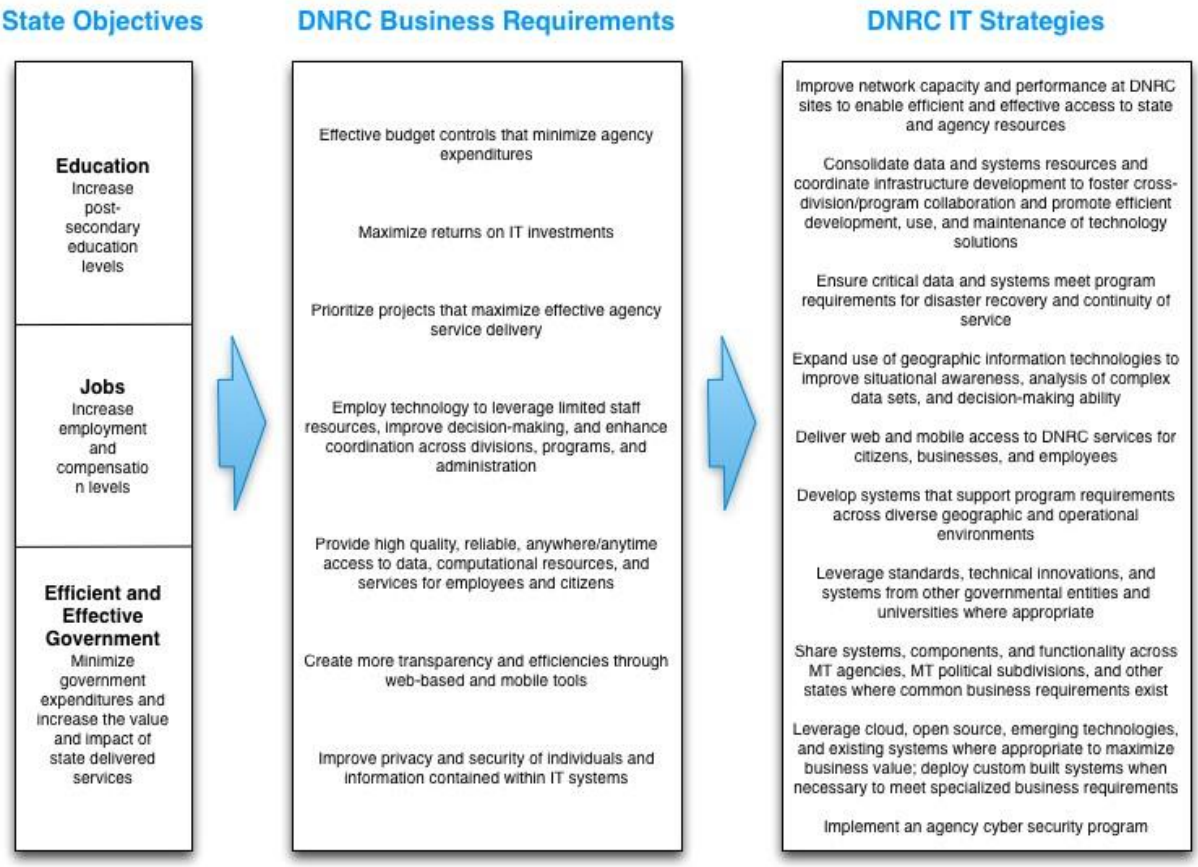
3. IT Contributions and Strategies

DNRC's Office of Information Technology (OIT) is designed to function as a core foundation to enable and enhance the functional capabilities of the business of DNRC and its various divisions and programs. DNRC's programs and supporting IT systems promote all of the state's strategic objectives through a variety of direct and indirect means, such as:

- Improving the agency's ability to generate revenue for education through more effective management of state trust lands,
- Promoting job growth through partnerships and grants that support new businesses,
- Safeguarding existing jobs by protecting natural resource and other economic assets from the ravages of wildfires,
- Maintaining and preserving critical water resources vital to the economic vitality of the state, and
- Supporting responsible economic development of the state's oil and gas resources.

DNRC is an agency characterized by diverse responsibilities, complex data sets requiring specialized analytical processes and tools, and a geographically dispersed workforce. Much of the agency's activities occur in remote areas subject to poor or nonexistent network connectivity. Thus, developing systems that provide efficient and reliable access to advanced data and computing

resources under highly variable conditions is a key business requirement. DNRC's technology projects are driven primarily by program needs, with IT and program staff working in close collaboration from concept through implementation.



4. IT Principles

IT principles govern the decisions and operations of the agency's IT community and stakeholders. They provide touch-points and guidelines to ensure that correct decisions are being made; decisions that will provide the greatest value to Montana's citizens. Many of DNRC's IT principles have their roots in Montana's Information Technology Act (MITA).
DNRC's IT principles:

- Resources and funding will be allocated to IT projects that contribute the greatest net value and benefit to Montana stakeholders.
- Montana will use shared inter-state systems to minimize IT expenditures, improve service delivery, and accelerate service implementation.

- IT will be used to provide educational opportunities, create quality jobs, a favorable business climate, improve government, protect individual privacy, and protect the privacy of IT information.
- IT resources will be used in an organized, deliberative, and cost-effective manner.
- IT systems will provide delivery channels that allow citizens to determine when, where, and how they interact with state agencies.
- Mitigation of risks is a priority for protecting individual privacy and the privacy of IT systems information.
- IT projects will be prioritized based on program needs and state requirements.
- IT system deployments will account for long-term agency business, maintenance, and support requirements.
- IT projects will be planned and implemented through active collaboration between IT and program staff.
- DNRC will manage its IT assets as investments, utilizing IT industry standards and following best practices to maximize the value of its resources.
- IT will be guided by a clear, consistent set of policies, procedures, standards, and guidelines that promotes an effective and efficient environment and supports the agency's mission and strategic goals.
- IT will serve as a driver of positive change throughout the agency.

5. IT Governance

The agency CIO is a member of the Leadership team, which works to develop agency-wide strategic priorities. Division and OIT leadership are actively working to develop a more formalized governance structure that ensures appropriate input is received, accounts for the diversity of program operational requirements, and adjusts IT priorities as necessary to achieve strategic objectives based on agency business priorities.

6. IT Financial Management

DNRC's agency-wide Information Technology (IT) budget in state fiscal year (FY) 2016 is $4.2 million. The agency's IT budget is funded 62% general fund, 33% state special revenue funds, and 5% federal special revenue fund and includes: charges by the Department of Administration (DOA) State Information Technology Services Division (SITSD), IT contracted services, equipment upgrades, license purchases and renewals, hardware and software, and the DNRC Office of Information Technology (OIT), which is located in the Director's Office. In FY 2016, OIT's budget is $3.1 million or 74% of the agency wide IT budget. OIT's budget is based on base budget expenditures and is a cost center in the agency. *Both the agency-wide IT budget and the OIT budget are largely allocated to program support both directly and indirectly.* Little of the IT budget is available for discretionary spending. Over half of the OIT budget is dedicated toward SITSD

services, while much of the remainder is used for personnel and program performance hardware, software, licensing, and services not available internally or more cost-effectively obtained from other sources than SITSD.

7. IT Services and Processes

The DNRC Office of Information Technology provides a wide range of services for agency programs including network and client support, application development, data and systems management, and geographic information systems development and analysis, as well as coordinating department operations with the State Information Technology Services Division and other agencies. In addition to service offerings common to most IT organizations (e.g. help desk services; workstation and server upgrades/patches/support; software license management; video conference support; hardware maintenance; asset management; employee onboarding and off-boarding; development and management of policies, procedures, and guidance; etc.), OIT supports a number of specialized systems unique to DNRC. Some examples include:

- Advanced geospatial system development and data analysis for programs agency-wide, such as:
    - Water Management State Water Plan GIS Infrastructure
    - Water Rights Management applications
    - Forest management applications, such as timber stand level inventory and classification, urban forest inventory, etc.
    - Fire and Aviation Management mapping and analysis
    - Greater Sage Grouse Habitat Conservation Program
    - Special projects such as Main Street Montana and Forests in Focus
- Development, maintenance, and support for contracts, grants, loan accounting, and legal systems supporting unique natural resource program requirements.
- Development, maintenance, and support for the Trust Lands Management System, which serves as a critical tool for management of state trust land assets, staff access to trust data, and customer access to trust land information, including both spatial and tabular data.
- Development, maintenance, and support for the Water Rights Information System and supporting tools, which serves as a central management tool for water rights staff and the state Water Courts.
- Development, maintenance, and support for Dam management systems.
- Development, maintenance, and support for Fire and Aviation Management support systems; e.g. Equipment Development Center and Aviation inventory management systems, wildland firefighting data collection and management systems, etc.
- Contract management for numerous specialized, domain-specific systems developed by external vendors.
- Deployment, maintenance, and support for DNRC systems and data infrastructure supporting staff at central and field offices across the state.

- Development of strategies to leverage new technologies for the unique requirements of natural resource staff working in remote, often hazardous environments. For example, developing approaches to integrate mobile and geospatial technologies that provide for efficient data collection and advanced analysis with high levels of data and service quality, while operating in areas with poor network connectivity.

The above examples are only a representative sampling of services and are intended to provide the reader with a sense of the unique IT services and challenges required to support the extensive and highly diverse programs within the DNRC.

8. IT Infrastructure, Staffing and Resources

DNRC OIT is composed of 24 FTEs. The office is divided into four sections, each reporting to the CIO:

- The Desktop and Network Support Team is responsible for primary client services support statewide, including help desk support, workstation and mobile device management and support, network operations, asset management, and client software application license management. It consists of one manager and five network administrators – the manager and two network administrators are located in Helena, with the remaining network administrators located in Missoula, Kalispell, and Billings, respectively.
- Application Services is responsible for software development and web services, both in-house and contracted. The section provides application development and administration services, oversees external contractor software development, and coordinates software architecture and management practices throughout the agency. It consists of one manager, four software engineers, and one web and digital media specialist, all located in Helena.
- Data and Systems Services is responsible for data management, systems engineering, business continuity, and enterprise software license management services, as well as having primary responsibility for the agency's water rights information system development and administration. It consists of one manager and four systems engineer/database administrators, all currently located in Helena. The Data and Systems Manager also serves as the agency's lead information security officer.
- Geographic Information Systems Services is responsible for data analysis and development of geospatial data and systems, as well as overseeing (in collaboration with the Data and Systems and Network Services managers) software license management for ESRI and other mapping products. The section is also responsible for coordinating GIS strategy and services with the Montana State Library, State Information Technology Services Division, and other state agencies. It consists of one manager, one GIS Specialist, and four GIS professionals. The GIS Manager is located in Missoula. Two GIS Analyst/Developers are located in Missoula and provide primary support to Forestry and Trust Lands Management division programs. Two GIS Analyst/Developers and the GIS Specialist are located in Helena and provide primary support to the Water Resources

Division and Conservation & Resource Development divisional programs. While GIS staff are organized around divisions, they also provide cross-agency support as necessary.

- The CIO and supporting staff of one FTE is responsible for the coordination of IT services with program business needs. The CIO office sets strategic direction to ensure a strong ROI for agency IT investments, to maximize program investments, and provide citizen service enhancements.

Recruitment and retention for existing positions has proven to be a significant obstacle, with the agency challenged to provide competitive salaries with respect to both private sector and other state agencies. This is exacerbated by the need to request extensive, often unrealistic technical skill sets for each DNRC recruitment as a result of limited staff positions. Operational funding constraints also make it difficult to provide sufficient services from external providers such as DOA SITSD or 3rd party providers, presenting additional service challenges, especially for developing an Information Security Program.

OIT has worked to compensate for these limitations by pursuing opportunities for automation, hiring student interns when funding is available, obtaining outside contractor services, and partnering with divisions to delegate and/or share responsibilities where possible and appropriate (e.g. designated division staff provide web content updates that do not require advanced technical skills to the DNRC public website to reduce workload on OIT's single web staff member).

9. Risks and Issues

Primary Risk	Probability	Impact	Mitigation Strategy
Difficulty hiring and retaining qualified, experienced technical staff.	High	High	Pursue increased pay for positions most affected by this issue. Increase job satisfaction for existing staff by providing a desirable work environment, opportunities to participate in challenging and meaningful projects, and opportunities for training and career advancement.
Insufficient resources to meet program needs, particularly during seasonal emergency or other unique events.	Medium	High	Partner with programs to increase efficient use of resources by improving business and technical processes and migrating information systems to scalable IT services hosted by DNRC OIT, DOA SITSD, or 3rd party providers.

Lack of a predictable funding source for OIT reduces ability to effectively perform long-term strategic planning and risk management.	High	High	Pursue more predictable funding sources and levels to enable IT and program staff to perform long-term strategic planning that will allow programs to meet strategic goals and optimize supporting IT systems.
State IT policies, directives, or projects that supersede program objectives or divert agency IT resources from effectively supporting program mandates or operational priorities.	High	High	Difficult to mitigate and is a reality. Actively participate on state committees, workgroups, or other venues and communicate/advocate for agency program requirements. Prioritize competing state and DNRC program priorities based on statutory requirements, agency mission, relative risk, and return on investment (ROI).
Program reliance on undocumented, unsupportable, and/or nonstandard custom software applications, frequently implemented without adequate internal technical advice and support.	High	Medium	Implement an application development program to create guidelines and policy that drive software development best practices. Minimize custom development where possible by evaluating COTS or open source solutions. Encourage active collaboration between IT and program staff.
Program reliance on systems that do not provide adequate assurance of data quality, consistency, and reliability.	Medium	High	Implement enterprise solutions to consolidate data into centrally managed, authoritative data sources.
Reliance on aging hardware and software systems presents increased risk of service disruption, data loss, and security compromise.	High	High	Implement life cycle management and standardization practices across the agency's information technology systems.

Immature project and portfolio management practices leads to systems that provide redundant services, are costly to maintain, are poorly built, divert IT resources from high priority projects and support needs, and/or fail to adequately meet agency or program business requirements.	Medium	High	Develop improved governance practices. Implement project management guidance and best practices. Pursue IT solutions that can support multiple programs. Encourage active collaboration between IT and program staff and create a support framework to assist program owners to effectively and consistently capture business requirements.
Lack of disaster recovery preparedness could lead to system failure and loss of critical data.	Low	Medium	Establish a disaster recovery program for mission critical information systems. Test the program on an annual basis to verify system functions properly and meets recoverability objectives.
Insufficient network bandwidth to DNRC field and unit offices hinders agency objectives with respect to consolidation of services, backup and recovery objectives, disaster recovery and continuity of service program development, and development of new information systems needed to meet agency and program goals and objectives.	High	High	Perform comprehensive review of DNRC's current network performance and future requirements. Investigate short- to medium-term strategies to address bandwidth contention resolution, such as data routing prioritization. Pursue long-term strategic investments in network bandwidth capabilities.
Security breach or other compromise.	Medium	High	DNRC is actively developing a formal information security management program designed to address prevention and incident response/mitigation.

10. IT Goals and Objectives

Goal Number 1:

IT Goal 1 Develop DNRC-wide applications and shared data infrastructure that meet agency business requirements, reduce cost, improve efficiency of operations, and enhance security of information assets.

Description: Examine current systems and business processes such as document storage and archiving, common-application needs, redundant storage, shared resources, and workflows to provide efficient access to data or common IT systems that are used across divisions.

Benefits: Scaling of systems to maximize utilization and cost benefits. Eliminates redundancy, provides for central development of shared resources. Streamlines upgrades, maintenance, and training for applications. Ensures security of information assets. Improves IT-Business alignment.

Which agency IT strategies does your goal address? Improve network capacity and performance at DNRC sites to enable efficient and effective remote access to state and agency resources. Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Ensure critical data and systems meet program requirements for disaster recovery and continuity of service. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Share systems, components, and functionality across MT agencies, MT political subdivisions, and other states where common business requirements exist. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary or advantageous to meet specialized business requirements. Implement an agency cyber security program.

Supporting Objective/Action

Objective 1-1 Scanning and storage of critical department documents.

Describe the business requirements or business problem driving this objective: Long-term records management, storage, and retrieval are major needs of DNRC. DNRC divisions have storage rooms full of documents that must be retained for long periods of time as mandated by state records management rules. The objective is to establish a document scanning and storage system and/or a standardized process that provides for archival storage of documents and easy retrieval.

Describe the benefits to be derived from the successful completion of this objective: Improved business operations through enhanced document retrieval and reduced reliance on paper storage. Reduced chance of record loss due to natural disaster.

Describe the anticipated risks associated with this objective: Cost of deploying the system and funding from the Legislature. Additional staff or reassignment of staff to scan documents and manage new business processes. User training and implementation. Continued need to retain paper documents to comply with existing statutes.

What is the timeframe for completion of this objective: Agency-wide preliminary evaluation of the scope of this project has been completed. Transition to the SITSD enterprise solution from FileNet is underway. Further action is dependent upon cost rates, funding, and personnel resources to implement setup and training on new vendor workflows.

Describe the critical success factors associated with this objective: A centralized system is in place for document scanning and storage and critical records are available/retrievable in a durable electronic format.

Supporting Objective/Action

Objective 1-2 Expenditure tracking system for divisional and bureau budgets.

Describe the business requirements or business problem driving this objective: Division staff in agency offices have requested real-time tracking of expenditures against budgets to provide for more efficient use of resources, budget management and coordination of spending.

Describe the benefits to be derived from the successful completion of this objective: The greatest benefit is better real-time decision making. Aid in improved budget management and mitigate over-expenditure risks. Better ability to transfer funds as needed to meet agency needs.

Describe the anticipated risks associated with this objective: Staff time or budget to build the application. Agreement between operating units on standards and how the system should work. Connecting the information with SABHRS.

What is the timeframe for completion of this objective: This project is on hold until funding is available. The first step will be development of project requirements. A decision will then be made on proceeding with either internal development, purchase of COTS software, or hiring a contractor.

Describe the critical success factors associated with this objective: Efficient budget management by divisions. Real-time tracking of expenditures and expenses. Standardized format and successful SABHRS integration.

Supporting Objective/Action

Objective 1-3 Expand and integrate remote communications technologies.

Describe the business requirements or business problem driving this objective: DNRC has offices all across the state. Cost and time for travel impacts staff ability to accomplish their jobs effectively. Expanded use of remote communications tools such as video conferencing and real time communications will provide for effective communication and business achievement between DNRC staff in locations across Montana.

Describe the benefits to be derived from the successful completion of this objective: Reduce travel-related time and costs, improve staff efficiency, reduce energy costs for the agency, and improve objective achievement through collaboration across department office locations.

Describe the anticipated risks associated with this objective: Additional costs for use of remote communications tools in multiple locations. Network bandwidth limitations may impact availability, reliability, and/or usability. Impact on the state network.

What is the timeframe for completion of this objective: DNRC currently has video conferencing systems in Helena (5), Missoula (5), Kalispell (2), Lewistown, Bozeman, Miles City, Havre, Glasgow, Libby, Swan, and a shared system with DEQ in Billings. The agency has expanded services to all offices through the use of remote communications tools such as SITSD Real Time Communications services and adoption of mobile device technologies.

Describe the critical success factors associated with this objective: Improved coordination among geographically dispersed team members. The systems are used extensively for inter- and intra- agency meetings involving staff in remote offices.

Supporting Objective/Action

Objective 1-4 Pursue use of mobile technologies to improve efficiency and effectiveness of DNRC operations.

Describe the business requirements or business problem driving this objective: DNRC staff are highly mobile and geographically disbursed, often working in remote areas, under adverse environmental conditions. Mobile technologies offer the promise of dramatically improved operational effectiveness and efficiency.

Describe the benefits to be derived from the successful completion of this objective: Improved communication between DNRC staff who are geographically disbursed and highly mobile. Permit access to data-intensive application services by enabling access to such services regardless of location, including geographically remote areas. Reduce cost and improve efficiency of geospatial data collection and analysis through consolidation and integration of hardware and software systems (e.g. leverage a single GPS enabled tablet or other mobile device to automate geographic data collection, data processing and transfer, mapping, and analysis using custom-built mobile applications which integrate with centralized DNRC or other agency systems). Improve service responsiveness by providing DNRC staff with real-time access to critical information resources, without the need to be physically located in their offices.

Describe the anticipated risks associated with this objective: Cost and time to develop internal skills for application and systems development, deployment, maintenance, and use.

New, rapidly changing technology landscape. Integration challenges with legacy systems. Security and management challenges associated with rapidly evolving, diverse mobile computing environments. State policies with respect to external access to systems located within the state network.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Robust, ubiquitous access to computing resources.

Supporting Objective/Action

Objective 1-5 Implement a mobile device management solution.

Describe the business requirements or business problem driving this objective: Proliferation of mobile devices present management and security challenges. An increasing mix of DNRC owned and personally owned (BYOD) devices exacerbates these challenges. Mitigation of such concerns is critical to expansion of the use of mobile applications for agency operations.

Describe the benefits to be derived from the successful completion of this objective: Effective, reliable, and secure operations. Ability to segregate and secure state and non-state data and applications.

Describe the anticipated risks associated with this objective: Cost of device management solutions. New, rapidly changing technology landscape. Security and management challenges associated with rapidly evolving, diverse mobile computing environments. Cloud based solutions may reduce cost but may also present new challenges such as legal venue and data security.

What is the timeframe for completion of this objective: Currently underway via the SITSD enterprise Mobile Device Management solution.

Describe the critical success factors associated with this objective: Ability to effectively manage multiple and diverse devices, including security, configuration, provisioning, and information assurance.

Supporting Objective/Action

Objective 1-6 Explore the use of virtualized desktop infrastructure.

Describe the business requirements or business problem driving this objective: DNRC staff are highly mobile and geographically disbursed. This creates management and security challenges for IT support staff.

Describe the benefits to be derived from the successful completion of this objective: Virtualized desktop infrastructure (VDI) offers the potential to dramatically improve system management effectiveness and efficiency, including providing greater control of desktop security, maintaining build consistency, easing OS migrations, providing snapshot capabilities for end user desktops, allowing for device flexibility, and reducing energy usage.

Describe the anticipated risks associated with this objective: Implementation challenges; rapidly changing technology; network limitations; storage limitations; end user acceptance.

What is the timeframe for completion of this objective: Ongoing, FY2018/2019.

Describe the critical success factors associated with this objective: Improved effectiveness and efficiency of system provisioning and support. Usability and flexibility meets client needs. Performance and ease-of-use meets expectations.

Supporting Objective/Action

Objective 1-7 Pursue coordinated, robust, scalable, maintainable, and secure systems, data, and supporting network infrastructure.

Describe the business requirements or business problem driving this objective: Accurate, reliable, timely, and secure data services are critical to effective decision-making. Proper architecture is essential to ensuring DNRC services meet operational requirements for availability, recoverability, business continuity, and information assurance.

Describe the benefits to be derived from the successful completion of this objective: Effective, reliable operations. Where possible, leveraging existing state enterprise resources and/or providing centrally managed agency infrastructure can provide efficiency and reliability gains. Ability for agency to ensure continuity of government services.

Describe the anticipated risks associated with this objective: Cost of infrastructure purchase, deployments, and upgrades. Network bandwidth and latency constraints. Challenge of coordinating service requirements across divisions. Management and oversight of external contractors.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Deployment of consolidated infrastructure available for agency systems. Implementation of data and systems architecture and management standards across the organization. Ability to set and meet availability and recoverability targets.

Current Status: Objective is largely implemented and operational. Scaled architecture has been procured at more cost effective rates than otherwise available in the enterprise. Network bandwidth upgrades have been achieved for most DNRC offices. Objective remains because continual improvement is a constant necessity to stay current in this area.

Supporting Objective/Action

Objective 1-8 Migrate organizational applications from legacy systems to modern, secure, enterprise systems.

Describe the business requirements or business problem driving this objective: Many divisional applications have been in use for nearly a decade, and in need of upgrading to newer code that can leverage new business tools with improved cyber security.

Describe the benefits to be derived from the successful completion of this objective: Multi-tiered application systems using enterprise database solutions allows applications to have an improved security model supported by the database, data quality assurance, and meet backup and recovery requirements. Separation of concerns decouples client-side operating environment changes from application functionality, reducing dependencies and potential service disruption for end-users.

Describe the anticipated risks associated with this objective: Large number of inadequately documented applications and poorly understood business processes throughout DNRC increases complexity and risk. Costs associated with application rewrites and/or conversions.

What is the timeframe for completion of this objective: Ongoing – as applications are identified and personnel resources and funding are available.

Describe the critical success factors associated with this objective: Conversion of critical databases to robust, supportable systems with enforceable security models and the ability to ensure data integrity.

Current Status: The Applications Team has migrated many such systems to enterprise databases. They have also identified and documented all of the lingering legacy applications and are in the initial planning stages to convert them to use modern enterprise solutions. Phase one of the process is to migrate the legacy backend to use the enterprise MS SQL Server platform while keeping the front end user interface intact for a later replacement. Phase two of these conversions is to plan and execute a migration of each front end interface to a modern web technology that follows state business practices.

Supporting Objective/Action

Objective 1-9 Develop and implement an information technology business structure.

Describe the business requirements or business problem driving this objective: Strategic planning and coordination of information technology projects and policies needs to target the primary business objectives of the organization to facilitate success. Agency programs need IT as a strategic partner in achieving their business goals.

Describe the benefits to be derived from the successful completion of this objective: More effective management and improved alignment between IT project portfolio and business requirements. Enhanced collaboration and system interoperability. More efficient use of agency resources. Faster achievement of objectives to spur program success and service growth.

Describe the anticipated risks associated with this objective: Implementation challenges. Ensuring adequate representation across business units while maintaining decision-making agility and flexibility. Organizational culture that views IT as an afterthought to program endeavors.

What is the timeframe for completion of this objective: FY2017/2018.

Describe the critical success factors associated with this objective: Improved coordination, data sharing, and use of resources. Increased alignment of IT project portfolio, policies, and business processes with division operational needs and agency mission.

Goal Number 2:

IT Goal 2 Support the new Sage Grouse Program Administratively attached to DNRC's CARDD division.

Description: Provide guidance, resources, tools, and processes to assist the Sage Grouse Program as it develops. Provide significant project management of developing applications and program technological processes.

Benefits: Cost-effective use of program funds to establish a successful habitat conservation program that benefits all Montanans.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities, universities, and the private sector where appropriate.

Supporting Objective/Action

Objective 2-1 Develop a Sage Grouse Program Web presence for the public.

Describe the business requirements or business problem driving this objective: The Sage Grouse Program is a new program created by the 2015 Legislature and executive order. The program needs to establish a presence, personnel, management, strategic direction, and implementation in a short time frame. The program needs a strong tool to communicate with the public.

Describe the benefits to be derived from the successful completion of this objective: Improved agency outreach and communications. Access to new audiences.

Describe the anticipated risks associated with this objective: Politically sensitive issues could produce negative public feedback. Scope of task may often change as the program develops, consuming an excessive amount of IT resources and personnel hours.

What is the timeframe for completion of this objective: Ongoing; January 1, 2016 for initial rollout with continual maturation.

Describe the critical success factors associated with this objective: Effective deployment of a website page and information. Effective development of customer interaction portal. Effective communication of program objectives. Public use and acceptance of the new media information.

Supporting Objective/Action

Objective 2-2 Develop Montana's Density and Disturbance Calculation Tool.

Describe the business requirements or business problem driving this objective: The Sage Grouse Program is a new program created by the 2015 Legislature and executive order. The program needs to establish a presence, personnel, management, strategic direction, and implementation in a short time frame. The program needs a strong tool to measure habitat disturbance of both existing and new proposals of anthropogenic infrastructure development.

Describe the benefits to be derived from the successful completion of this objective: Ability to calculate habitat impacts that enable the program to proactively mitigate sage grouse habitat disturbance.

Describe the anticipated risks associated with this objective: Politically sensitive issues could produce negative public feedback or results. Scope of task may often change as the program develops, consuming an excessive amount of IT resources and personnel hours.

What is the timeframe for completion of this objective: Ongoing; January 1, 2016 for initial rollout with continual maturation.

Describe the critical success factors associated with this objective: Effective deployment of technology and information. Effective development of customer interaction. Effective communication of program objectives. Public use and acceptance of the new media information. Accurate measurement of habitat disturbances for biological and program use.

Supporting Objective/Action

Objective 2-3 Manage Existing Disturbance data development and Version 2 of the DDCT projects.

Describe the business requirements or business problem driving this objective: The Sage Grouse Program is a new program created by the 2015 Legislature and executive order. The program needs to establish a presence, personnel, management, strategic direction, and implementation in a short time frame. The program needs a strong tool to measure habitat disturbance of both existing and new proposals of anthropogenic infrastructure development.

Describe the benefits to be derived from the successful completion of this objective: Successfully managing the contracts resulting from two (2) RFPs to develop the data needed for the automation of the program DDCT tools and the development of a complex application framework for citizens to engage in project proposals.

Describe the anticipated risks associated with this objective: Politically sensitive issues could produce negative public feedback or results. Scope of task may often change as the program develops, consuming an excessive amount of IT resources and personnel hours.

What is the timeframe for completion of this objective: December 2016 for initial rollout with continual maturation.

Describe the critical success factors associated with this objective: Effective deployment of technology and information. Effective development of customer interaction. Effective communication of program objectives. Public use and acceptance of the new media information. Accurate measurement of habitat disturbances for biological and program use.

Supporting Objective/Action

Objective 2-4 Integration of Habitat disturbance data with the Habitat Quantification Tool (HQT).

Describe the business requirements or business problem driving this objective: The Sage Grouse Program is a new program created by the 2015 Legislature and executive order. The program needs to establish a presence, personnel, management, strategic direction, and implementation in a short time frame. The program needs a strong tool to measure habitat disturbance of both existing and new proposals of anthropogenic infrastructure development.

Describe the benefits to be derived from the successful completion of this objective: The output of existing program efforts to measure habitat disturbance needs to be integrated into the HQT that has yet to be developed.

Describe the anticipated risks associated with this objective: Politically sensitive issues could produce negative public feedback or results. Scope of task may often change as the program develops, consuming an excessive amount of IT resources and personnel hours.

What is the timeframe for completion of this objective: FY17

Describe the critical success factors associated with this objective: Effective deployment of technology and information. Effective development of the HQT. Effective communication of program objectives. Public use and Legislative acceptance of the new media information. Accurate measurement of habitat disturbances for biological and program use.

Goal Number 3:

IT Goal 3 Expand agency information available over the Internet and expand access to E-government services for DNRC.

Description: Demand is increasing for electronic access to agency information and services. The goal is to expand information available on the agency website and create new E-government services for the public.

Benefits: Electronic access to information and services provided by DNRC to the public.

Which agency IT strategies does your goal address? Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate.

Supporting Objective/Action

Objective 3-1 Expand DNRC E-government services available to the public.

Describe the business requirements or business problem driving this objective: Agency customers are asking for E-government services for conducting business with DNRC. The agency has deployed a virtual cashier payment system to allow customers to pay water fees with credit cards at agency offices. However, customers still mail in applications and payments or mail in payments for leases. Projects identified for potential development in this plan include:

1. Accept water measurement records online.
2. Improve the online nursery application. Application has been replaced but online payment system is not included.
3. Develop a variety of GIS applications for access to agency data, including state lands management, water rights, fire, and forestry.*
4. Develop an online application process for Hazard Reduction Agreements and/or the WUI fuel reduction and priority landscape grant programs.

Describe the benefits to be derived from the successful completion of this objective:

Expanding and improving the ability of citizens and businesses to conduct business with the agency through secure, reliable online systems. Reduced costs for processing of payments, water rights transfers, and requests for information.

Describe the anticipated risks associated with this objective: Access to resources for development of the new E-government services. Updates to current systems to accommodate E-government applications.

What is the timeframe for completion of this objective: Database updates and growth of in-house web and mobile application development skills are critical to moving forward with E-government services. Creation of new services is dependent on staff availability and funding.

Describe the critical success factors associated with this objective: Creating effective new E-government applications for use by the public.

* Some progress has been made, but is constantly thwarted by other high priorities such as Sage Grouse, Forests in Focus, Urban Forestry, Timber Stand Mobile apps, Security needs, etc.

Supporting Objective/Action

Objective 3-2 Continue expanding the use of social media for public outreach.

Describe the business requirements or business problem driving this objective: DNRC has a variety of systems in place for public outreach. These include news releases, publications, websites, mailing lists, Facebook, Twitter, etc. The objective is to expand upon methods of improving communications with constituents and the public via social media.

Describe the benefits to be derived from the successful completion of this objective: Improved agency outreach and communications. Access to new audiences.

Describe the anticipated risks associated with this objective: Potential negative public feedback. Navigating security or legal issues. Politically sensitive issues being propagated beyond department control.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Effective management of social media communications.

Current Status: Largely implemented and growing.

Supporting Objective/Action

Objective 3-3 Redesign DNRC public and internal websites; pursue migration of public web site to a web content management system.

Describe the business requirements or business problem driving this objective: DNRC's web presence is dated, poorly organized, and inefficient to maintain.

Describe the benefits to be derived from the successful completion of this objective: Improved agency outreach and communications. Ability of staff and the public to locate relevant, timely, accurate information quickly and easily. Use of robust technology platforms and practices can reduce staff time required to maintain and update web sites.

Describe the anticipated risks associated with this objective: Available resources. Balancing conflicting stakeholder visions for design and architecture. Access to appropriate web CMS system.

What is the timeframe for completion of this objective: FY2016.

Describe the critical success factors associated with this objective: Compelling, modern design. Ease of site navigation. Fewer resources needed to maintain and update site presentation and content.

Current Status: External accomplished; internal underway.

Goal Number 4:

IT Goal 4 DNRC Enterprise GIS development

Description: Continue implementation of an Enterprise GIS system for DNRC to provide an organization-wide approach that facilitates the efficient integration, implementation, operation, and management of tabular and spatial information.

Benefits: All divisions within DNRC will benefit. DNRC staff will have easy access to the GIS data that is necessary to complete their work (both updates and retrievals). The public will benefit from access to geospatial information in DNRC applications. Other state agencies will not have to recreate GIS data available from DNRC.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Ensure critical data and systems meet program requirements for disaster recovery and continuity of service. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Share systems, components, and functionality across MT agencies, MT political subdivisions, and other states where common business requirements exist. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 4-1 Continue to establish a coordinated GIS infrastructure.

Describe the business requirements or business problem driving this objective: Continue implementation of an agency GIS infrastructure for storage and access to the department's geospatial data, files, and products.

Describe the benefits to be derived from the successful completion of this objective: A tiered approach to distribution of GIS data for use at the local, division, agency, and state level. A variety of applications and access options will provide critical data to all users whether they are novice or expert GIS users. Data will be replicated or served via custom applications from a central location to the locations where the data is used.

Describe the anticipated risks associated with this objective: Cost and maintenance of the hardware needed to store and distribute the GIS information. Employee acceptance and participation in new systems and procedures. Potential disruption to existing business processes. Ensuring QA/QC standards and that data stays current on an agency-wide scale. Insufficient network bandwidth to enable effective integration of remote offices with a coordinated infrastructure.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Additional data is managed using centralized databases and expanded use of map services for publishing and editing data.

Plans developed for data maintenance and workflows built for updating data.

Supporting Objective/Action

Objective 4-2 Develop flexible, targeted GIS applications for use in division business operations.

Describe the business requirements or business problem driving this objective: Many DNRC programs need a simple GIS system designed specifically for their program to assist with business analysis, planning, and operations.

Describe the benefits to be derived from the successful completion of this objective: Deployment of mapping applications integrated with business applications that can be easily accessed by agency staff and the public without installing expensive GIS software. Improved productivity by developing optimized workflows with integrated spatial data.

Describe the anticipated risks associated with this objective: Demand from public and staff for additional applications or capabilities that exceed available development resources. Accurately assessing program needs to deliver targeted custom products that meet program business needs.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Better access to program specific data and consistent access to standardized GIS tools for users in all locations. Reduction of training, supporting, and purchasing complex and difficult to use software for our general user base.

Supporting Objective/Action

Objective 4-3 Maintain GIS data sets in centralized databases for use by DNRC, other agencies, and the public.

Describe the business requirements or business problem driving this objective: DNRC staff create GIS data sets in support of their operations. As these data sets are created they need to be effectively and efficiently disseminated. Divisions also need the ability to enhance or expand data sets already in use both for their needs and to benefit the agency. Ensuring that these datasets meet QA/QC standards promotes the concept of creating authoritative and official datasets for use across the agency and by the public.

Describe the benefits to be derived from the successful completion of this objective: Improved sharing of GIS information. Establishing shared GIS data layers and determining methods for updating this information.

Common GIS data layers that are regularly updated are required for timely and accurate monitoring, tracking, and reporting obligations.

Describe the anticipated risks associated with this objective: Conflicting needs for information. Incomplete data sets or layers. Need to constantly update the information. Lack of business processes that leverage consolidated, authoritative data sets. Effect of utilization-based cost model on dissemination of information with fixed agency budget.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Develop quality control guidelines and procedures for creating and publishing data. Continue to publish authoritative DNRC datasets to publically available map services. Expressed and/or demonstrable DNRC staff ownership of data sets.

Supporting Objective/Action

Objective 4-4 Development and integration of GIS applications for mobile devices.

Describe the business requirements or business problem driving this objective: The demand for mobile access to geospatial data in the office, the field, and from the public continues to increase. To keep up with this need, DNRC is exploring the use of new and developing technologies such as map services, interactive web mapping applications, custom desktop applications, and mobile applications. The ability to view and edit GIS data from the field or wherever one may be located is critical. There is also a need to convert existing field data collection applications and workflows to modern, easy to use platforms.

Describe the benefits to be derived from the successful completion of this objective: Staff and members of the public will have access to view and edit the appropriate data from a variety of locations, improving data collection workflows while reducing opportunity for error. For example, staff in DNRC's Fire and Aviation Management bureau could relay real time information about a fire's location using this technology. All DNRC Divisions could benefit from new mobile GIS tools that allow users to navigate, streamline collection and incorporation of data into consolidated data stores, and share information.

Describe the anticipated risks associated with this objective: Evaluating and determining the appropriate technology to use. These platforms often conform to rapid release cycles and require frequent updating. Ensuring that data served via mobile services is secure and accurate. Synchronization of data collected off-network with central GIS database systems.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Assessing DNRC needs and determining the appropriate tools to meet these needs. Developing products that successfully deploy information across a variety of platforms, improve workflow efficiencies for staff and provide additional data transparency for the public.

Supporting Objective/Action

Objective 4-5 Use geospatial data for modeling and analysis projects.

Describe the business requirements or business problem driving this objective: As a natural resource management agency, DNRC often has to analyze complex systems and environments to determine the best policy or course of action.

Describe the benefits to be derived from the successful completion of this objective: GIS has the ability to analyze complex datasets and multiple factors, providing guidance and critical information for the decision-making process. Currently, DNRC's GIS data is used mostly for display and simple queries, which does not make full use of the data's capabilities. GIS analysis allows the agency to predict changes in landscape over

time, detect patterns and trends, and identify critical areas of concern. Examples of geospatial analysis that would benefit DNRC programs include hydrologic and floodplain modeling, land management planning, and wildfire risk assessments.

Describe the anticipated risks associated with this objective: Communicating adequately the benefits of geospatial analysis to program staff to gain stakeholder buy-in for instituting change to legacy workflows.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Utilizing available data to its full potential as a decision-making and predictive tool. Developing standard models for common analytical processes that can be used across the department. Expanded access to GIS modeling and analysis expertise across agency programs.

Supporting Objective/Action

Objective 4-6 Enhance existing non-spatial databases to take advantage of GIS technology.

Describe the business requirements or business problem driving this objective: DNRC maintains non-spatial databases that could provide additional benefits if the data were geospatially enabled. Some examples include databases for fire tracking, trust lands management, and grant tracking. Staff and the public often need to see this information shown on a map and this is currently a complicated process that requires significant GIS skills and training.

Describe the benefits to be derived from the successful completion of this objective: As an agency that manages natural resources in locations across the state, the ability to answer questions about where agency work takes place is critical. Using GIS provides a simple way to display and organize data. For example, if one wanted to know more about where grants were awarded in the state, where wildfires had occurred, or information relating to trust lands management, displaying such information on a map would provide a visual and easy to understand means to answer to such questions. It also enables staff to analyze patterns and query data based on location.

Describe the anticipated risks associated with this objective: Employee acceptance and participation in new systems and procedures. Communicating benefits of geospatially enabling data. Available resources.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Data previously used only as tabular information is maintained as geospatially enabled data or linked to appropriate GIS data.

Goal Number 5:

IT Goal 5 Improve efficiency of Water Resource Division IT applications.

Description: Continue legislatively mandated water rights adjudication and expand access to water rights, water use, emergency action plans, seepage monitoring, and dam safety information used inside the department and by the public. Upgrade applications to the latest development standards as determined by OIT and SITSD.

Benefits: Improved access to information used in decision-making within the agency and by the water courts. Improved access to information by citizens and businesses.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems

from other governmental entities and universities where appropriate. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 5-1 Improve electronic document storage and retrieval system.

Describe the business requirements or business problem driving this objective: Originally, the thinking was that one system would fit all users' needs. A system developed by the Water Management Bureau was to be modified to fit other programs. However, it became evident that each program's needs were sufficiently unique to require an independent document tracking system for each. The dam safety program developed its own internal document tracking system and the floodplain program is now doing likewise.

Describe the benefits to be derived from the successful completion of this objective: Improved access to project documents for business operations.

Describe the anticipated risks associated with this objective: Cost for development and maintenance of infrastructure and external providers.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Expansion of document tracking system to additional document categories.

Supporting Objective/Action

Objective 5-2 Continue document scanning for Water Rights.

Describe the business requirements or business problem driving this objective: Water Resources Division is in the midst of a multi-year program to scan all water rights records into digital format. This information is needed for water rights adjudication, any new appropriation of water, water courts, and overall water rights management. Expansion of this system for records compiled by the Reserve Water Rights Compact Commission is anticipated in FY2014/2015.

Describe the benefits to be derived from the successful completion of this objective:

Continued scanning will create a complete digital record of water rights in the State of Montana. This has replaced use of microfilm for record keeping as of 2007. Both the water rights database and scanned images function in unison to provide both staff and the public with vital tools necessary to effectively work with water rights data. They both aid in researching and analyzing historically based water rights questions. The water rights database and scanned images will continue to be a necessary component in the management of Montana's water rights data for as long as DNRC is tasked with managing a centralized recordkeeping system.

Describe the anticipated risks associated with this objective: Continued funding. Potential changes to state enterprise electronic content/records management system project.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Progress is being made on scanning all of the past water rights and this portion of the project is expected to be complete by FY2015. In addition to this project, all new water rights files and documents updating existing water rights files are being scanned, which will be ongoing. Another future scanning project is planned to determine if the staff and expertise developed in scanning Water Rights documents can be transferred to other needs within the agency.

Supporting Objective/Action

Objective 5-3 Update/Replace Toston dam monitoring and management systems.

Describe the business requirements or business problem driving this objective: Toston dam's scada system is antiquated and its management systems, processes, and security do not meet FERC regulations.

Describe the benefits to be derived from the successful completion of this objective:

Improved system security, improved performance and reliability, and better management controls. Improvements to public safety through better protection of dam systems and continuity of operations. Risk is large; primary benefit is mitigation of risk. Revenue from Toston Dam is used to maintain other state-owned recreation, irrigation and flood-control projects.

Describe the anticipated risks associated with this objective: Funding and staff time are limited for working on this application. Network access at the remote location is very limited. A crippling cyber-attack at Toston Dam could result in both a loss of revenue as well as potentially creating safety and maintenance issues.

What is the timeframe for completion of this objective: FY17

Describe the critical success factors associated with this objective: Funding and resources. Adequate network connectivity for secure remote management.

Supporting Objective/Action

Objective 5-4 Evaluate needs and update the Water Rights Information System (WRIS).

Describe the business requirements or business problem driving this objective: Continue

Water Rights database application updating to meet business needs of the agency and the state Water Courts for both tabular and spatial data. Evaluate options to migrate system from existing, aging technology platform to a modern, sustainable, more efficient system.

Describe the benefits to be derived from the successful completion of this objective: Improved efficiency supporting and hosting the WRIS. Improved data integrity, including agency and public access to data. Improved alignment between system capabilities and business process requirements, ease of use, and ability to share information across organizational boundaries.

Describe the anticipated risks associated with this objective: Funding and staff time.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Updates and modernization of the database and application. Improved public access to data.

Current Status: RFP has been awarded for consulting on the next phase and direction of the SOW.

Supporting Objective/Action

Objective 5-5 Update the Division's contact database and evaluate migration to MS SQL Server environment.

Describe the business requirements or business problem driving this objective: Updates are needed to this system to allow continued access to Division-wide stakeholder contact information and improve reliability.

Describe the benefits to be derived from the successful completion of this objective: Shared contact information between the various Division programs that deal with the same stakeholders.

When one group receives and update (email, address, etc.), all do.

Describe the anticipated risks associated with this objective: Cost of SQL server hosting has to date resulted in the Division maintaining this application as a single MS Access file located on a local server.

What is the timeframe for completion of this objective: FY2015.

Describe the critical success factors associated with this objective: All staff have access to a single, reliable source for contact information.

Current Status: The database has been redesigned and is undergoing development.

Supporting Objective/Action

Objective 5-6 Develop a comprehensive State Water Plan GIS system.

Describe the business requirements or business problem driving this objective: A State

Water Plan is required per 2013 legislative action. To accomplish this, DNRC's Water Management Bureau needs to centralize its water related spatial data into an enterprise database to effectively generate the 140 cartographic products required to support the plan. Business workflow processes need to be established to leverage the new authoritative database and to continue developing improved datasets for future State Water Plan updates and subsequent implementation actions.

Describe the benefits to be derived from the successful completion of this objective: This will enable the Water Resources Division to successfully complete the State Water Plan and support it into the future. It will improve business process objectives by providing decision factors through timely retrieval of authoritative data. It will also position DNRC to pursue digital dissemination of quality controlled water related data through web sites and web mapping services to both inform the public and receive public feedback.

Describe the anticipated risks associated with this objective: Significant resource requirements for project completion could affect the timeliness or quality of the State Water Plan. Program training and acceptance to adjust workflows to new business processes. Digital data may not currently exist to support some of the stated objectives of the State Water Plan. **What is the timeframe for completion of this objective:** Initial release by end of calendar year 2014; ongoing thereafter.

Describe the critical success factors associated with this objective: Water Basin plans and associated cartographic products are delivered on time to meet objectives for publication prior to the legislative deadline. Public acceptance of the State Water Plan draft release.

Current Status: Completed development and implementation ongoing.

Supporting Objective/Action

Objective 5-7 Develop and utilize IT services that are integrated between DNRC (Water Rights Bureau, Water Adjudication Bureau) and the Judicial Branch (Water and District Courts) to provide better services to citizens and the agencies programs.

Describe the business requirements or business problem driving this objective:

5-7.1 Communication between information systems to adhere to standard based protocols to assist with compatibility across information systems.

5-7.2 Combine data and services into a single public interface to provide a comprehensive view of a water right or a water right application.

5-7.3 Share resources and services between stakeholders to reduce the cost of providing services to citizens and programs.

5-7.4 Design and architect procedures, processes and information systems so that data will be entered one time, but used by multiple programs to increase efficiency and improve data quality.

Describe the benefits to be derived from the successful completion of this objective:

Improved access to information used in decision-making within the agency and by the water courts. Improved access to information by citizens and businesses. Coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Deliver web and mobile access to DNRC services for citizens, businesses, and employees.

Describe the anticipated risks associated with this objective: Funding and staff time are limited for working on this endeavor. Business needs have significant differences between DNRC and the Water Courts.

What is the timeframe for completion of this objective: Dependent on funding and direction.

Describe the critical success factors associated with this objective: Effective collaboration on objectives, scope, and methodology between DNRC and the Water Courts. Ability [technically] to effectively integrate data from very complex systems. Funding for development of integrated systems and new user interfaces.

Goal Number 6:

IT Goal 6 Improve central applications for managing Contracts, Grants, Loans, Restoration Projects and other systems used to manage DNRC resources.

Description: Continue improvements to agency systems for tracking contracts, grants, loans, restoration projects, legal documents, computer inventory, and special projects.

Benefits: All divisions within DNRC will benefit from improved systems for tracking operational information within the agency.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 6-1 Establish a program for tracking the state revolving fund.

Describe the business requirements or business problem driving this objective: Improved method for tracking the state revolving fund.

Describe the benefits to be derived from the successful completion of this objective: Better fiscal management of state resources. Reduced staff time for tracking the revolving fund and entering data from the funds into SABHRS.

Describe the anticipated risks associated with this objective: Time and staffing.

What is the timeframe for completion of this objective: FY2015/2016. This application will be developed with internal staff, dependent upon available resources.

Describe the critical success factors associated with this objective: Development of an application or methods to better manage revolving fund information.

Goal Number 7:

IT Goal 7 Enhance/Upgrade the Trust Lands Management System (TLMS).

Description: Develop business requirements and procure a modern solution to provide needed business management features to TLMS. Replace the legacy system with a secure, supportable financial and land tracking system.

Benefits: Improved management of state trust land assets, staff access to trust data, and customer access to trust land information. Less risk of financial loss and increased financial return through direct integration with spatial data to provide improved data management and decision making capabilities.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 7-1 New TLMS business management development.

Describe the business requirements or business problem driving this objective: Address new development to expand the capabilities of TLMS, such as enhancements to track lease stipulation monitoring, ability to upload photographs, and remote access.

Describe the benefits to be derived from the successful completion of this objective: Improved management of trust land assets and increased revenue generation for trust beneficiaries.

Describe the anticipated risks associated with this objective: Improvements may cause conflicts with current operations. Improvements may take longer than anticipated or may not meet all divisional goals.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Give division staff new tools to more effectively manage resources.

Supporting Objective/Action

Objective 7-2 Continue Integration of TLMS with Enterprise GIS.

Describe the business requirements or business problem driving this objective: Expand on the basic GIS ability that TLMS provides and allow external GIS applications to access basic information about leases stored in TLMS.

Describe the benefits to be derived from the successful completion of this objective: Improved management of trust land assets and increased revenue generation for trust beneficiaries. Decreased time and cost expended on maintenance of spatial data. Improved collaboration among staff.

Describe the anticipated risks associated with this objective: TLMS data is not currently spatially enabled. Implementation of Enterprise GIS capability may take longer than anticipated, or may not meet all division goals.

What is the timeframe for completion of this objective: Ongoing, depends on yet-to-be determined requirements.

Describe the critical success factors associated with this objective: Ability of division staff to efficiently access and utilize spatial land data.

Supporting Objective/Action

Objective 7-3 Enhance web access to TLMS data.

Describe the business requirements or business problem driving this objective: Much of the data in TLMS is useful to the public and potential lessees. Examples include potential oil and gas lease opportunities, land banking sales and associated documents, status of state trust lands, real estate management and agricultural leases. The objective is to make more data available to the public and improve the functionality of web access to the application.

Describe the benefits to be derived from the successful completion of this objective: Improved access for customers and public, improved functionality and navigation. Integration with the common look and feel of agency websites. Access to E-government services related to TLMS will be incorporated with the improved web access.

Describe the anticipated risks associated with this objective: The current web site is severely lacking in design and implementation. A complete rewrite of the website will be needed.

What is the timeframe for completion of this objective: TBD.

Describe the critical success factors associated with this objective: Customers and public able to interact with trust land programs and obtain data they need and desire.

Supporting Objective/Action

Objective 7-4 Trust Land document management and retrieval.

Describe the business requirements or business problem driving this objective: Critical land ownership, easement, leasing, and other documents need to be converted to digital format to make them available to agency staff and to ensure critical documents will not be lost through human error or deterioration of documents themselves.

Describe the benefits to be derived from the successful completion of this objective: Time and resource efficiencies. Availability and security of critical land ownership and related documents.

Describe the anticipated risks associated with this objective: Implementation may take longer than anticipated or may not meet division goals for access to equipment, capacity of equipment, and software to convert documents in a timely and cost effective manner.

What is the timeframe for completion of this objective: Currently within the Trust Land Management Division, a number of legal documents are scanned for online access. These include granted and acquired easements and agricultural lease documents. The scanning is done without optical character recognition so no keyword searches are available. The objective is a standard document scanning and retention system with keyword or whole text search capabilities. This system will be part of the agency-wide document storage and management system identified in Goal 1. Development is dependent upon budget allocation.

Describe the critical success factors associated with this objective: Key documents readily accessible through TLMS, with all key documents converted to optical format and securely stored.

Goal Number 8:

IT Goal 8 Enhance a variety of applications in support of Trust Land Management Division.

Description: Update to critical applications within TLMD that support programs such as Ag and grazing, timber sales, timber management, minerals management, and real estate management.

Benefits: Improved management of state trust land assets, staff access to trust data, and customer access to trust land information.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Develop systems that support program requirements across diverse geographic and operational environments. Would be possibly folded into Goal 6 if a new comprehensive application solution were sought.

Supporting Objective/Action

Objective 8-1 Develop a geospatial land access database and public interface tool.

Describe the business requirements or business problem driving this objective: Identify and develop an application and supporting data to delineate access rights to state trust lands.

Describe the benefits to be derived from the successful completion of this objective: This system and database will help in developing cost-share/reciprocal road maintenance fees; improved management of timber sales, grazing rights, land inspections, and other agency operations and oversight; employees can use this for determining legal access or planning staged acquisitions. The public can determine access for industry and/or recreational use.

Describe the anticipated risks associated with this objective: Staff availability. Must be compatible with agency GIS systems and TLMS. Potential confusion between physical access and legal access. Some parcels require extensive research at the local level for legal access determination. Liability to the state for improper depiction of access status.

What is the timeframe for completion of this objective: TBD – dependent upon TLMS development.

Describe the critical success factors associated with this objective: Funding; access to legal records at the county level; personnel availability for data development and application development.

Goal Number 9:

IT Goal 9 Update and improve applications critical to operations of Forestry Division.

Description: Continue work on applications that support the efforts of the Forestry division to fight fires, manage fire costs, safely deploy personnel, manage public and private timber lands, and operate the state nursery.

Benefits: Improved fiscal management of divisional operations. Integration of separate systems and availability of information within the division and across DNRC. Improved customer service.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Expand use of geographic information

technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 9-1 Upgrade DNRC Aircraft Maintenance system.

Describe the business requirements or business problem driving this objective: DNRC's Aircraft Maintenance application tracks all maintenance and parts related to DNRC aircraft. The application presently consists of a central MS Access database with multiple MS Access frontends, all developed by the DNRC's Chief Mechanic of the Aviation Section. This is a very thorough, complete, and mission-critical database. Database synchronization is currently achieved via a 3rd party solution which no longer works very well and in the near future will not be supported on modern operating system platforms. Operational requirements for field maintenance require maintenance personnel to often work in remote areas, without reliable network connectivity. Federal Aviation Regulations require accurate, timely, and durable maintenance records. These business requirements necessitate system support for high availability, recoverability, and asynchronous database transaction management.

Describe the benefits to be derived from the successful completion of this objective: This is a mission-critical system required to support aircraft operations. Migration to an enterprise-class relational database system will ensure accuracy, consistency, durability, and recoverability of critical data while improving operational efficiency for maintenance personnel.

Describe the anticipated risks associated with this objective: Data loss or inconsistency, or impacts to system availability/stability during or after migration could severely impact mission-critical Aviation program operations. Network availability in remote areas.

What is the timeframe for completion of this objective: System planning to begin FY2015. **Describe the critical success factors associated with this objective:** Maintaining current user/business process functionality. Infrastructure and processes support system availability, data quality, and data recoverability requirements. Transaction auditing capabilities meet state, agency, and FAA standards.

Supporting Objective/Action

Objective 9-2 DNRC Fire Finance system.

Describe the business requirements or business problem driving this objective: Fire statistics from the F1000 fire database include costs per fire components that are currently input manually. This method is static and does not capture fire cost changes as they are updated. Fire Finance currently uses a Microsoft Access database with multiple tables that are linked to Excel pivot tables and are accessed by a single person. The Division would like the Finance system to utilize a SQL back-end that can export data when updated, to the F1000 Fire Reports system for the costs per fire. The system also needs an entry screen to enter non-SABHR expenses, i.e. bills from the Forest Service, BLM, and other agencies.

Describe the benefits to be derived from the successful completion of this objective: A unified system for fire finances would allow for better tracking of firefighting expenses, cost estimating for fires, reimbursement of costs from partner agencies and improved tracking of finances for auditing.

Describe the anticipated risks associated with this objective: Cost and time for development of a new system.

What is the timeframe for completion of this objective: FY2015/2016.

Describe the critical success factors associated with this objective: Establishing a unified financial system to better track the cost of fighting wildland fires.

Supporting Objective/Action

Objective 9-3 Enhance flight log system.

Describe the business requirements or business problem driving this objective: Compiling flight log information using paper forms is inefficient and time-consuming. An electronic system for entering and maintaining flight log information has dramatically improved flight operations. The system currently allows pilots to use laptops for secure, remote system access. Additional functional and infrastructure enhancements that could further increase the system's utility and reliability are being evaluated. For example, access via mobile devices such as tablets could potentially reduce pilot workload while increasing operational flexibility.

Describe the benefits to be derived from the successful completion of this objective: The flight log application and database provides timely statewide fire flight cost information to DNRC Forestry Division for submittal to the Office of Budget and Program Planning (OBPP). It has significantly improved operational efficiency and safety as well as improving the fire flight billing process, making it more efficient, faster, and cost-effective. Evaluation of the data compiled can also be used in the operations budgeting and planning process.

Describe the anticipated risks associated with this objective: Cost of external contractor. Data accuracy and consistency. Ensuring system availability during critical operational periods.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: System supports stakeholder business requirements. Infrastructure and processes support system availability, data quality, and data recoverability requirements. Transaction auditing capabilities meet state, agency, and FAA standards.

Supporting Objective/Action

Objective 9-4 Provide the technical development of the Forests in Focus Program website and performance dashboard.

Describe the business requirements or business problem driving this objective: Develop the collaboration and partnerships to support the forest industry, private, public, and federal forest management, implement forest health initiatives and mitigate forest-related dangers to citizens and the environment.

Describe the benefits to be derived from the successful completion of this objective: Healthy forests for the welfare of all citizens; a thriving forest industry in Montana; mitigation of threats to life and property.

Describe the anticipated risks associated with this objective: Many partnerships under different government structures makes collaboration challenging. Ongoing funding and personnel to effectively manage program endeavors.

What is the timeframe for completion of this objective: Ongoing

Describe the critical success factors associated with this objective: Positive multi-partner relationships; strong leadership; definitive objectives for technical website and dashboard tools; personnel and resource availability.

Supporting Objective/Action

Objective 9-5 Enhance F300 and F1000 system to be integrated with the federal IRWIN system.

Describe the business requirements or business problem driving this objective: The Fire and Aviation Management Bureau needs to increase the scope of incident data tracked. This includes expanding the supplemental documents section to accept a wider range of document types and monitoring team involvement in fires by adding data fields to track incident commanders and incident types for each fire.

Describe the benefits to be derived from the successful completion of this objective: Ability to analyze incident related data such as type 1/type 2 team assignments, budget expenditures by IMT fire type, etc.

Describe the anticipated risks associated with this objective: Cost of external contractor. Data accuracy and consistency. Ensuring system availability during critical operational periods. Incorporation of additional data into business processes.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Infrastructure and processes support system availability, data quality, and data recoverability requirements. Enhancements meet business requirements. Documentation is updated to reflect system changes.

Supporting Objective/Action

Objective 9-6 Further develop integration of field data in fire management systems; specifically, implementing the DNRC Fire Map Tool and Avenza PDFMaps Application to produce effective Type 3-5 Incident Data in the field.

Describe the business requirements or business problem driving this objective: Need to address the requirements of FEMA requests; to support statewide coordination calls, briefings to the Governor and other similar efforts; and to enable strategic situation analysis during fire season.

Describe the benefits to be derived from the successful completion of this objective: Ultimately, would create the capacity to populate that DNRC Map Repository from the fire reports database. With the development of a map repository and GIS database, work to integrate mobile devices into daily fire operations and fire business functions including, not only users in the field, but those with strategic (non-field) responsibilities for sharing fire information.

Describe the anticipated risks associated with this objective: Ability to purchase additional mobile devices for the field. Funding constraints. Network limitations in field areas. Data synchronization, transaction management, and data collection procedures that ensure reported information is accurate, consistent, timely, and durable. State policies with respect to external access to systems located within the state network. Potential legal liability from implementation, data quality, or inadequate stakeholder training. Potential need for 24-hour/day, 7-day/week GIS support from the OIT.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Establish processes and mechanisms for returning collected field data to the GIS shop for inclusion in a DNRC Map Repository and DNRC GIS Database that will in-turn populate the PDF products, Avenza incident maps and other shareable data that both personnel and interagency personnel would use on mobile devices in the field.

Supporting Objective/Action

Objective 9-7 Update Forestry Assistance Bureau (FAB) – Statewide Assessment of Forest Resources computer model.

Describe the business requirements or business problem driving this objective: This is a mission critical computer model that drives the FAB financial assistance programs.

Describe the benefits to be derived from the successful completion of this objective: The original state assessment model was an ArcGIS/CommunityVis product completed in June 2010. The model was initiated to provide strategic direction to delivery of Cooperative Forestry Assistance Programs. These programs average $2-3 million per year in partnership with the US Forest Service. The model requires current datasets semi-annual maintenance.

Describe the anticipated risks associated with this objective: Lack of updates and maintenance will reduce model validity, potentially impacting DNRC credibility.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Updating all model data and providing seamless interface with the state's Forest Action Plan define critical success. The ability to provide strategic direction for program delivery on the ground equates to more efficient use of program resources and ultimately a more efficient use of tax dollars.

Goal Number 10:

IT Goal 10 Improve public access to Conservation and Resource Development Division (CARDD) program information.

Description: CARDD's primary function is to assist Montanans with their efforts to protect, conserve, manage and beneficially use Montana's natural resources. CARDD currently uses a webbased database for 3 grant programs, but needs additional web-based services to facilitate public access to DNRC information and assist staff with project management.

Benefits: CARDD will realize improved staff efficiencies, increased public use of natural resource management information, and improved access to DNRC grants.

Which agency IT strategies does your goal address? Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Share systems, components, and functionality across MT agencies, MT political subdivisions, and other states where common business requirements exist.

Supporting Objective/Action

Objective 10-1 Add programs to CARDD's on-line grants and application management WebGrants system.

Describe the business requirements or business problem driving this objective: CARDD has a specific need to track project applications, review and score applications, and manage active grant projects. The division has partnered with three other State agencies to develop a statewide grants management database called WebGrants, available at https://fundingmt.org/. CARDD has tested WebGrants for two years on three grant programs within the Renewable Resource Grants program. This system has increased efficiencies and provides a service to the public. CARDD plans to expand the system to include three more grant programs by the end of 2015.

Describe the benefits to be derived from the successful completion of this objective: Better management and tracking of contracts, grants, and loans made by the agency. Increased transparency and public access to information, reduced cost, and increased efficiency for application reviews. Ability to determine where state dollars are spent on projects, e.g. water loans, waste water treatment, restoration projects, etc.

Describe the anticipated risks associated with this objective: CARDD will need to provide updates at least annually and after each legislative session to maintain the accuracy of the database. As a system shared between the State of Montana and three other states, decisions regarding functionality or maintenance require cross-agency consensus.

What is the timeframe for completion of this objective: The system is in place. Plan to add three grant programs by end of FY2015.

Describe the critical success factors associated with this objective: The ability to connect to the DNRC CGS system for fiscal tracking is not necessary for success but would be a plus. Adding additional grant programs will require contracting IT consulting services and additional staff training.

Supporting Objective/Action

Objective 10-2 Develop an interactive map to track certain DNRC grants hosted at http://dnrc.mt.gov/public-interest/geographic-information-systems-gis/

Describe the business requirements or business problem driving this objective: CARDD has to provide the public, local governments, and the legislature with an easy way to view information about grants funded with State funds. An interactive map would show location of CARDD funded grants with links to information such as: grant sponsor, project title, and project description or final report.

Describe the benefits to be derived from the successful completion of this objective: Public web-based access to this information will reduce workload for DNRC staff, enable the public and decision makers to view current expenditures by the program, encourage future applicants, and reduce the occurrence of duplicate or repeated projects.

Describe the anticipated risks associated with this objective: Maintaining an updated map. Requires support from limited internal IT resources.

What is the timeframe for completion of this objective: FY2017.

Describe the critical success factors associated with this objective: Consolidation and maintenance of updated grant information to a single web interface.

Supporting Objective/Action

Objective 10-3 Update the 310 database application to meet today's business needs and standards at http://dnrc.mt.gov/public-interest/geographic-information-systems-gis/

Describe the business requirements or business problem driving this objective: CARDD has a specific need to provide a web-based means for Conservation Districts (CD) and division staff to track 310 projects across the state. This database is already in place, but is in need of a complete overhaul of the application to improve usability and to meet current security standards. This database is map-based, allowing conservation districts to enter location of permits, permit information, and site photos. The public can access the database to view permitting activities on any streams in Montana where data has been entered. Because of the difficulty in entering and locating information, and security concerns, the database is currently not fully functional.

Describe the benefits to be derived from the successful completion of this objective: Improve access to the program by the public, improve CD's ability to manage the 310 program and determinations on future applications.

Describe the anticipated risks associated with this objective: The application needs to be substantially revised to meet security standards. The system was updated in FY 2014 with an interim fix to meet immediate

security concerns. Project will require assistance from limited internal IT resources for development and maintenance.

What is the timeframe for completion of this objective: Revisions will occur in FY2015; maintenance will be ongoing.

Describe the critical success factors associated with this objective: Database is accessed by CDs when making determinations about 310 permits.

Supporting Objective/Action

Objective 10-4 Create access for conservation districts to view and print district boundary maps and to begin testing boundary data for accuracy (http://dnrc.mt.gov/public-interest/geographic-information-systems-gis/).

Describe the business requirements or business problem driving this objective: CARDD has a business need to allow conservation district use of an existing database that shows district boundaries. Conservation district boundaries can change and conservation districts need to be able to keep the district boundary maps up to date. The database is complete, but it is not accessible by the public or conservation districts. In addition, the data is not necessarily accurate, particularly boundary lines around cities and towns not within the conservation district. Time needs to be dedicated to cleaning up inaccurate data by coordinating with cities and towns that have annexed land into the conservation district boundary and redraw the database lines to accurately reflect the city or town boundaries that are within the conservation district.

Describe the benefits to be derived from the successful completion of this objective: Accurate conservation district boundary maps assist DNRC and conservation districts with determining jurisdiction and location of rate-payers.

Describe the anticipated risks associated with this objective: Conservation districts and county assessors may rely on inaccurate information. Availability of limited internal IT resources.

What is the timeframe for completion of this objective: FY2017.

Describe the critical success factors associated with this objective: Conservation district access to the district boundaries and a mechanism in place to make changes requested by the conservation districts. Inaccurate data fixed, quality control mechanism in place.

Goal Number 11:

IT Goal 11 Improve applications critical to operations of the Board of Oil and Gas Conservation.

Description: Upgrade and enhance systems providing data services for internal and external stakeholders.

Benefits: Improved management of oil and gas resources. Enhanced ability for stakeholders to obtain information and interact with BOGC staff.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Share systems, components, and functionality across MT agencies, MT political subdivisions, and other states where common business requirements exist. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 11-1 Enhance BOGC systems through addition of new business features and streamlining back-end data processing.

Describe the business requirements or business problem driving this objective: Address new development to expand the capabilities of existing systems; address complex back-end data systems.

Describe the benefits to be derived from the successful completion of this objective: Improved access to information assets and management of resources. Increased efficiency and effectiveness of business operations.

Describe the anticipated risks associated with this objective: Improvements may cause conflicts with existing operations. Development may require more resources than available. Coordination between internal staff and external contractor.

What is the timeframe for completion of this objective: FY20/21.

Describe the critical success factors associated with this objective: Improved ability for internal and external stakeholders to access and maintain information assets.

11. IT Projects

Item	Description
Project name	Water Rights Information System (WRIS) Sustainability Project – Discovery Phase/Online Water Measurement Forms
Project/program purpose and objectives	The WRIS is a critical computer system that is used primarily by the Department of Natural Resources and Conservation (DNRC), the Montana Water Court within the Judicial Branch, and the public as the authoritative source of digital information concerning water rights across the State of Montana. The WRIS is currently being supported by technology that was developed in the late 1990s and deployed at DNRC in the early 2000s. The technology is nearing its end of life from the vendor and the costs of continuing to use it are increasing every fiscal year. In order to support the legislatively mandated record keeping system of the water rights of the citizens of the state, DNRC needs to upgrade the WRIS to a newer technology that will meet current and future business requirements, allow DNRC to move forward with its strategic information technology goals with the WRIS, and ensure that the WRIS lifecycle is sustainable for at least another 8 years. The discovery phase will include updating and verifying the business processes and requirements used by the different stakeholders, research and identify information technology systems that can support identified requirements, and complete a proof of concept/pilot to verify the technology works as described and will be able to support WRIS. The Water Resources Division (WRD) will also pursue development of an online system designed to simplify and improve the efficiency of the water

	measurement reporting process for both the public and department. Water right holders who have water measurement requirements placed on their water rights are currently required to fill out and detail on paper exactly how they have measured their water usage throughout the year according to the terms of the specific water measurement requirement. This information is then physically mailed to the department who in turn manually enters the information submitted into the water rights database. Migrating to an online, automated electronic process in which water measurement data is entered directly by the water right holder will improve efficiency and reduce the likelihood of data entry errors.
Estimated start date	01 May 2016
Estimated cost	Estimated cost for the discovery phase is $50,000. These funds will be used to secure external consulting services and any software or hardware needed to complete the proof of concept/pilot.
Funding source - 1	EPP from Legislative 2015 session.
Funding source - 2	
Funding source - 3	N/A
Annual Costs upon completion	Unknown at this time.

Item	Description
Project name	**Situation Analyst Montana**
Project/program purpose and objectives	Enable the DNRC to help complete development of Situation Analyst Montana (SAM) a flexible, cloud-based software platform that can deliver a statewide operating picture of current operations, planning, and public information delivered to mobile devices; providing seamless, efficient communications to facilitate well-coordinated fire operations. SAM is a web-based decision support system that can provide an up-to-date, an easy-to-use, map-based statewide common operating picture so that we have a central source of needed knowledge including the location of active incidents, fuel types, weather, wind direction and speed, fire history, and WUI risk assessments. Select users would have permission to update information including incident mapping which can be automatically shared in real time with emergency responders both within and outside the DNRC. DNRC staff would use information from SAM to produce plans and in-briefing information faster. Fire information officers and the Department Information Officer could easily select map

	features such as fire perimeters, evacuation zones, and evacuation shelter locations for immediate publication, and specially equipped aircraft could deliver infrared imagery of emergencies such as wildfires directly to our map in near-real time. In addition, SAM will enable us to monitor locations of our resources and cooperator resources using existing computer aided dispatch (CAD) data and automatic vehicle location (AVL) data (the capacity for which we would develop.) Resources managed by the USFS are already shared in SAM. With additional support and development, we are not far from using new, robust, GIS-based information tools to support strategic planning calls, MAC decision-making, briefings, public information, etc. In the future, we envision shifting to modernizing other (non-field) databases and processes including the FPA (direct and affidavit fire protection offset) database, and our fire reports database; and integrating those with SAM.
Estimated start date	Ongoing
Estimated cost	$100,000
Funding source - 1	
Funding source - 2	
Funding source - 3	
Annual Costs upon completion	$86,000

12. Security and Business Continuity Programs

Information Security Management (ISM) Program Description

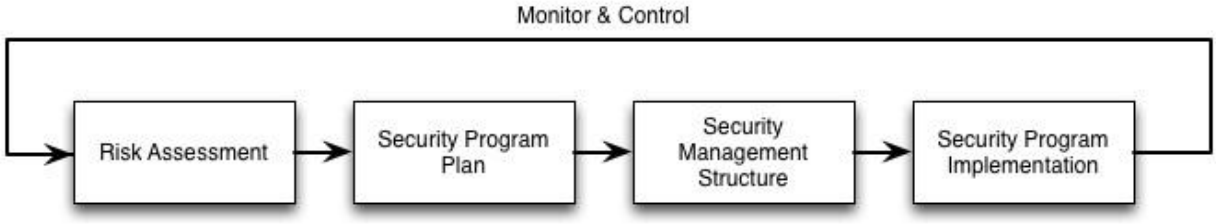
The Department of Natural Resources and Conservation, in collaboration with the State Information Technology Services Division, has initiated development of a department-wide (agency) information security management program compliant with §2-15-114, MCA and State Information Technology Systems Division *Information Security Programs* policy with adoption of the National Institute of Standards and Technology (NIST) Special Publication 800 series as guides for establishing appropriate security procedures. This is in alignment with the State Information Technology Service's direction for an enterprise approach to protect sensitive and critical information being housed and shared on State and/or external/commercial information assets or systems.

As described in NIST SP 800-39, the agency has developed and adopted the Information Risk Management Strategy to guide the agency through information security lifecycle architecture with application of risk management. This structure provides a programmatic approach to reducing the level of risk to an acceptable level, while ensuring legal and regulatory mandates are met in accordance with MCA §2-15-114.
The agency's program has four components, which interact with each other in a continuous improvement cycle. They are as follows:

- Risk Frame – Establishes the context for making risk-based decisions
- Risk Assessment – Addresses how the agency will assess risk within the context of the risk frame; identifying threats, harm, impact, vulnerabilities and likelihood of occurrence
- Risk Response – Addresses how the agency responds to risk once the level of risk is determined based on the results of the risk assessment; e.g., avoid, mitigate, accept risk, share or transfer
- Risk Monitoring – Addresses how the agency monitors risk over time; "Are we achieving desired outcomes?"

The agency's information security management program is severely challenged with limited resources; personnel and funding. While alternatives are reviewed and mitigation efforts are implemented the level of acceptable risk is constantly challenged by the ever changing technology and associated risks from growing attacks and social structure changes. Specific vulnerabilities have been identified which require restructure, new equipment, or personnel positions (funds increase), and will be addressed as the agency moves forward with formal plan development.

DNRC is undergoing a major realignment and transformation of its IT resources. As part of this restructuring, DNRC's Data and Systems Manager has been designated as a primary agency security officer responsible, in collaboration with the DNRC Network Services Manager and SITSD Enterprise Security, for identifying risks and developing a formal information security management program to address identified vulnerabilities. The program is being developed under the guidance given by the Montana Information Security Advisory Council created by Governor Steve Bullock through executive order 05-2015. It is intended to be a sustained initiative that adapts to changing internal and external environmental factors in a continuous improvement cycle:



Specific areas the agency considers high priorities for initial plan development include:

- Development and implementation of standards for data and systems architecture and practices, including data loss prevention, data recovery, log monitoring, and audit procedures;

- Development and implementation of policies and procedures to control system and network access based on need, including access by and management of external contractors/vendors;
- Improving visibility and management of hardware and software assets, including implementation of build standards for workstations, laptops, and servers to ensure consistency and secure configurations;
- Controlling use of administrative accounts to reduce or eliminate the need for privileged user access;
- Implementing a mobile device management solution to minimize potential security risks from device compromise or data loss;
- Developing and implementing consistent incident response procedures;
- Working to educate leadership and technology users with respect to security awareness, including organizational risk, social engineering, and the need for consistent policies and practices.

To help the department identify the gaps in the agency's security posture, DNRC is pursuing an independent security expert organization through a limited solicitation to conduct a security analysis. The result will identify where the department falls short in light of the SITSD Enterprise Security Policy and baseline controls, and will identify the resources necessary to maintain an Information Security Management Program at the Department of Natural Resources and Conservation.

Continuity of Operations (COOP) Capability Program Description

DNRC has joined with the Department of Administration *Continuity Services* for the development of the agency's Continuity of Operations Capabilities, which will provide the plans and structure to facilitate response and recovery capabilities to ensure the continued performance of the State Essential Functions of Government. This program involves two Blocks of focus; the first is to complete the Business Continuity Plans (BCP) involving two phases, the second Block works on the specific business processes or activity plans such as Emergency Action Plans (EAP), Information System Contingency Plan (ISCP), Communications Plans, Incident Management Plans, and more. This program is not a standalone process in that information which is identified and recorded under this structure can and often exists in the Records Management Program and associates with Information Security Management Program requirements. Integration of these three programs is critical to the confidentiality, integrity, and availability of information, which is associated with each program.

DNRC is working with the Continuity Services Group to start Block 1 with completion anticipated by the end of the Biennium. DNRC, in collaboration with the Department of Emergency Services, is developing an EAP plan for the agency and plans to pilot it in the fall of 2016 in a mock-scenario.

DNRC is currently developing infrastructure and procedures to support disaster recovery and continuity of services objectives identified through this process. The agency has server and storage systems that will be housed in the state data centers, with redundant, replicated systems located in the Helena and Miles City data centers. Existing systems currently located in disparate locations will, where possible, be migrated onto this infrastructure. Systems that cannot be migrated due to technical or business constraints (e.g. insufficient network availability, reliability, or capacity) will be addressed using alternative solutions.

13. Planned IT Expenditures

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
IT personal services	$1,988,964	$2,107,614	$2,170,842	$2,235,968	$2,303,047	$2,372,138
IT operating expenses	$2,133,254	$2,081,608	$2,144,056	$2,208,378	$2,274,629	$2,342,868
IT initiatives	$70,000	$70,000	–	–	5,000,000	5,000,000
Other	$35,191	$35,192	$36,248	$37,335	$38,455	$39,609
Total	**$4,227,409**	**$4,294,414**	**$4,351,146**	**$4,481,681**	**$4,616,131**	**$4,754,615**

Note: Above includes an estimated 3% annual increase for personal services, operating expenses, and Other-Equipment in FY2018-FY2021. Future initiatives are multi-program; Water Rights and Trust Lands.

14. Administrative Information

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