MN Laws 2011, 1ˢᵗ Special Session, Chapter 2, Article 3, Section 2, Subd. 03j Project Abstract
For the Period Ending June 30, 2015

PROJECT TITLE: Information System for Wildlife and Aquatic Management Areas
PROJECT MANAGER: Steve Benson
AFFILIATION: MN.IT Services @ DNR
MAILING ADDRESS: 1201 E Highway 2
CITY/STATE/ZIP: Grand Rapids, MN 55744
PHONE: (218) 327-4149
E-MAIL: steve.benson@state.mn.us
WEBSITE:
FUNDING SOURCE: Environment and Natural Resources Trust Fund
LEGAL CITATION: MN Laws 2011, 1st Special Session, Chapter 2, Article 3, Section 2, Subd. 03j

APPROPRIATION AMOUNT: $500,000

Overall Project Outcomes and Results

The DNR Division of Fish and Wildlife (FAW) needed a system to manage statewide information about Wildlife Management Areas (WMAs) and Aquatic Management Areas (AMAs). This project created a new information system for assessment of and projects on, facilities and habitat on these management areas. The system has a component for proposing and managing field projects. The system also handles information about public use and access to WMAs/AMAs, which will be presented on the DNR web site.

This system is called the Wildlife and Aquatic Habitat Management Application (WAHMA). WAHMA is now being used by staff within FAW. The WAHMA application can be broken down into three components:

- WAHMAGIS – GIS based data entry and management components for WMA/AMA information. This component can be further divided into separate applications:
  - WAHMAGIS-Desktop – a Windows PC based application that can be run from DNR offices, or over any Internet connection. All WAHMA data and project management tools can be used from the Desktop application. All data that has been captured is immediately available for every WMA and AMA in an organized interface.
  - WAHMAGIS-Mobile – a smaller field application that runs on rugged tablet computers. This application can be run over a Wi-Fi connection, a 4g phone connection, or completely disconnected. All existing data about facilities and habitat can be reviewed, added or updated. Part of the project funding was used to purchase 53 field tablets, which were distributed to FAW field staff managing WMAs and AMAs.

- WAHMA-Work Planning – a web application used for proposing and managing projects. This component allows staff to propose and prioritize projects for funding and then manage the funded projects. Regional and Central Office staff review, prioritize and approve projects. FAW Program staff use the data to bundle appropriate projects for building funding proposals.

- WAHMA-Reporting – The principle report will be the Management Guidance Document, a summary for each WMA/AMA including unit description, goals, management plans and considerations.

Project Results Use and Dissemination

WAHMA provides a foundation and tools for FAW field staff to update and build out the inventory of facilities and habitat on WMAs/AMAs. As the data is entered and updated in the system, it can then be queried to identify unmet needs and set work priorities via the project management module of the system. WAHMA is also used to record information about public recreation, access, acquisition history, management goals and plans.

WAHMA broke new ground for a project proposal and approval system. Other DNR divisions expressed interest in using the same methods, so multiple demonstrations have been held within DNR. A technical presentation was done for MN.IT Services @ DNR staff. Field users have attended multiple training sessions. Presentations have been made at regional Wildlife meetings, at the bi-annual Wildlife School, and will be made at an upcoming Fisheries Academy.

WAHMA is primarily intended for use by FAW staff in managing lands, and in planning and accomplishing projects. Field staff will be the front line of gathering information, which will be used at all levels in FAW for unit planning and determining land management needs. WAHMA is also being used to manage more detailed recreation and management information for the public, which will be delivered with a public web site redesigned to present the additional maps and information. The GIS data from WAHMA will be available through DNR's internal data resource site, and to the public via the Minnesota Geospatial Commons.

Date of Status Update:	12/31/2014
Date of Next Status Update:	06/30/2015
Date of Work Plan Approval:	6/23/2011
Project Completion Date:	6/30/2015

Is this an amendment request? ___

Project Title: Information System for Wildlife and Aquatic Management Areas

Project Manager: Steve Benson

Affiliation: MN.IT @ DNR, Division of Fish and Wildlife, Section of Wildlife

Address: 1201 E Hwy 2

City: Grand Rapids   **State:** MN   **Zip code:** 55744

Telephone Number: (218) 327-4149

Email Address: steve.benson@state.mn.us

Web Address:

Location:

Counties Impacted: Statewide

Ecological Section Impacted: Lake Agassiz Aspen Parklands (223N), Minnesota and Northeast Iowa Morainal (222M), North Central Glaciated Plains (251B), Northern Minnesota and Ontario Peatlands (212M), Northern Minnesota Drift and lake Plains (212N), Northern Superior Uplands (212L), Paleozoic Plateau (222L), Red River Valley (251A), Southern Superior Uplands (212J), Western Superior Uplands (212K)

Total ENRTF Project Budget:		**ENRTF Appropriation $:**	500,000
		Amount Spent $:	499,847
		Balance $:	153

Legal Citation: M.L. 2011, First Special Session, Chp. 2, Art.3, Sec. 2, Subd. 03j
M.L. 2014, Chapter 226, Section 2, Subdivision 19

Appropriation Language:
$250,000 the first year and $250,000 the second year are from the trust fund to the commissioner of natural resources to develop an information system to facilitate improved management of wildlife and fish habitat and facilities. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

Carry forward: The availability of the appropriations for the following projects are extended to June 30, 2015: (1) Laws 2011, First Special Session chapter 2, article 3, section 2, subdivision 3, paragraph (j), Information System for Wildlife and Aquatic Management Areas.

I. PROJECT TITLE: Wildlife and Aquatic Management Area Work Planning Information System

II. PROJECT SUMMARY:

Develop a DNR WMA/AMA Enterprise Information System to facilitate protection, enhancement and restoration of wildlife and fish habitat and facilities, and facilitate work planning, budgeting and reporting.

Minnesota DNR manages over 1.3 million acres contained within over 2,135 State Wildlife Management Areas (WMA) and Aquatic Management Areas (AMA).

DNR Division of Fish and Wildlife has spent over ten years building WMA/AMA databases, and an existing Geographic Information System (GIS) as funds were available. This proposal is intended to build on that effort, and produce a product that will allow unprecedented internal and external access to up-to-date WMA/AMA information, and the ability to use that information to identify WMA/AMA project needs; and prioritize and plan efforts to fund and carry out habitat and facilities management activities on WMAs and AMAs.

The software used in the current system is obsolete. A new system needs to be built to continue to manage and share all the existing data. Rebuilding means we have an opportunity to build in changes that could support identifying ongoing habitat and facility management needs, identifying deferred obligations and support coordinated project planning. Not rebuilding puts the integrity of the data at risk, and maintains only the status quo on the DNR's ability to assess habitat conditions, and plan for future enhancement and protection needs.

This system would provide the ability to quickly summarize information to answer questions on project needs and funding, such as deferred obligations. Reports on habitat enhancement and facilities management needs will enable DNR and cooperators to pursue funding from sources other than Fish and Game, e.g., bonding, LCCMR, L-SOHC, private NGO grants, federal grants or other funds. Designing a system to accommodate both WMA and AMA data will allow the Sections to coordinate management activities within a common framework, thus improving DNR Fisheries and Wildlife divisional operations such as planning, mapping and reporting.

The objectives of the project are: (1) update the current GIS for vegetation, facilities and recreation potential, and build it as an integrated component of the DNR Enterprise system, (2) create tools for assessing and analyzing the unmet needs for WMA/AMA habitat and facility enhancement, protection and maintenance, (3) create tools to collect and record information on projects for habitat/facilities enhancement and protection activities and (4) make the resulting information and reports available to the public and resource management partners.

III. PROJECT STATUS UPDATES:

Project Status as of December 2011: Given this opportunity to design and build a new information system, DNR is following normal systems development methodology so that the resulting system will be of high quality, and provide more benefits and improved efficiencies than have been previously available. We have been working on gathering and finalizing system requirements for the WMA/AMA Work Planning Information System, and are beginning to lay out a functional design. We are at the high-level design stage, and are currently moving into the next phase where many of the details are worked out and physical design can begin. We have nearly completed defining the scope of the project; what's in and what's out. We have educated the stakeholders on what they can best provide, met with them multiple times and have a clearer understanding of the information needs required to conduct the business needs and meet the priorities of the Division of Fish and Wildlife. We have modeled the business and how information is required to improve efficiency of the business activities. We have begun developing database designs and interactive screen designs so that stakeholders can

understand how the system would look to them. The state shutdown impacted this project as much as any other, and perhaps more than some. There is a seasonality to DNR Information Technology work. There were interruptions to this project exceeding the shutdown, as other IT work had to be completed in a compressed time frame before various hunting seasons began, and staff availability became an issue.

Project Status as of June 2012: At this point we have completed the high-level design, and have completed the bulk of the detailed design. We met steadily since the last status report, refining the design of the system, and determining the best approaches to completing the project. We are ready to move into development, Phase 2, and have been meeting with the development teams who will program the system using both web tools and GIS tools. Programming will begin in July 2012, which will be the first point we spend ENRTF dollars. All work to date has been in-kind system definition and design work by DNR staff.   We've defined an incremental approach to the system development, defined Phase 2 deliverables, a preliminary timeline, and milestones. We are evaluating workload and available resources.

Project Status as of December 2012:   The project scope has been defined, development (programming) milestones identified, use cases expanded and a product release schedule has been laid out. The use cases define how various tasks will be carried out; data administration, inventory, mobile device synchronization, planning, budget accounting, project execution and reporting. The WMA Database structure has been built, and data migration from the old WMAGIS system has begun. This initial migration should be completed in January. This database structure and management will be extended to AMAs in a later iteration. When user interfaces are programmed sufficient to match the functionality of the old WMAGIS system, it will be retired, and staff will begin using the new system. Preliminary programming for field data entry has begun.

The cost estimation of this phase of the project was completed, and a Service Level Agreement (SLA) between the DNR Division of Fish and Wildlife (FAW) and MN.IT @ DNR was executed. This SLA defines the scope, deliverables, time period and billing for the FY 2013 portion of the project. FAW will continue to contribute in-kind services to this project through dedicated IT staff, and review and testing by end users.

Project Status as of June 2013:   The design and physical construction of the core data structure has been completed. The primary data has been migrated as a trial so that programming beyond the testing phase can begin. Some programming is already completed. The goals for use of this structure are:
- Inventory and assessment
  - Complete the inventory of habitat – capture vegetation on newer WMAs and all AMAs, update vegetation conversions on WMAs
  - Complete the inventory of facilities
  - Complete the assessment of facilities – age, condition and needs
- Project management – interfaces to
  - Propose projects
  - Review / approve / prioritize projects
  - Fund projects
  - Track project activities, status, expenditures and accomplishments
  - Close out projects when complete, maintain records
- Reporting
  - Development, management and maintenance needs
  - Project accomplishments, type specific
  - Reports as planning tools

The methods and technology for accomplishing this in the distributed and field environment of the DNR had to be determined and tested. The design, planning, migration and technology testing took more time to complete than originally anticipated. An amendment request is below, extending the due dates of some of the project activities. Spending has been low due to a low number of hours of programming time. Spending will accelerate for the last year as technology solutions have now been identified and programmers can be fully committed to the project.

Amendment Request 08/14/2013
1) Propose shifting $16,000 from activity 1 to activity 2. The original plan was to pay for network servers to support this new system. DNR network servers to handle this task have been purchased through other funding sources. The $16,000 would be better spent on purchasing additional field data recorders. As technology continues to evolve, our field device purchasing plan evolves as well. The original plan was for GPS units that were capable of running field data editing software. Pad computer technology has advanced sufficient to use those instead of small screen GPS units. Pad computer examples include Apple iPad, Panasonic ToughPad and Microsoft Surface. With the current purchasing plan for ruggedized pads, the additional $16,000 would provide a total of one device per work area. Use of non-ruggedized pads would more than double the number of pads that could be purchased. Ruggedized pads are waterproof, resistant to damage from being dropped, and more capable of functioning during winter temperatures.
2) Propose adjusting completion dates within activities 1 and 3. As noted above, the project is behind schedule, and the original date estimates cannot be met.
3) Propose clarifying the intent to move all data from existing systems into the new system. A great deal of field data and project data exists now, and will be migrated into the new system, e.g., WMA/AMA boundaries are already up to date, and over 24,000 WMA facilities have been added to the database. As originally written, the last line of each activity implied that all field data would be 100% up to date at the close of this project. In actuality, this project will produce a system that allows capture of that data. The field staff need this system completed before they can begin to update existing data or capture new data on habitat, facilities and projects.

Amendment approved by LCCMR 8-19-2013

Project Status as of December 2013:

- The development of the WMA/AMA Work Planning portion of this system has progressed well. The ability to propose new field projects and the ability to review/prioritize/approve projects is mostly complete. Software tools to manage funding of projects; tracking project activities, status and expenditures are now under development. All of the legacy project information has been migrated into the new system.

- The field data portion of the system is also progressing. The objective is to provide rugged pad/tablet computers to field offices (outlined above in the previous status report). These tablets must be loaded with system software and data to allow them to display mapped management units, habitat and facilities, and be able to edit or add new information and features that are not yet in the database. These tablet computers will be GPS capable, and will need to display other geographic information such as aerial photos, transportation networks, and other resource management information. The ability to capture WMA/AMA facilities and standard information about them is complete, as is a function for capturing field notes related to geographic locations. The system to download data to the tablets is designed and mostly complete, and the method for running a mirrored application on an office computer is functional. The latter allows field work and data to be managed from both tablets and office computers.

Development on an application for recording accomplishments in field activities is underway, in order to track project progress.

- Internally we have taken to referring to the three main components of this development effort as Mobile, Desktop and Work Planning.

  o The Mobile application will allow field staff to do the inventory and condition assessment of facilities and habitat. Because of the need to do editing on a tablet computer either offline or with limited connectivity, the Mobile application requires a lean functionality that does not require a great deal of storage space, processing power or bandwidth. The Mobile app will also allow staff to collect geographically tagged field notes on special conditions or situations that need to be dealt with. In all cases for field collection, whether facilities, habitat or field notes, the staff will be able to collect/record photos, video, and verbal notes that are completely integrated into the database. If the tablet is connected, or reconnected after being offline, all the data collected moves into the main databases. At that point it is available to anyone authorized to use this system.
  o The Desktop application will duplicate the functionality of the Mobile app, but will be much more robust in terms of capability – it will make use of the full set of databases. In-office work will allow use of all the editing, query and reporting tools that are being developed. This is where more detailed review of features and conditions will occur, and that information will be used in planning and proposing projects. The portion of the application designed to record actual completion of work activities still needs to be developed.
  o The Work Planning application will allow in-office project planning, project proposing, review/ranking/prioritizing of projects and eventual tracking of projects through their life cycle from approval to funding to completion. As noted above, project proposal is now possible, while the full project management portion is now being developed.

Project extension request. The project is behind schedule, and we request approval to extend project completion to June 30, 2015. This project is breaking new ground, and delays have been encountered as uses of new technology had to be proven or solved. DNR's whole approach to field data capture is shifting as changes in technology open new opportunities. The central focus of this project is to manage a single set of databases. This requires connecting to that set through the DNR network, from any DNR FAW office in the state. It requires connecting through the Internet, through the cell phone 3G/4G network, or WiFi connectivity. Since fieldwork is carried out in many places with no connectivity at all, this project also requires designing and building a system that will work completely offline, providing a complex set of existing data that can be edited in offline mode. These tablet computers must then seamlessly connect to and update the master databases when connectivity is restored. Most critical issues have been resolved, and development is progressing. But, time was lost that cannot be recovered, and an extension of the project is needed to be sure that the final system if of high quality, meets the project goals, makes use of the best current technology and is of clear value to all the users.

Amendment Approved: 05/09/14

Project Status as of June 2014:
The portion of the Work Planning component that allows users to propose, review, and approve projects was completed and rolled out to production this spring. FAW staff used this completed component to propose projects for funding consideration for FY15 funding sources and for possible FY16 L-SOHC funding. FAW upper management and program staff were able to review and assign projects for funding within the new system. A prototype has been built to allow staff to track work done on projects in the system which is the next phase of this component; project management. Tools are now being developed to allow FAW staff the ability to manage tables and data within the system, for a

wide variety of information about habitat, facilities and project funding. An example is the new ability to control the complex series of funding codes that staff use to track activites and project funding.

The Mobile application component of the system is now in its second round of testing with select field staff. Current functions of this component include: the ability of staff to capture new facilities and new field notes via GPS and by using the touchscreen capabilities of the field tablet computers. Workflows have been developed for the application to work in "offline mode" when there is no connectivity from the mobile device to the central database. On March 5th 2014, project management staff met with field staff to present the mobile application and deployed nine tablets to field staff for testing purposes. This group of testers met again on May 5th 2014 to discuss the second round of mobile testing. This included bug fixes and new functionality related to working in offline mode. The developers are working towards releases of new test versions of the app every two or three weeks from here on out. 59 field tablets have been purchased and deployed, outfitting at least one staff from each Wildlife work area, and to Fisheries "roving crews" inventorying habitat and facilities on AMAs.

The Desktop component of the system has been released for testing to all field staff. As noted in the previous status report, the Desktop application closely mirrors the Mobile version of the application. Tools exist in the Desktop application to import data, collected offline, into the central database for the application. The Desktop app will be the primary means to enter and manage information about WMAs and AMAs. The Mobile app will use a subset of these tools, and will be used principally for inventory and assessment of facilities and habitat while in the field.

Project Status as of December 2014:
- The Mobile GIS app has been rolled out to 50+ testers, with at least one tester (Tech Lead) assigned per Work Area. The Desktop GIS app is available for testing by all staff, and the desktop Project Management app is live and currently being used. While we are still using test GIS data (to prevent data losses should something go wrong), we expect to go live with real data in early February. This will include the ability to manage data about both facilities and habitat condition and needs. Regular meetings with testers and regular discussions/feedback sessions with field staff at regional meetings is ongoing.
- The application has been cloned from the development server to a production server and tested. We're waiting on a "live" version of the software from the development team.
- The ENRTF funding was expended down to $153 remaining in the equipment budget. The Division of FAW committed another $85,000 to carry the project through the remainder of FY15.

Final Report Summary June 2015:
- The final product produced from this effort has been named the Wildlife and Aquatic Habitat Management Application (WAHMA). Even though not specifically noted in the title, the application also allows for managing data associated with facilities on WMAs and AMAs as described in Section II above. The WAHMA application can be broken down into three components:
    - WAHMAGIS – GIS based data entry and management components for information representing facilities and land cover on WMAs/AMAs maintained by FAW. WAHMAGIS can further be divided into separate applications:
        - WAHMAGIS-Desktop – a Windows PC based application that can be run from DNR offices, or over any Internet connection using the DNR's Virtual Private Network (VPN). The Desktop application contains more robust tools than its Mobile counterpart. All WAHMA data and project management tools can be run from the Desktop application. All data that has been captured is immediately available for every WMA and AMA in an organized interface.
        - WAHMAGIS-Mobile – a smaller field application designed to run on rugged tablet computers running the Android operating system. As noted before, this

application can be run over a WiFi connection, a 4g phone connection, or completely disconnected. All existing data about facilities and habitat can be reviewed, added or updated. Part of the project funding was used to purchase 53 field tablets, which were distributed to FAW field staff managing WMAs and AMAs.

- o WAHMA-Work Planning – is an Internet browser-based web application used for proposing and managing projects. This component allows field staff to propose projects for funding and for FAW management at the Regional and Central Office level to review and approve projects. FAW Program staff also use the project data from the system to bundle appropriate projects for adding to funding proposals, including L-SOHC funding.
- o Reports – Reporting and query component to use the data entered and maintained in the system.

- The database and applications have been updated to work in the production environment with a final data migration taking place in late June.
- The Mobile GIS and Desktop GIS components of this system have moved from testing to production mode for live (real data) capture and use by field staff in July of 2015. Staff are now able to capture real data including spatial location of facilities and land cover (habitat types) on both WMAs and AMAs. These two components provide field staff with the tools to keep the central database up to date as existing facilities are maintained or new facilities are installed and habitat maintenance and conversions occur. Much of the facility and land cover data has been static (not updated) for years and thus it will take time for staff to update field data using this new application. All previous data capture was done with the old WMAGIS system, which was developed using software that was new in the early 2000's, but is now retired. There has not been an efficient means of capturing data between the retirement of the old software and the release of this new set of ENRTF funded applications.
- In March and April of 2015, FAW IT staff trained 40 FAW field staff at seven different locations across the state on use of the Desktop and Mobile GIS applications.
- The Work Planning component was updated in March of 2015. This update included enhancements identified and prioritized by FAW staff and some bug fixes.
- The Reporting component of the system is the least developed component, with only basic queries being run from within the Work Planning web app. Polished reports will be developed in a later phase of this project. Continuing adjustments to the databases to work within technology constraints precluded polished report development.
- WAHMA GIS data will be distributed through the DNR's Geographic Data Resource Sites (GDRS) system for internal and partner agency use. WAHMA GIS data will also contain data for public display, which will be disseminated through the Minnesota Geospatial Commons and via interactive map products on the DNR public website.
- This project allowed planning, development and migration to a new system; and focused on building the database and complex software and tools for staff to enter and manage data. The system will continue to grow and be enhanced over time. To that end, FAW submitted a request, which the Legislature granted, for an appropriation from the Game and Fish Fund (G&F) to pay for continuing development of the application into its next phase and to purchase additional tablet computers for field staff. WAHMA is the FAW enterprise system for managing WMA and AMA information for the foreseeable future, and the Division is committed to supporting it and continuing to build on the functionality created with ENRTF funding.

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Develop the WMA/AMA component of the Enterprise System

Description:

Build an integrated GIS component to capture and update existing GIS information on WMA/AMAs; boundaries, vegetation, habitat, facilities, deeds, acquisitions and public recreation opportunities.

Summary Budget Information for Activity 1:   ENRTF Budget $177,500
                                                   Amount Spent: $177,500
                                                   Balance: $0

Activity Completion Date:

Outcome	Completion Date	Budget
Information system for administrative, vegetation, facilities and recreation information completed.	June 2014	$177,500
Databases fully populated with existing WMAGIS data.	June 2014	$0

Activity Status as of December 2011:
- We defined a working group of field staff, management staff and other Subject Matter Experts (SMEs) to describe the information needs and flows that will define what this system will do. Over the course of multiple meetings, we laid out the system requirements, and began systems development steps to translate the business requirements into a preliminary design. Each step is iterative, and the SMEs are consulted to make sure all needs are being addressed.
- We created a Context Model, defining how actors would work with the system; who needs to use it and how, what types of information need to be gathered, managed and reported to whom, and where this system may interact with existing other systems. We broke down the Context Model into information objects and processes, and how those will be connected and operate to serve the needs of the users.
- We also compared the design concepts with existing DNR and State systems, determined which could be linked; replaced; provide or receive information from the new system; or not considered as having a link to this system.
- We are near completion on the Business Object Model (BOM), which serves to define the interrelationships with information types, plans and actions. The BOM is the fundamental model that will be used to define actual databases and information system functions.
- We defined a list of Use Cases, which define various functions of the system, what they accomplish, who uses them, and classified them into functions; execution of tasks, inventory, administrative, planning, budgeting and reporting. The Use Cases also allowed us to determine what general software is required to run them each of the cases, and plan for web-based or other platform operations.
- Began designing "wireframes," or the types of screens users would expect to see. These allow the users to see how they will interact with the system, review and recommend revisions.
- No ENRTF dollars were spent in this reporting period; DNR staff time is an in-kind contribution. No hardware was purchased.

Activity Status as of June 2012:
- We completed the task of defining the information flow and information relationships of the new system with the completion of the Business Object Model (BOM).

- The project design team met repeatedly, and used the BOM to create a Physical Data Model (PDM), which defines how the final databases will be constructed, and how they will interact. The BOM and PDM will guide the developers as they program the system
- The list of Use Cases was completed, and a Business Analyst is now fleshing out the detail required to turn the written Use Cases into the various screens and interfaces that the users of this system will eventually employ.
- We have refined the list of other DNR systems that this system will need to communicate with, and are planning for how that communication will happen.
- We have defined a list of reports the system must produce, and are working on identifying additional reports that would add benefit to the users of the system.
- We defined the final staffing plan, identifying staff required to develop the system, manage quality assurance, coordinate testing, deployment, training and support.
- We are working on defining how users will interact with the system, both from computers in the office and mobile devices in the field, and planning mobile applications.

Activity Status as of December 2012:
- The Physical Data Model (PDM) went through a number of iterations as close examination of existing and proposed systems allowed us to refine the PDM and come to near completion (there will be minor modifications as new development needs are identified). The PDM is sufficiently defined to allow us to have converted it into a physical enterprise database structure on DNR network servers.

- Database conversion: This physical database structure allowed us to begin migrating the data from the old WMAGIS system into the new data structure. This migration should be completed in January, and will be scripted so that any further modifications to the PDM will allow smooth transfers, as any further data migration will be automated.

- Login authentication and authorization is being addressed so DNR employees can log in safely from any location.

Activity Status as of June 2013:
- The core data structure was created, and the existing basic WMA data was migrated into this new structure. The first of the facilities data, the water control structures database was also migrated, along with the data structure required to create Management Guidance Document reports. Programming to repeat the migration process was completed, so that when the time comes to bring the new system on line, the most current data can be migrated and the old system retired.

- Programming has started on the module to be used for office/field data entry of facilities information. Project staff have had 13 meetings with field staff (Subject Matter Experts), assessing their information needs, and planning the interfaces to meet their needs.

- Design, migration and methods testing has taken enough time that the project is behind schedule, and activity 1 is approximately six months behind.

Activity Status as of December 2013:
- The new database structure has stabilized and user entry screen development has increased since the last report. Effort on activity 1 during this period has primarily focused on programming the field data (or Mobile) recording module. The base code for mobile editing capability for field data capture is also available on office computers, due to software that allows us to run the field

app anywhere. The field staff will use both tablet computers and office computers to view, manage and enter information about activities and projects on habitat and facilities.

- A workflow has been created to connect the new DNR Land Records Enterprise system and database to this project's database and application. Testing around this workflow is complete. This is new; this project had to wait for the roll out of the Land Records System (LRS) so we could connect the two major DNR systems, and manage WMA/AMA boundaries with the LRS while keeping the full structure of the WMA/AMA databases.

- During this period, we've been working through discovery of issues to continue to refine and solidify the database structure to manage all the resource information. We've been improving the system tools to use the data, and creating the ability to add and update data as work activities occur.

Activity Status as of June 2014:
- The desktop app of the inventory and assessment portion of the project has been demonstrated at regional meetings, and released to a group of testers; field staff in both Fisheries and Wildlife who are testing functionality and applicability to their work. The system is not fully rolled-out, as these staff are testing against a copy of the real data. Regular feedback meetings are occurring as testing progresses.

Activity Status as of December 2014:
- This part of the project is largely complete, and will go live in February.
- The ability to manage information about State Rules governing aspects of specific WMAs and AMAs has been added. This info will be provided on the public web site.
- The ability to enter and manage narrative information for each WMA/AMA has also been added. This includes information about management goals, acquisition history, habitat and facilities management plans, recreation and restriction information, much of which will be available on the DNR's public web site. This information will be used to provide reports of unit plans, "Management Guidance Documents."

Final Report Summary June 2015:

This portion of the system is fully functional across the different components of the system. Information relating to acquiring WMAs and AMAs (boundaries, acquisitions, deeds) is being maintained in the Department's Land Records System (LRS), which is the DNR standard for managing and displaying the lands the department administers. The WAHMA system imports the most current WMA/AMA Boundary data from the DNR LRS system so users have the most current data directly from the source.

The office-based field data gathering components are complete; field staff can now use these components to review, capture and update information on habitat and facilities. They can also capture and manage information on WMA/AMA management plans and goals, public recreation opportunities, and historical records on acquisition and management issues.

ACTIVITY 2: Develop a field data recording system

Description:

Design and build a system that captures field activities, e.g., seeding, prescribed burning, planting, invasives management, shoreline and habitat restoration, grassland conversions and provides for seamless integration with the GIS and planning/reporting components.

Summary Budget Information for Activity 2:   **ENRTF Budget**   **$136,000**
                                                Amount Spent: **$135,847**
                                                Balance: **$153**

Activity Completion Date:

Outcome	Completion Date	Budget
Field data collection and recording system developed	June 2015	$70,000
Purchase field data recorders	June 2014	$66,000
Existing field data fully migrated into system	June 2014	$0

Activity Status as of December 2011: Activity in this reporting period is encompassed and described by the narrative in Activity 1. The design phase includes designing the system for field data collection. No hardware was purchased, and no ENRTF dollars were spent.

Activity Status as of June 2012: Activity in this reporting period is encompassed and described by the narrative in Activity 1. The design phase includes designing the system for field data collection. No hardware was purchased, and no ENRTF dollars were spent.

Activity Status as of December 2012: A field data entry component has been programmed for proof of concept testing. This system has been tested by a number of field staff, who provided feedback on perceived quality, usefulness and effectiveness. This system is being programmed to work on portable devices including field computers, tablets and smart phones with GPS functionality. The preliminary test was for the ability to use field data recorders to:

- Display existing information; WMA boundaries, vegetation and facilities, overlaid on aerial photography for navigation and ground feature identification.
- Use the GPS capabilities to navigate to locations, and to capture information through the GPS.
- Create new features, or edit existing features in order to add or adjust vegetation boundaries and facilities points and lines.
- Enter information about the features, existing conditions, maintenance or management needs, and other details that allow situation assessment and planning for future projects.
- Capture photos of features such as facilities, that can be stored in the database and accessed later for review, planning and reporting.
- The system is being designed to work in real time where wireless coverage exists, but also with a data check out – check in function where field work is remote enough to be out of wireless coverage.
- A separate DNR workgroup is developing department-wide standards for portable data devices. This group should complete its work in January 2013, at which point the WMA/AMA project staff can make purchase decisions on field-portable data devices.

Activity Status as of June 2013: Project staff have been working out the technologies required to read and edit centralized databases from field data recorders. Since these will be used anywhere in the state, they need to be capable of editing GIS and other data both when they're connected to or disconnected from the central network.

Project staff have been testing the early programming for field applications. Feasibility testing of pad computers is underway - DNR completed an internal standards study, and pads that meet those standards are being tested for performance with web based GIS editing. Pad computer examples include Apple iPad, Panasonic ToughPad and Microsoft Surface. Wildlife has already budgeted for data plans so the pads can be used on line if cell service is available. System design has included working in completely unconnected environments.

Activity Status as of December 2013:

- Tablet computer technology has been changing rapidly, but with very few companies offering tablets that meet the needs of this project. They need to be rugged, use the Android operating system, contain an internal GPS, have a 10" screen and have the capability to connect to WiFi and 3G/4G cell networks.   So far we have purchased three different models for testing. In November we held a field session where a number of field staff tested these units. For the current most promising model, we've purchased 10, and have put those into the hands of field staff who are testing both the hardware and the field data application. There are other companies still developing new tablets with the combined technology needed, and we will test likely models as they become available. We will end up with a collection of two or three models, but they will all run the Android operating system, so there's no functional difference for this project. The main difference will be cost per unit and limits to operating conditions, such as which will work better in very cold weather.
- The field data editing and capturing programming is currently working well, but we still have more capability that needs to be added to it. As noted in the "Mobile" section on pages 4 and 5 above, some complex problems have been solved and the a good portion of the field application is now functional. Right now facilities, habitat and field notes can be added to the system using the tablets. We still need to develop the capability to edit information about existing facilities and habitat, and to enter work accomplishments both from field tablets and office computers.

Activity Status as of June 2014:
- After testing a variety of mobile computing hardware (tablets), we selected one model and made a bulk purchase. $153.00 remains in the equipment budget. These tablets plus additional tablets purchased by Wildlife are being deployed to field staff. An assessment of needs for additional hardware and costs associated for maintaining hardware for this system was drafted and delivered to Section of Wildlife management for consideration. FAW has committed to covering the costs of maintaining data plans so these tablets can be used on the cellular 3G/4G network. FAW is also covering the cost for field accessories such as cases, carrying devices, batteries, chargers, styluses and similar items that make field use easier.
- The mobile app of the inventory and assessment portion of the project has been demonstrated at regional meetings, and released to a group of testers; field staff in both Fisheries and Wildlife who are testing functionality and applicability to their work. The system is not fully rolled-out, as these staff are testing against a copy of the real data. Regular feedback meetings are occurring as testing progresses.
- Development on the mobile software continues; iterative field testing of newly completed programming is ongoing. New functionality continues to be built into the system, and new versions of the software are being released. The system currently works for facilities management, including water control structures, and is being extended to work with vegetation and habitat.
- This portion of the project continues to present technology issues, though they are being solved. The main issue is downloading complex data onto the tablet computers, editing that data in a completely disconnected mode, then regaining Internet or 3G/4G network connectivity and uploading the altered data to the central databases.

Activity Status as of December 2014:

- The mobile app will be rolled out to a live version in early February. 50+ people are testing it now, and both they and the software are ready to go after some final testing. New ideas are continually being incorporated into the mobile software, but the basic functionality is very close to being ready to go live, and field staff will begin adding, editing and managing real data.
- Two screen shots are included below. The first provides an overview of the screen on a field tablet, with the ability to add or edit features, download and upload data. The second screen shot shows some of the detail involved with editing field facilities.
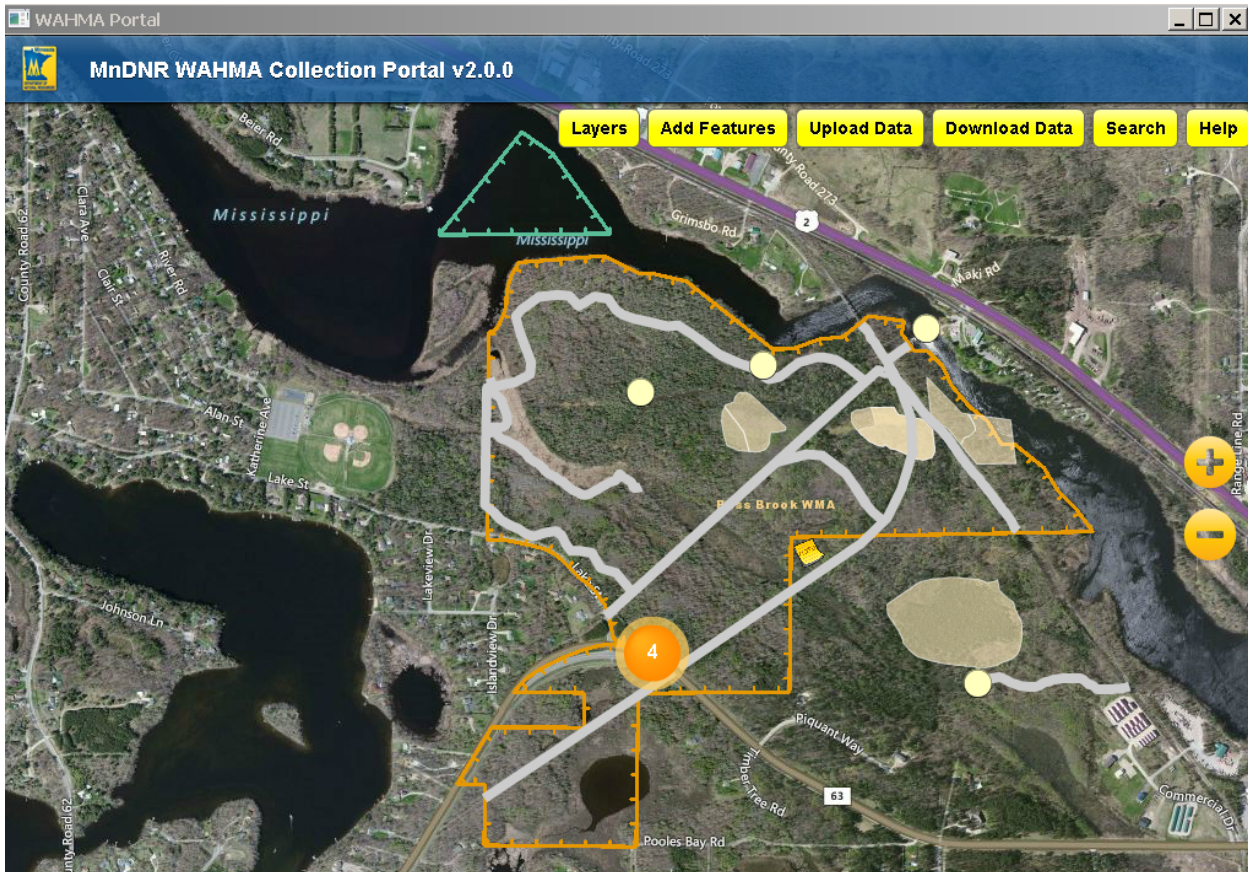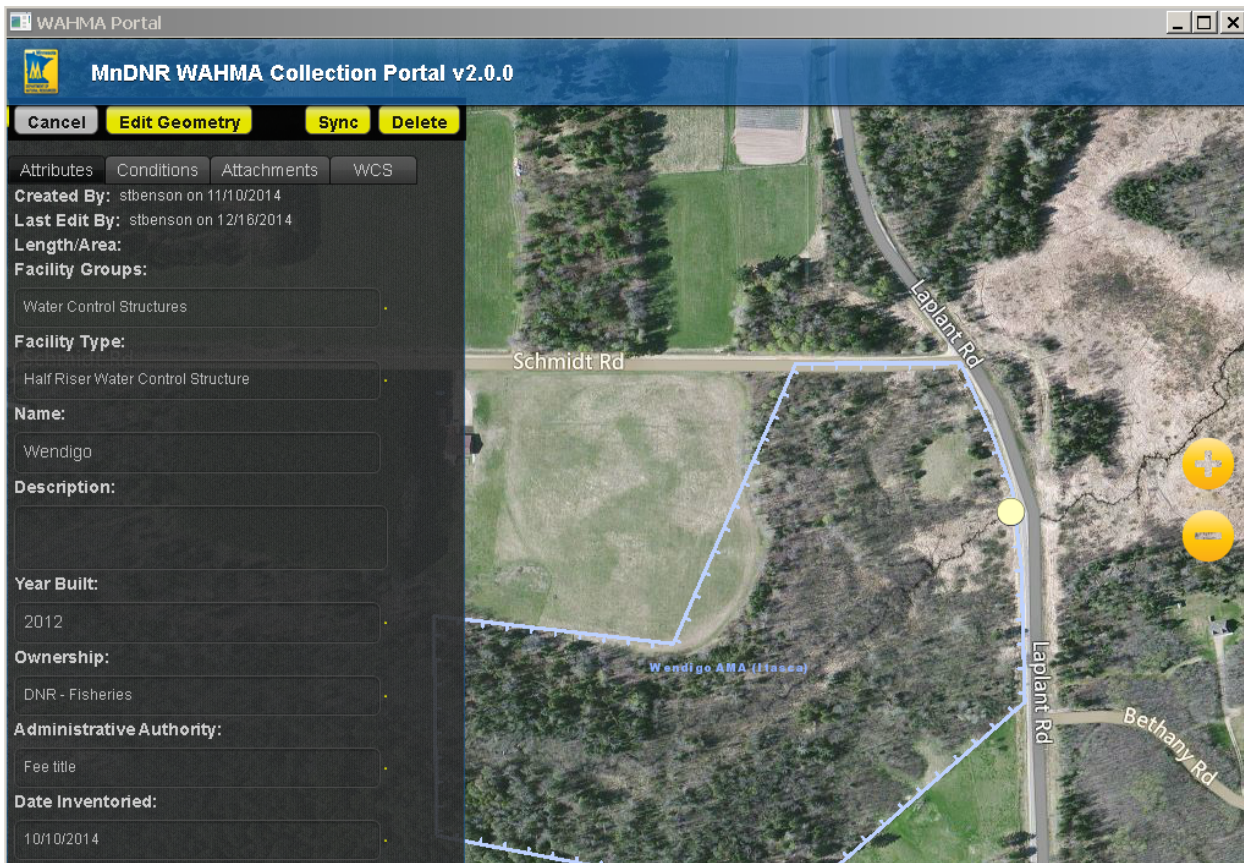
Final Report Summary June 2015:

The field data recorder or Mobile component has gone live and is being used by Division field staff to enter data representing facilities and land cover types on the areas they manage. Functionality for capturing activities (work being done and work completed within the context of larger projects) on these areas will be added in future phases of the project. During this project the development team finished some database design work and modeling which lays the foundation for adding the activities component to the application.

The outcome of this Activity # 2 changed over time as it became clear how the components of this project would actually work, and how the field staff would use them. The mobile component has been focused mainly on managing information about WMAs/AMAs. The Work Planning component is run from a desk, and is where information about projects, proposals, funding, expenditures, accomplishments and activities within projects is being managed.

The mobile application allows a user to call up a geographic feature and database record for each habitat type or facility, review the existing information and add new information as needed. For facilities, detailed information about status and condition can be recorded. Any type of document can be attached to each record, which includes photos, deeds or other scanned documents. The mobile application also allows recording of 'field notes,' observations of specific conditions or issues, and the ability to attach photos to the 'note.' Each note is mapped by its geographic location.

ACTIVITY 3: Create assessment, project prioritization, planning and reporting tools

Description:

Develop system tools for assessing habitat restoration and enhancement requirements and defining facilities management and maintenance project needs. Prioritize these needs for habitat and facilities, and use the information to build long-range management plans and help focus more immediate work planning on WMAs and AMAs.

Summary Budget Information for Activity 3:

ENRTF Budget:	$186,500
Amount Spent:	$186,500
Balance:	$0

Activity Completion Date:

Outcome	Completion Date	Budget
System developed to assess habitat and facilities management needs. Project planning, management, coordination and accomplishment reporting tools developed.	December 2014	$186,500
Existing resource and project management data migrated, reports and existing plans available.	June 2014	$0

Activity Status as of December 2011: Activity in this reporting period is encompassed and described by the narrative in Activity 1. The design phase includes designing the system for habitat and facilities management, project planning, accomplishment and reporting. No ENRTF dollars were spent.

Activity Status as of June 2012:   Activity in this reporting period is encompassed and described by the narrative in Activity 1. The design phase includes designing the system for habitat and facilities management, project planning, accomplishment and reporting. No ENRTF dollars were spent.

Activity Status as of December 2012:   Activity in this reporting period is encompassed and described by the narrative in Activity 1. The design phase includes designing the system for habitat and facilities management, project planning, identifying accomplishments and reporting. Programming for this portion of the project will begin after the main data migration, and after user interfaces are programmed.

Activity Status as of June 2013:   Activity in this reporting period is encompassed and described by the narrative in Activity 1. The design phase includes designing the system for habitat and facilities management, project planning, identifying accomplishments and reporting. Programming for this portion of the project will begin after the main data migration, and after user interfaces are programmed.

Activity Status as of December 2013:   This part of the application, the Work Planning function, is advanced enough that FAW staff will begin proposing FY15 projects with the new system as of March 10, 2014. There has been rigorous testing done on this activity, and it's proven good enough to completely switch over to the new system for proposing new projects this year.   The ability to track projects in terms of tracking ongoing fund expenditures and project accomplishments is still being developed. We have field management needs assessment tools in place with the Mobile and Desktop applications. This provides for the capture of information that allows managers to plan for future needs. Still to be developed is a system of query and reporting that allows managers at any level to produce summaries of future or unmet resource management needs.

Activity Status as of June 2014:
The Work Planning component of the application was deployed to all FAW staff for proposing projects on March 10th, 2014. The new application was well received by staff. Some reporting capability was added so regional and program managers can review, rank and approve all the projects in their area of

influence. This portion of the project is fully functional, and has been integrated into FAW project proposing and approval. The next step is to include project management information, so activities carries out can be recorded and accomplishments can be entered into this system.

Activity Status as of December 2014:
- We are working to enhance the existing set of databases to allow management of information regarding active field projects. This includes the ability to enter field work accomplished, costs of effort and completion/project closeout information. This portion of the overall app will be done at the desktop interface. This design effort also takes accomplishment reports into account. The databases will track project activities, and support normal reporting.
- We have gone through details of how information about budgets and projects will be managed, sorting through how WAHMA can best be used with existing budgeting workflows. When a proposed project has been approved and funded, that approval will move to WAHMA along with the actual funded amount. The image below provides some indication of the type of budget information being managed. There is a great deal of other information about projects being managed in this system.
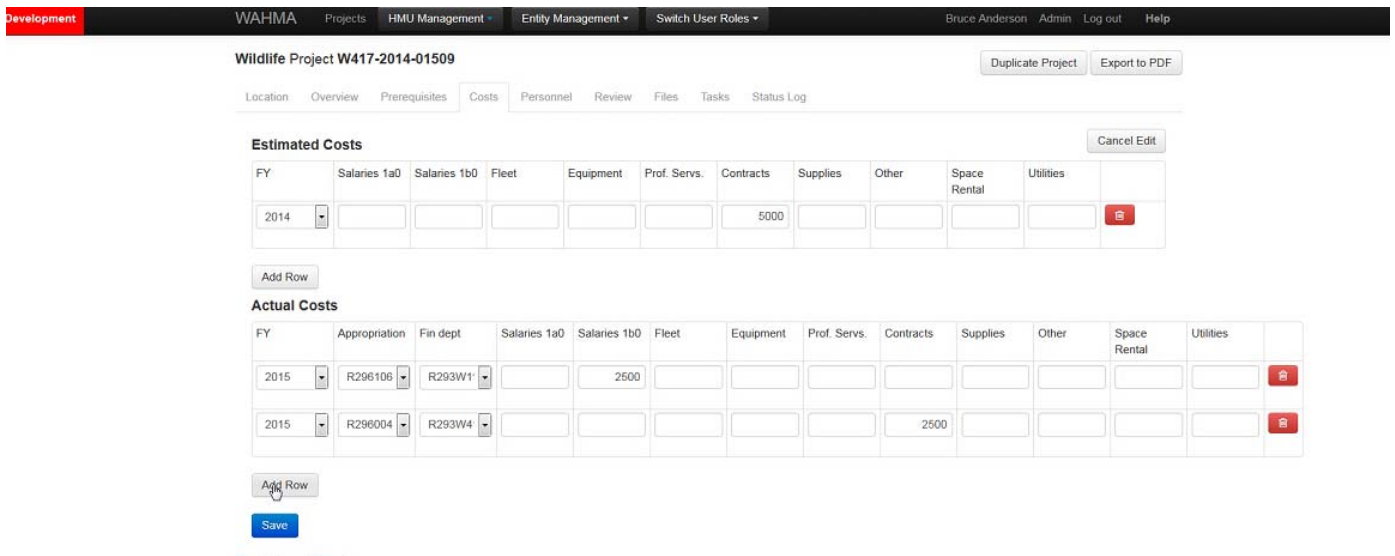
Final Report Summary June 2015:

The WAHMA project addresses the assessment of habitat needs, facilities management needs and WMA/AMA unit planning in multiple ways.

- One means of assessment is to provide information on overall needs and potential future costs by bringing the inventory of habitat and facilities up to date. The WAHMA system provides the tools to update that inventory. We had been unable to do so for the last few years, as the old WMAGIS system was defunct due to the retirement of the software by the manufacturer. An up to date inventory of habitat, or cover types, allows staff to summarize acres of each cover type, and apply estimated costs per acre for normal management regimes. This is the method FAW has traditionally used to estimate the ongoing costs of restoration, conversion or maintenance of different habitats.
- Assessment of facilities can be accomplished with the new databases, which now allow entry of maintenance needs, expected repair cycles and expected replacement cycles. Knowing how many facilities of varying types need what kind of maintenance helps managers understand the

future needs, and propose projects to address those needs. The WAHMA system allows that kind of information management for the first time, with a level of detail previously unavailable.

- Assessment of work to be done is also being recorded as proposed projects (for habitat and facilities) in the WAHMA work planning app. Project proposals are entered, ranked and prioritized. These projects represent a pool of known work that needs to be done. Some projects will be funded in a given year, based on priorities and available funding. Unfunded projects remain in the database, and form a growing record of unfunded needs.
- Short and long term plan information for WMA/AMA units is being entered into the database as well. This process has been going on for a number of years, but the new WAHMA system provides much easier tools to enter and then access information. Field managers enter information about management goals and intended methods to achieve those goals. The database is also used to record a variety of other information – overall unit description; acquisition history; existing habitat and facilities and management plans for both; public recreation opportunities; restrictions and overall historical information that allows the reader to understand why a unit was acquired and how staff intends it to be managed. The availability of this information is extremely important as staff changes occur; a person new to a Work Area now has immediate access to available information and plans for all the units managed by that Area office.
- An assessment was completed on the level of integration needed with this application and the FAW Work Unit Planning software, which manages budgets for the Division. New functionality was added to help track costs within the WAHMA Work Planning component. This functionality allows for rudimentary querying of the system for project planning efforts. As staff utilize the GIS components of the system to update conditions of facilities, that data can be used to query the system for prioritizing work activities.

The WAHMA project addresses short/long term planning and reporting in multiple ways.

- An application has been built into WAHMA that allows entry and management of plans and goals for each WMA/AMA. Sections of the plans for each unit include general description; purpose; access; special regulations; land acquisition narrative; habitat management narrative; facility development narrative; invasive species; legal issues; Rules, boundary management comments; lease agreements; special recreation opportunities; ADA accessibility (if available); and access directions.
- An application has been built into WAHMA that allows review, management and assignment of Rules governing WMAs or AMAs. These include a description of each Rule and the authority, e.g., MR 6230.0200, subp. 11. Rules will be presented on the redesigned public web site.
- A primary report has been designed and tested, that reflects the top reporting need for WAHMA, the Management Guidance Document. This document lays out pertinent information for each unit, describing the unit, the goals, management plans and management considerations. Final development of this report has been on hold until revisions to the main databases are complete. Other reports will be developed as they are identified.

V. DISSEMINATION:

The result of this project will be a new information system and databases. Fish and Wildlife Information Technology (FAW IT) staff will create training materials and provide training sessions and support to Area, Region and Central Office staff. The information system will work from a set of central databases, and use of the system will be accomplished over the DNR network and Intranet. GIS data will be continue to be used to populate existing/enhanced public web applications such as the DNR WMA/AMA finder and the GIS Data Deli.

The overall objective is to create a system to assist in land management, project proposals, project tracking, habitat development/maintenance and facilities management. The use of this system at various levels within the DNR will provide the follow general benefits:

- For front line natural resource managers, put information about the land, habitat and facilities at their fingertips. This allows easy access to data, improving planning, decision making and the capability to use data and maps for day to day work accomplishments.
- For Fish and Wildlife (FAW) programs and employees who manage land interests, streamline processes for acquiring lands, proposing and managing projects, and reporting on status and accomplishments. This includes a new tool that allows both scoring and ranking of proposed acquisitions, including proposals from conservation partners.
- For executives and others charged with planning and funding projects, provide more information about resource management needs, plans, potential projects and timelines. This includes current summaries of resource and facilities management needs and obligations.
- For other DNR programs and divisions, make project activities, plans and goals more transparent.
- For the public, provide more information about state lands, how they are administered, how to access them and the outdoor recreation opportunities available on them.

Activity Status as of December 2011: The project team has met numerous times for systems development work. As the current task is needs assessment and design, minimal dissemination of status has occurred outside the project team.

Activity Status as of June 2012:   The project team has met numerous times and completed enough of the system design work so that programming can commence. Again, minimal dissemination has occurred outside the team. The original Subject Matter Experts will now be brought back into the process to review and oversee the programming efforts, providing assurance of quality and functionality. As new modules are completed, testing and information dissemination will be ramped up accordingly.

Activity Status as of December 2012:   System design is mostly complete, and programming has begun. The project team meets weekly to review accomplishments, define work direction, direct activities and monitor progress. The project manager gave a December presentation on project status to the FAW Director's Management Team; both Fisheries and Wildlife Section Management Teams; and central office program managers. Other MN.IT @ DNR staff aided in the presentation, including the CIO.

The project manager gave four similar presentations during the winter DNR Wildlife Regional Meetings for the four DNR regions. These presentations covered the same status report, and included expectations for Regional Managers and field staff – what they will get out of the system, how they will interact with it. Field staff will be doing the bulk of the data entry, and need to know how this system is being designed to minimize workload for them.

The Fisheries IT Supervisor gave the same presentation to Fisheries Regional Managers.

Activity Status as of June 2013: Project staff and Subject Matter Experts have been meeting for over two months, reviewing the methods, means and needs of the field portion of the project. Project staff and developers hold regular weekly meetings to discuss progress, obstacles, opportunities and accomplishments.

Project status has been communicated to the team and oversight group, otherwise minimal dissemination has occurred in this reporting period. As project modules are programmed, field staff will begin testing and information dissemination will increase.

Activity Status as of December 2013: Testing of the early applications within this system is now underway. We have added a Quality Assessment/Quality Control contractor to the team, who is assisting in the testing of applications as they come on line and the dissemination of results and use notes/instructions to the wider audience of the division. As new modules of this system are falling into place now, we are regularly attending regional meetings to inform field staff of progress, and management team meetings to inform senior management of what they can expect. This coming spring, we will do broader demonstrations in St Paul both for senior FAW management, and for senior DNR management. LCCMR staff may be interested in attending these, or we could arrange a separate demo. Other divisions within DNR have heard about our Work Planning application. We have done demonstrations for them, and some are now planning to make use of the development work accomplished here to set up Work Planning capabilities for their own business needs.

Activity Status as of June 2014:   Regular reports and presentations are being made at regional meetings, and Senior Management Team meetings.   The Work Planning system is being widely used now, after some on line training sessions. The Desktop and Mobile GIS apps have been distributed to a large group of testers, and ongoing live training and feedback sessions are occurring.

Activity Status as of December 2014:
- We held a large Lync video meeting to demonstrate, share and discuss the WAHMA app with interested technical staff within DNR.
- We continue to hold regular Lync meetings with our Divisional Tech Leads.
- We will be doing another technical presentation within DNR to familiarize a broader group of staff with the WAHMA app, focusing on how the typical person in Fish and Wildlife will make use of it.
- We will then do another presentation for the DNR Commissioner's Senior Management Team in late winter, to showcase the accomplishments of the WAHMA project.

Final Report Summary June 2015:

- During the final period of the project, FAW IT staff continued online meetings for monthly updates with Divisional Field Staff designated as Tech Leads for the application. The monthly sessions were setup to review the app functionality, present new functionality as it was added, and to address bugs or other issues staff were encountering with the application's components.
- The WAHMA project management team presented an overview and demo of the application to interested staff in other DNR Divisions. This majority of staff were program level managers and regional managers who had heard about the application and were interested in learning more about it. This was an online meeting conducted with Microsoft Lync which had 55 participants.
- The WAHMA Work Planning app proved to be of great interest to other DNR Divisions, some of whom have copied it for use in their own project proposal and management work flows.
- In March and April of 2015, FAW IT staff trained 40 FAW field staff at seven different locations across the state on use of the Desktop and Mobile GIS applications.
- FAW IT staff have developed extensive user guides and tip sheets for the system and posted them to the DNR Intranet site for easy access. These help pages and documents are accessible from all of the application's components, except the Mobile app, via a Help button.

- FAW IT staff will continue to give presentations at regularly scheduled FAW Regional staff meetings, using these meetings to provide additional information on use of the system, and to gather feedback and thoughts about potential improvements to the system.
- Presentations will be planned for other DNR and MN.IT @ DNR staff who have an interest in understanding how this system works, the focus, goals and implementation. A presentation will be done for technical staff and program managers, and another session for senior management. We will notify and invite the LCCMR when a general presentation is planned.
- Other written and presentation updates will continue to be distributed to DNR staff.

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget:

Budget Category	$ Amount	Explanation
Professional/Technical Contracts:	$434,000	Contract with MN.IT @ DNR for professional services; system design, programming, hardware and software support. Contract with an outside vendor for additional system programming.
Equipment/Tools/Supplies:	$66,000	45 field data recorders and software
Capital Equipment over $3,500:	$0	
TOTAL ENRTF BUDGET:	**$500,000**	

Explanation of Use of Classified Staff:

MIS Staff will be contracted to assist in designing a system that functions smoothly with existing DNR enterprise wide systems, and leverages the work that has gone into creating these systems. These are the staff who designed and built the internal systems, and are the only people with the complex knowledge of how the systems work and how to best integrate additional systems. MIS will contract out those portions of the general programming that can be done without the expertise of DNR IT personnel.

Number of Full-time Equivalent (FTE) funded with this ENRTF appropriation: N/A

B. Other Funds:

During the course of this project, FAW provided $145,000 in direct funding for professional / technical IT contracts, and provided over $600,000 of in-kind staff time to design and build this system. The source of this money was the Game and Fish Fund. The in-kind work was done by existing staff. FAW in-kind efforts included: requirements gathering, project management, business analysis, system design, application testing, training staff, help documentation, hardware testing and purchasing, system documentation, and informational presentations.

Source of Funds	$ Amount Proposed	$ Amount Spent	Use of Other Funds
State			
Game and Fish Fund operations	$380,000	$614,245	In-kind cost of FAW staff for five years
Game and Fish Fund contracts	$0	$145,000	Professional / Technical IT contracts

General fund and other funds as appropriate	$6,481	$6,481	Shared Services Costs. Shared services (operations support governance) are services that DNR relies on in order to conduct business and support the work of the department. These services are more efficient when shared.
TOTAL OTHER FUNDS:	**$386,481**	**$ 620,726**	

Add or remove rows as needed

VII. PROJECT STRATEGY:

A. Project Partners:

FAW IT staff, field staff and DNR MIS IT staff will work to design, build and populate this system. FAW will contract and work closely with MIS for system design and programming; field staff will provide direction, guidance and create data on needed field projects and plans. MIS Staff will assist in designing a system that functions smoothly with existing DNR enterprise-wide systems, and leverages the work that has gone into creating these systems. MIS will contract out those portions of the general programming that can be done without the expertise of DNR IT personnel.

FAW IT staff will assist with design and development, and provide support and training as the system is rolled out at offices across the state. FAW and MIS have been working for the last six months to determine user needs, system requirements, scope and risks sufficient to have defined a Business Object Model, a conceptual system design and a series of Use Cases and example screens so the FAW development team can review and agree on the overall function and uses of the system.

Project Manager: (1) Steve Benson, Wildlife GIS/IT Supervisor, steve.benson@state.mn.us; (218) 327-4149. MIS Staff will include the GIS Program Manager, the Data and Applications Manager, the Data Administrator and the Systems Analysis Unit Supervisor. FAW staff includes IT supervisors; GIS staff; systems development and programming staff, as well as field, regional and central office staff for oversight, review, approval and data entry.

B. Project Impact and Long-term Strategy:

FAW has spent over ten years building WMA/AMA data and GIS systems. The proposed new system would solve the obsolete software problem, and integrate AMA/WMA management into DNR Enterprise Systems such as the new Land Records System. The use of this system will be long term, and will support WMA/AMA habitat and facilities management, enhancement, planning and funding into the foreseeable future.

C. Spending History:

Funding Source	M.L. 2010 or FY 2011	M.L. 2011 or FY 2012	M.L. 2012 or FY 2013	M.L. 2013 or FY 2014	M.L. 2014 0r FY2015	
Game & Fish Fund in kind	$85,000	$16,000	$85,020	$181,640	$246,585	$614,245
Game & Fish Fund Professional Contracts	$60,000				$85,000	$145,000
ENRTF	$0	$0	$71,492	$345,179	$83,176	$499,847

VIII. ACQUISITION/RESTORATION LIST: N/A

IX. MAP(S): Statewide project

X. RESEARCH ADDENDUM: N/A

XI. REPORTING REQUIREMENTS:
Periodic work plan status update reports will be submitted not later than June 2012, December 2012, June 2013, December 2013, June 2014, and December 2014. A final report and associated products will be submitted between June 30 and August 1, 2015 as requested by the LCCMR.

Attachment A: Budget Detail for M.L. 2011 (FY 2012-15) Environment and Natural Resources Trust Fund Projects

Legal Citation: M.L. 2011, First Special Session, Chp. 2, Art.3, Sec. 2, Subd. 03j

Information System for Wildlife and Aquatic Management Areas

Project Manager: Steve Benson

M.L. 2011 (FY 2012-13) ENRTF Appropriation: $ *500,000*

Project Length and Completion Date: *4 years, June 2015*

Date of Update: January 19*, 2016*

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Balance	Activity 2 Budget	Amount Spent	Balance	Activity 3 Budget	Amount Spent	Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	*Develop the WMA/AMA component of the Enterprise System*			*Develop a field data recording system*			*Create assessment, project prioritization, planning and reporting tools*				
Professional/Technical Contracts: Contract with DNR Management Information Systems for professional services; system design, programming, hardware and software support. Contract with an outside vendor for system programming.	177,500	177,500	0	70,000	70,000	0	186,500	186,500	0	434,000	0
Equipment/Tools/Supplies: 25 field data recorders				66,000	65,847	153				66,000	153
COLUMN TOTAL	**$177,500**	**$177,500**	**$0**	**$136,000**	**$135,847**	**$153**	**$186,500**	**$186,500**	**$0**	**$500,000**	**$153**