

**DNR 2009 LIIMS Survey Responses by Business Program Area**

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**Air and Waste Division – Tom Aten, Exchange Network Project Manager**

**Goals** GIS tools will enable geospatial analysis of internal program development and management data. These tools will also enable both programs to better communicate program decisions or action with partners and the general public through visual tools.

**How could the GIO's office help** 1. Take a look at Virtual Alabama and consider how it may be applied to Wisconsin! 2. Support actions that produce or improve the accuracy of base information layers, for example statewide parcel data. 3. Support development efforts that increase the availability of geospatial data or tools to partners and the general public. 4. Support projects that separate geospatial data from the GIS tools, for example publishing geospatial data in OGC compliant formats and technologies.

**Business Program #1**

**Air Management, Waste & Materials Management, Cooperative Environmental Assistance**

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**Name** The Air Management, Waste and Materials Management, and the Cooperative Environmental Assistance bureaus

**Description** The Air Management Program works to maintain and improve Wisconsin's air quality in order to protect public health and the environment. Staff monitor the air for pollutants, inspect emission sources, provide compliance assistance to industry, initiate enforcement actions when necessary, operate a permit program, and educate the public about air quality issues. The Waste Management Program in partnership with the public, industry and other government agencies, protects public health and the environment by encouraging: recycling, waste minimization and pollution prevention; proper management of solid and hazardous wastes and mining activities; voluntary compliance and participation in preferred waste management practices by providing a balance of technical assistance and compliance assurance activities. The Cooperative Environmental Assistance bureau helps businesses and communities develop innovative, flexible programs that exceed current standards for preventing pollution and minimizing waste.

**Area** Division of Air and Waste

**Statute\*** Yes

**Services** Address Geocoding; Geoprocessing; Data Modeling; Custom Map Creation; Web Mapping; Web Registry / Catalog; Web Feature; Spatial Analysis; Web Coverage; Applications Development; Data Creation; Data Translation; Address Verification

**Collaboration** We work with private, local, academic, state, federal, RPCs, and others to obtain, share, manage, analyze, model, and display data.

**Barriers** Our GIS tools are powerful ESRI products that do not translate to customer use. We also have no OGC conformance agreements or programs.

**Initiatives** Nothing beyond what we are currently doing.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Bureau of Air Management – Jeffrey Myers, Environmental Toxicologist**

**Goals** The Wisconsin DNR The Air Program is interested in better understanding: Which sources of air pollution most influence air quality; Where is air pollution worse than other places? What are the risks associated with air pollution? and; Is the air getting cleaner? All of these questions are place-based and therefore, GIS is a natural tool to use to for documenting, analyzing and interpreting air pollution exposures. The Air Program is currently interested in expanding the role that GIS plays in data integration and analysis as well as program management (e.g., tracking permits, compliance and complaints) and producing data analyses and visualizations for use by the Program, Department and the Public. In addition, the Air Program is exploring ways to model air pollution using GIS and providing exposure estimates that can be used by our State Department of Health to investigate any associations between exposures and health effects. In the long-term, the Air Program would like to have a GIS based system to assist us in answering questions about air quality, permits and compliance, perform program evaluation, conduct air pollution risk assessment and linking our data to public health outcomes.

How could the GIO's office help

The biggest help the GIO's office can give is to convince all of Wisconsin's governmental organizations that having a GIS vision in Wisconsin is important to managing the business of the State. The GIO's biggest mission should be to express the benefits of a state-wide GIS system for support of all State Agency's business needs and to show agency executives and the Governor that the development of a state GIS vision is to the benefit of all Wisconsin citizens and makes business sense (a return on investment approach can do this). Currently, there is no clear state wide vision about the use of GIS based systems in Wisconsin and this should be the first step in going forward in Wisconsin. If you look at the Virginia DOT website (<http://dashboard.virginiadot.org>), the Maryland Statestat site (<http://statestat.maryland.gov/recovery.asp>), and Virtual Alabama website ([http://www.dhs.alabama.gov/virtual\\_alabama/home.aspx](http://www.dhs.alabama.gov/virtual_alabama/home.aspx)), you see other states have embraced this technology to improve management, analysis and decision making, accountability, transparency and communication. If support is found for developing a state wide vision, then the GIO's office should work very closely with all agencies that currently use GIS to make sure anything they do will not adversely affect existing systems (e.g., negatively impacting costs, reducing staff and service levels). A well designed survey should then be employed after major changes are made, to evaluate how any changes have affected various state agencies and their level of satisfaction. Once a state wide vision exists, then the GIO's role in facilitating efficient use of GIS tools can be started with more sense of direction. For example, the GIO could help obtain universal statewide data layers and serve as the library of most up-to-date GIS data. Another help would be to help with purchasing of GIS hardware and software, such as enterprise level servers and licenses, while perhaps considering the entire State of Wisconsin as the enterprise (this is a "sea change" from where we are now). However, these changes make sense only if there are economies of scale (i.e., the costs per user are not higher than current costs) and there is no significant additional burden on state agencies (e.g., funding for state wide GIS should not adversely affect existing state agency budgets, but be part of a state wide funding initiative), there are mechanisms to keep up with changes in technology, and there is flexibility for people to try various pilot technologies and not lock agencies into technologies that do not meet their needs. From the Air Program perspective, we currently support all current GIS work through grants. Due to having to pay for all GIS service through "chargebacks", this limits our ability to develop GIS based analysis and visualization tools. Reducing costs of developing and hosting web services could help us use GIS more. Having up-to-date statewide data layers available through the GIO's office may help, although currently we get everything we need from the DNR GIS Services section.

Business Program #1

**Air Monitoring & Air Facility Locations Business Programs**

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Name	Air Management; two business programs within Air Management currently have major GIS components: 1. Air Monitoring, and 2. Air Facility Locations.
Description	1. Air Monitoring - the Air Program has developed an Internet Mapping System (IMS) application to show air pollution levels for ozone and particulate matter. Users can also see trends over a given time period and download data. An added feature in the future will be estimates of pollution levels that are refined at a finer geographic level via a an extrapolation method. See <a href="http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=wisards">http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=wisards</a> . 2. Air Facility Locations - As new facilities are permitted, Air Program staff put locational information (in several coordinate systems) into our air pollution inventory system, which is part of the Wisconsin Air Resources Program database (WARP). Locational data is also given to Tom Aten, who manages the Environmental Site Registry and the DNR FACT system.
Area	Division of Air & Waste, Bureau of Air Management.
Statute*	No
Services	Address Geocoding; Web Mapping; Data Modeling; Custom Map Creation; Geoprocessing; Spatial Analysis; Applications Development; Data Translation
Collaboration	[No Response Provided]
Barriers	[No Response Provided]
Initiatives	[No Response Provided]

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Bureau of Remediation & Redevelopment** – Janet Sausen, Automation Team Leader & GIS Development Specialist

**Goals** Identify location of contaminated soil or groundwater. Identify locations of emergency spills. Identify properties with contamination, remediation obligations or remediation exemptions. Identify if contamination exists within certain distances to newly proposed wells construction (distances specified in state statute). Provide summary financial and liability information regarding contamination by location.

**How could the GIO's office help** **Statewide Parcel Data:** Availability of a statewide land parcel database would be extremely useful to this program in identifying properties with contamination. Correctly identifying which property has the contamination is critical for correctly identifying what parcel of land has contamination, remediation obligations or remediation exemptions associated with it for future land transactions.

**Geocoding Services:-** The ability for a user to enter an address and be zoomed to that location (address or parcel), while displaying program data (hosted on SDE). Most of our users (real estate agents, lenders, municipality officials etc) have a particular property in mind and are interested in finding out if contamination, obligations or exemptions exist on that property. They often know the property address but may not be able to self navigate (pan, zoom) to a property because they may not know just where it is.

**Lightweight (web-based) Editing Services:** Without requiring GIS software on a user's (internal or external) machine, allow them to geolocate and have locations captured in SDE.

**Address Validation/Standardization Service:** Allow users to enter address data at time of data capture; have addresses validated (against postal standards) at time of entry so the user (who is the most knowledgeable about what the address should be) can correct it if needed rather than standardizing it later.

Business Program #1  
**Bureau of Remediation & Redevelopment**  
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Name	Bureau of Remediation and Redevelopment
Description	The Remediation and Redevelopment (RR) Program oversees the investigation and cleanup of environmental contamination and the redevelopment of contaminated properties. RR staff provide a comprehensive, streamlined program that consolidates state and federal cleanups into one program (e.g., hazardous waste cleanup, underground storage tank investigation & cleanup, spill response, state-funded cleanups and brownfields).
Area	Division of Air and Waste, Bureau of Remediation and Redevelopment
Statute*	Yes
Services	Georeferencing; Applications Development; Re-projection; Data Creation; Custom Map Creation; Geoprocessing; Web Mapping
Collaboration	We obtain data from Dept of Commerce, DATCP, County governments (parcel data). We provide data to Dept of Commerce, DATCP, Environmental Protection Agency, general public, consulting firms. We coordinate services with Dept Health Services, Dept of Transportation, EPA, local government units, Office of Emergency Management,
Barriers	Multiple different standards or formats for county based parcel data. Lack of staff to develop generic application building blocks for applications to consume, lack of staff to maintain and enhance the GIS infrastructure
Initiatives	For financial reporting objectives and transparency to the public we plan to link tabular financial data with geolocations of contaminated properties, so the public can view dollars spent on clean up activities. Modernize our spatial data collection process by updating to more current GIS software technology and integrating the GIS and tabular data more closely together.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Bureau of Community Financial Assistance – Jillian Steffes, Financial Assistance Specialist**

**Goals** My program's primary goal is to provide the public with a visual representation of locations and boundaries of property purchased by or projected with the aid of the Knowles-Nelson Stewardship Grant Program. This information is then published on an Internet Map Server (IMS) application which allows users to locate properties and obtain a bit more information about the individual properties. The data and applications are created by staff in various programs within the DNR including BTS, Community Financial Assistance, and Facilities and Lands - Real Estate program.

**How could the GIO's office help** Much of the technical support for our individual program is provided by the DNR's Bureau of Technology Services. Continued communication between the GIO and our BTS will provide BTS with the tools they need to maintain and enhance our program.

**Business Program #1  
Knowles-Nelson Stewardship Grant Program**  
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**Name** Knowles-Nelson Stewardship Grant Program

**Description** This grant program provides funding for the acquisition of land in Wisconsin to be used for outdoor recreation, conservation and wildlife habitat. The GIS related portion of this program maps parcels acquired with Stewardship grant funds and displays them to the public.

**Area Statute\*** Division of Customer and Employee Services, Bureau of Community Financial Assistance

**Services** No

**Collaboration** Applications Development; Custom Map Creation

**Barriers** We obtain data on parcel boundaries from hard copy recorded deeds. We digitize this data relative to PLSS layers, DOPs, other DNR parcel data, and occasionally County developed tax parcel layers data. We provide this data publicly on an IMS and an FTP server to any who care to access it. We coordinate services internally with BTS and Facilities and Lands.

**Initiatives** None come to mind.

At the moment our goal is maintenance and continued addition of new data, no major overhauls planned. If local government GIS layers of local parks became available, this information might, theoretically, be valuable to show alongside our data. It would allow users to see adjoining public lands and allow for modeling on larger wildlife habitat blocks, etc.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Bureau of Technology Services,  
Geographic Information Systems (GIS) Services – Kenneth Parsons, Section Chief**

**Goals** GIS plays an essential role in Wisconsin DNR's long-term goals and business initiatives. Geographic Information Systems application tools and data have been utilized at DNR for more than twenty years, with significant increases in use during the last ten years time. For background information, please refer to the DNR's Geographic Information Systems web site: <http://dnr.wi.gov/maps/gis/>

As the state agency responsible for natural resource management and environmental conservation in Wisconsin, the Department of Natural Resources requires timely, efficient and effective access to information about the state's land, water, and air resources. DNR GIS Program Mission is to provide core geospatial technology infrastructure, tools and services to support DNR program operations, policy evaluation, and decision-making.

**How could the GIO's office help** Hosting commonly shared enterprise geospatial data. Supporting GIS applications hosting services. Providing technical consulting services. Providing strategic planning consulting advice. Providing informational communication between agencies and cooperation. Partnerships within and outside of state agencies.

Business Program #1

**Geographic Information Systems (GIS) Services**

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Name	GIS Services Section
Description	Wisconsin DNR's GIS Services Section provides a variety of geospatial related technical services to the agency, and to cooperating partners within Wisconsin State Government. The GIS Services Section is a Program Revenue Services (PRS) cost recovery operation, with a staffing compliment of 10 to 15 GIS professionals. The GIS Services Section provides services to DNR programs and projects to support the application of GIS technology within the agency. Services available to DNR programs and staff include: GIS architecture; infrastructure maintenance; GIS application development; GIS consulting services & technical support; GIS database development & data repository management; Cartographic products; Geospatial analysis. Services provided to the public include: DNR geospatial data sharing; Data visualization & access via DNR web mapping applications; Participation in inter-agency GIS initiatives.
Area Statute* Services	Division of Customer and Employee Services, Bureau of Technical Services, GIS Services Section No Georeferencing; Applications Development; Spatial Analysis; Re-projection; Data Translation; Data Creation; Address Verification; Coordinate Conversion; Rasterization; Address Geocoding; Custom Map Creation; Data Modeling; Geoprocessing; Web Mapping
Collaboration	Yes. DNR's GIS Services Section has constant interaction with Wisconsin Department of Administration, Division of Enterprise Technology. We provide data and coordinate technical services with DOA's Office of the Geographic Information Officer. We also have regular contact with various state agencies, through coordination activities via SAGIC, WIGICC, and direct sharing of geospatial data with partners to achieve shared goals.
Barriers	Only minor issues inherent to working in public sector government. Barriers and obstacles in communication and collaboration have been improved since incorporation of OGIO at the enterprise level to coordinate and broker cooperative efforts among agencies and partnerships.
Initiatives	Yes, plans are to continue providing geospatial services to the agency, increased where possible as staffing and funding can be allocated.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Bureau of Technology Services,**

**Geographic Information Systems (GIS) Infrastructure – John Laedlein, GIS Data Consultant/Administrator**

Goals	A wide variety of DNR programs currently use GIS technology to help support their business needs. Various DNR programmatic GIS implementations and projects are described in the DNR 2008 Plan to Integrate Land Information ( <a href="http://dnr.wi.gov/maps/gis/documents/2008_DNR_Land_Info_Plan.pdf">http://dnr.wi.gov/maps/gis/documents/2008_DNR_Land_Info_Plan.pdf</a> ). The DNR Bureau of Technology Services (BTS) maintains the agency's GIS server and database infrastructure, and provides GIS project and consulting services to agency programs.
How could the GIO's office help	Access to high-quality, current, statewide framework geospatial data at an affordable cost to the DNR would benefit a wide variety of agency business programs. Assistance in administering DNR's GIS servers would help maintain the agency's high level of GIS infrastructure services as we expect further staffing shortfalls. Access to a fully functional R&D server environment is needed to test new GIS software products and data.

Business Program #1

**ArcSDE Database Administration**

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Name	ArcSDE Database Administration
Description	The ArcSDE Database Administration program provides ongoing ArcSDE data administration activities that support DNR's IT infrastructure, including the development, implementation and maintenance of core DNR geospatial data architecture framework components and activities. This program promotes and supports the consistent collection, use, storage, management, documentation

and integration of high-quality, secure geospatial data to advance the business objectives of the agency, its partners, and customers. DNR's spatial infrastructure data supports a wide range of internal and external business needs related (but not limited) to: Smart Growth and Comprehensive Planning; U.S. EPA activities; licensing; ecosystem-based planning; public health and safety; outdoor recreation; and wildlife management (e.g., chronic wasting disease).

Area	Division of Customer and Employee Services, Bureau of Technology Services (BTS), GIS Services Section
Statute* Services	Yes Custom Map Creation; Geoprocessing; Data Modeling; Web Mapping; Applications Development; Georeferencing; Spatial Analysis; Re-projection; Data Creation; Data Translation; Coordinate Conversion
Collaboration	Data obtained from a variety of state and federal agencies (e.g., USDA, USGS, PSC, WisDOT, LTSB) are administered in DNR's ArcSDE databases. We provide data to a wide variety of external agencies and organizations (WGNHS, UW, DHFS, DATCP, DOA, RPCs, private businesses, non-profits, etc.). We coordinate services with several external agencies (WisconsinView, DATCP, DOA, SCO, etc.)
Barriers	The lack of sufficient staff resources to support DNR infrastructure data management activities continues to be a significant obstacle to data acquisition, standardization, documentation and sharing. The continued vacancy of the DNR Data Architect position constrains the agency's ability to effectively plan to utilize new geospatial data types, tools and technologies.
Initiatives	DNR BTS/GIS is planning an FY10 initiative to evaluate and potentially re-architect the agency's GIS server infrastructure to accommodate projected increases in public use of DNR web mapping services. This activity may lead to significant changes in DNR geospatial data architecture and administration practices. Also in FY10, a major emphasis of DNR's geospatial data administration program will be cooperating with the OGIO's GIS Data Repository Project, and re-aligning agency geospatial data access and administration with the Repository.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Business Program #2**  
**GIS Server Administration**  
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Name	GIS Server Administration
Description	DNR programs require web mapping applications and services for information exchange, access, and business transactions with internal and external customers. GIS server administration is a fundamental requirement for developing and deploying web mapping and other server-based GIS applications in the DNR's IT environment.
Area	Division of Customer and Employee Services, Bureau of Technology Services, GIS Services Section.
Statute* Services	Yes Web Mapping; Data Creation; Data Translation; Spatial Analysis; Applications Development; Georeferencing; Data Modeling; Geoprocessing; Re-projection; Coordinate Conversion; Custom Map Creation
Collaboration	DNR GIS server resources are hosted by DOA/DET, so coordination of server-related activities (i.e., outages, patching, back-ups) between DNR and DET is required on a frequent basis, particularly during times of GIS server application or database upgrades.
Barriers	The main barriers involve funding for additional GIS servers and GIS server software, and a need for GIS server administrator staff in FY10. The DNR has identified an ongoing need for a Research & Development GIS server environment for testing new GIS application development software or new GIS data types and formats. However, funding constraints have limited the DNR's ability to obtain reliable ongoing access to an R&D GIS server environment. DNR has critical vacancies pending for the agency's lead GIS server administrator, and for the back-up administrator. These vacancies are recognized as critical for the agency to continue providing valued web mapping services, but to date DNR has not been allowed to proceed with filling the vacancies.
Initiatives	DNR BTS/GIS is planning an FY10 initiative to evaluate and potentially re-architect the agency's GIS server infrastructure to accommodate projected increases in public use of DNR web mapping services. In CY2008, on the DNR GIS public web mapping server there were over 43 million pageviews, up from nearly 26 million GIS web pages viewed in 2007. Past web metrics indicate that public demand for DNR GIS web mapping services is likely to exceed the capacity of our current GIS server infrastructure within the next 1-2 years.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

Business Program #3  
**Geodatabase Development**  
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Name	Geodatabase Development
Description	DNR migration to ArcSDE geodatabases for geospatial data management and access facilitates agency-wide data integration, and is consistent with the direction of the state agency enterprise. ArcSDE geodatabase implementation enables DNR to benefit more fully from geodatabase technology to support multi-program and department-wide needs.
Area	Division of Customer and Employee Services, Bureau of Technology Services, GIS Services Section.
Statute*	Yes
Services	Applications Development; Spatial Analysis; Coordinate Conversion; Re-projection; Web Mapping; Data Creation; Data Modeling; Georeferencing; Data Translation; Geoprocessing; Custom Map Creation
Collaboration	Framework GIS data to be migrated to geodatabases at the DNR are often obtained from other agencies or enhanced in collaboration with other agencies. For example, DNR typically obtains digital orthophoto imagery from federal, regional, or local producing agencies in file-based formats. Under this program, BTS/GIS staff load the file-based imagery into ArcSDE geodatabases as raster datasets or image catalogs. In another example, DNR is collaborating with the USGS to migrate the DNR's 24K Hydrography database to an ArcSDE geodatabase compatible and consistent with the USGS National Hydrographic Database (NHD).
Barriers	Restrictions on access to locally-produced orthophoto imagery, digital elevation data, and tax parcel data are often barriers to the DNR acquiring these data for loading into ArcSDE geodatabases. A shortage of GIS developer staff at the DNR is also a barrier to migrating file-based spatial data to the geodatabase.
Initiatives	DNR expects to continue the ongoing collaboration with USGS to migrate the 24K Hydro data to an NHD-compatible geodatabase in FY10. DNR staff are also expected to participate in the Wisconsin Geographic Information Coordinating Council (WIGICC) Network, and in appropriate WIGICC Communities of Practice, to advance inter-agency initiatives for geodatabase development and standardization.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

Business Program #4  
**Spatial Data Consulting Services**  
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Name	Spatial Data Consulting Services
Description	Access to geospatial data, and assistance in using the data, is needed for a wide variety of integrated planning and decision-making activities, as well as ad-hoc mapping needs, inside and outside DNR. Under this program BTS/GIS responds to a wide variety of inquiries from agency staff, external partners and citizens regarding the availability of GIS data and its use; agency staff and customers expect a timely and useful response to data-related inquiries. Agency staff and members of the public often seek information about assistance with GIS software functionality and tools, such as Global Positioning Systems (GPS) tools for field data collection.
Area	Division of Customer and Employee Services, Bureau of Technology Services, GIS Services Section.
Statute*	Yes
Services	Applications Development; Spatial Analysis; Coordinate Conversion; Data Creation; Re-projection; Web Mapping; Address Geocoding; Data Translation; Georeferencing; Data Modeling; Geoprocessing; Custom Map Creation
Collaboration	Responding to various GIS data-related inquiries from external partners and the public often involves referring the requester to data custodians in other government agencies; WisDOT for road and railroad data; DATCP for Gypsy Moth or Emerald Ash Borer data; LTSB for statewide voting ward or school district data; PSC for electric transmission line data, etc.
Barriers	Geospatial data sharing services are crucial in terms of providing good customer service, and in meeting the needs and expectations of agency staff, external partners and the public. Although data sharing is often perceived as being routine, in reality a substantial portion of data-related inquiries are unique and require a customized response. Lack of adequate resources for this work, or assigning a lower priority to it, may lengthen response times and reduce the quality of service, frustrating our customers. Lack of BTS/GIS data management support staff for datasharing services severely limits our ability to provide timely responses to all requests, particularly inquiries regarding GPS tools for

field data collection tools and questions about GIS software functionality.

**Initiatives** No future GIS-related initiatives are specifically planned for this program, although BTS/GIS seeks to raise awareness of the workload associated with datasharing services at an inter-agency level, particularly as they pertain to a state agency GIS data repository. BTS/GIS would also welcome any inter-agency initiative that would help provide guidance to staff and partners in the use of GPS tools and best practices for field data collection.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Office of Energy and Environmental Analysis – Dave Siebert, Director**

**Goals** [No response provided]

**How could the GIO's office help** Aid in data acquisition, discovery, and archival preservation (e.g., maintaining a searchable updated inventory/clearinghouse/data library); Develop and maintain statewide data themes (e.g., integrated parcels, land use, transactionally maintained municipal boundaries); Provide statewide services (e.g., address geocoding and imagery services); Provide software "how-to" technical assistance and training; Maintain and update enterprise license agreements; Explore and promote open source and emerging approaches and technologies.

**Business Program #1**

**Office of Energy and Environmental Analysis**

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**Name** Environmental Analysis and Review Program

**Description** The Wisconsin Environmental Policy Act (WEPA) is a state law designed to encourage environmentally sensitive decision-making by state agencies. The Office of Energy and Environmental Analysis is responsible for overall coordination of WEPA implementation within DNR. The Office of Energy is also the central point of coordination within the DNR for most energy and utility projects including: power plants, electric transmission lines, electric distribution lines, natural gas and petroleum pipelines, telecommunication lines, wind power projects, and water utility projects. Through a cooperative agreement, the Office of Energy and Environmental Analysis implements the DNR's responsibilities pertaining to the development of the state's transportation infrastructure (highways, airports, railways, and harbors). Finally, the Office of Energy and Environmental Analysis is also responsible for reviewing highway projects proposed by local units of government, specifically those requiring a Trans 207, Wis. Adm. Code review.

**Area** Division of Enforcement and Science, Office of Energy and Environmental Analysis

**Statute\*** Yes; also s.1.11, Wis. Stats.; NR 150 and TRANS 207, Wis. Adm. Code

**Services** Address geocoding, address verification, coordinate conversion, custom map creation, data creation, data translation, geoprocessing, georeferencing, logistics, rasterization, re-projection, spatial analysis, vectorization

**Collaboration** We obtain data from U.S. EPA, U.S. Geological Survey, U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, Natural Resources Conservation Service, Wisconsin Geological and Natural History Survey, other state agencies, county and municipal governments, regional planning commissions, academic institutions, and private entities. We share data with these same entities.

**Barriers** Lack of technical training opportunities/support; inaccessibility of existing GIS data due to lack of inventory, cataloging, and dissemination (i.e. people only use what they know is easily available); missing and incomplete data; lack of adequate staffing in agency's GIS program.

**Initiatives** GIS initiatives in the Office of Energy generally are limited to applying the data and technologies in environmental reviews and related research studies.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Science Services Bureau – Jack Sullivan, Director**

Goals [No response provided]

How could the GIO's office help Aid in data acquisition, discovery, and archival preservation (e.g., maintaining a searchable updated statewide inventory/clearinghouse/data library); Develop and maintain statewide data themes (e.g., integrated parcels, land use, transactionally maintained municipal boundaries); Provide statewide services (e.g., address geocoding and imagery services); Provide software "how-to" technical assistance and training; Maintain and update enterprise license agreements for hardware and software; Explore and promote open source and emerging approaches and technologies.

Business Program #1  
**Science and Research Program**  
 johnr.sullivan @Wisconsin.gov

Name Science and Research Program  
 Description The Science and Research Program provides the science base for agency programs by:

- acquiring original knowledge.
- analyzing information and emerging technologies.
- synthesizing information for policy and management decisions.
- applying the scientific method to the solution of environmental and natural resources problems.
- providing science-based support services for the achievement of department initiatives.

Program staff members accomplish this by conducting, sponsoring, and coordinating research on natural resource issues to solve important management problems; identifying and testing new and improved ways of managing natural resources; providing scientific expertise to technical committees and others making management and policy decisions; providing technical training for agency personnel; serving as department representatives to interagency teams; providing problem solving and data analysis to address critical short-term problems; and providing scientific information to other agencies and the public. This program also coordinates and manages surveys. In addition, research staff members serve as leaders in identifying emerging issues and information gaps.

Area Division of Enforcement and Science, Bureau of Science Services  
 Statute\* Yes; also Ch. 20.370(3), s. 23.09(2)(k), and other *Wis. Stats.*  
 Services Address geocoding, address verification, applications development, coordinate conversion, custom map creation, data creation, data modeling, data translation, geoprocessing, georeferencing, logistics, rasterization, re-projection, spatial analysis, factorization, web coverage services, web feature services, web mapping services, web registry  
 Collaboration We obtain data from U.S. EPA, U.S. Geological Survey, U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, Natural Resources Conservation Service, Wisconsin Geological and Natural History Survey, other state agencies, county and municipal governments, regional planning commissions, academic institutions, and private entities. We share data with these same entities.  
 Barriers Lack of technical training opportunities/support; inaccessibility of existing GIS data due to lack of inventory, cataloging, and dissemination (i.e. people only use what they know is easily available); missing and incomplete data; lack of adequate staffing in agency's GIS program  
 Initiatives GIS initiatives in the Science and Research program generally are limited to applying the data and technologies in research studies. Some projects and programs require the investigation of emerging approaches and technologies.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), *Wis. Stats*?"

Business Program #2  
**Land Use and Sustainable Communities Program**  
 johnr.sullivant@Wisconsin.gov

Name Land Use and Sustainable Communities Program  
 Description Science Services manages the department's statewide sustainable development (land use) initiatives. Staff members serve as a liaison to Wisconsin's regional planning commissions (RPCs)

and participate in a statutorily defined State Agency Resource Working Group. Work occurs in three primary areas: smart growth, great neighborhoods, and green buildings. Comprehensive planning (smart growth) provides a framework for developing local plans for growth and is one tool DNR staff have available for sharing environmental knowledge and suggesting specific protection, restoration, and enhancement procedures for natural resources in specific planning areas. Great neighborhoods use compact building designs to increase convenience and enhance the quality of life. Green building techniques create healthier and more resource-efficient models of construction, renovation, operation, maintenance, and demolition. Staff develop tools and resources to help improve the quality of urban neighborhoods and promote and encourage green building.

Area	Division of Enforcement and Science, Bureau of Science Services
Statute*	Yes; also ss. 16.9675 and 66.1001, <i>Wis. Stats.</i>
Services	Address geocoding, address verification, applications development, coordinate conversion, custom map creation, data modeling, data translation, geoprocessing, georeferencing, rasterization, re-projection, spatial analysis, vectorization, web coverage services, web feature services, web mapping services, web registry
Collaboration	We obtain data from U.S. EPA, U.S. Geological Survey, U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, Natural Resources Conservation Service, Wisconsin Geological and Natural History Survey, other state agencies, county and municipal governments, regional planning commissions, academic institutions, and private entities. We share data with these same entities.
Barriers	Lack of technical training opportunities/support; inaccessibility of existing GIS data due to lack of inventory, cataloging, and dissemination (i.e. people only use what they know is easily available); missing and incomplete data, lack of adequate staffing in agency's GIS program
Initiatives	We are currently implementing an EPA-funded information technology initiative (National Environmental Information Exchange Network) to better support local decision making. This initiative involves automated exchanges of GIS data via the Internet.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), *Wis. Stats.*?"

**Division of Forestry – Janel Pike, GIS Coordinator**

Goals	Responsible for developing, implementing, enhancing, and maintaining GIS systems for the support of the forestry program's business needs. Leads the planning, systems approval and monitoring of division's GIS systems and applications. Analyzes new or emerging technologies and provides guidance to the division's management concerning specific information systems that support the forestry division's business needs. This includes field data collection (e.g. field computers and GPS), remote sensing, data modeling, integrating data into forestry systems (i.e. inventory, analysis, and planning for fire, forest management, forest health, GIS, and the Web), and the creation of systems and applications that support data access by key forestry partners and the public.
How could the GIO's office help	Access/repository to up to date statewide digital imagery (beyond NAIP). Some shared services. Enterprise License Agreement (if it proves to be cost effective).

Business Program #1

**Division of Forestry Business Programs**

Janel.Pike@Wisconsin.gov

Name	<p><b>Bureau of Forestry Services</b></p> <p>Forest Products Utilization &amp; Marketing: <a href="http://dnr.wi.gov/forestry/um/">http://dnr.wi.gov/forestry/um/</a></p> <p>Smart Forestry for Smart Growth: <a href="http://dnr.wi.gov/forestry/SmartForestry/">http://dnr.wi.gov/forestry/SmartForestry/</a></p> <p>Statewide Forest Planning: <a href="http://dnr.wi.gov/forestry/assessment/">http://dnr.wi.gov/forestry/assessment/</a></p> <p>Forestry's Aerial Photography Program: <a href="http://dnr.wi.gov/forestry/airphoto/">http://dnr.wi.gov/forestry/airphoto/</a></p> <p>Forest Inventory &amp; Analysis: <a href="http://dnr.wi.gov/forestry/fia/">http://dnr.wi.gov/forestry/fia/</a></p> <p>Statewide Forest Assessment: <a href="http://intranet.dnr.state.wi.us/int/land/forestry/Div_Overview/FR_Services/assessment/">http://intranet.dnr.state.wi.us/int/land/forestry/Div_Overview/FR_Services/assessment/</a></p>
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**Bureau of Forest Management**

Forest Certification: <http://dnr.wi.gov/forestry/certification/>  
 Urban and Community Forestry: <http://dnr.wi.gov/forestry/uf/>  
 Forest Legacy Program: <http://dnr.wi.gov/forestry/legacy/>  
 Property Master Planning: [http://dnr.wi.gov/master\\_planning/](http://dnr.wi.gov/master_planning/)  
 Private Forest Program: <http://dnr.wi.gov/forestry/private/>  
 Forest Tax Law Programs:  
<http://dnr.wi.gov/forestry/feeds/faqsFull.asp?s1=ForestTax&s2=MFL&inc=ftax>  
<http://dnr.wi.gov/forestry/feeds/faqsFull.asp?s1=ForestTax&s2=FCL&inc=ftax>  
 State Forest Program: <http://dnr.wi.gov/forestry/county/WisFIRS/http://dnr.wi.gov/forestry/stateforests/>  
 County Forest Program: <http://dnr.wi.gov/forestry/county/WisFIRS/http://dnr.wi.gov/forestry/county/>

**Office of Forest Sciences**

State Nursery Program: <http://dnr.wi.gov/forestry/Nursery/>  
 Upper Mississippi River Forest Partnership: <http://dnr.wi.gov/forestry/umrfp.htm>  
 Forest Health Protection: <http://dnr.wi.gov/forestry/Fh/>  
 Karner Blue Butterfly: <http://dnr.wi.gov/forestry/karner/>  
 Best Management Practices: <http://dnr.wi.gov/forestry/Usesof/bmp/>

**Bureau of Forest Protection**

Forest Protection Program: <http://dnr.wi.gov/forestry/Fire/>  
 Wildland Urban Interface: <http://dnr.wi.gov/forestry/fire/prevention/wui/>  
 Forest Fire Program: [http://dnr.wi.gov/forestry/fire/Fire\\_Danger/fire\\_report.asp](http://dnr.wi.gov/forestry/fire/Fire_Danger/fire_report.asp)  
 Fire Indices: <http://dnr.wi.gov/forestry/fire/weather/>  
 Fire Prevention: <http://dnr.wi.gov/forestry/fire/fire-ps.htm>  
 Aeromatics: [http://intranet.dnr.state.wi.us/int/land/forestry/Div\\_Overview/FR\\_Protection/aero/](http://intranet.dnr.state.wi.us/int/land/forestry/Div_Overview/FR_Protection/aero/)

Description	<a href="http://dnr.wi.gov/forestry/pdf/FRDivMarch2007.pdf">http://dnr.wi.gov/forestry/pdf/FRDivMarch2007.pdf</a>
Area	Division of Forestry
Statute*	Yes
Services	Geoprocessing; Custom Map Creation; Data Modeling; Web Mapping; Vectorization; Rasterization; Address Geocoding; Re-projection; Web Coverage; Web Feature; Spatial Analysis; Applications Development; Georeferencing; Address Verification; Coordinate Conversion; Data Creation; Data Translation
Collaboration	We obtain data from local units of govt., other state agencies, federal govt. We provide data to local units of govt., federal govt., universities, other state agencies.
Barriers	Having an ftp site that is easily accessible by individual program areas. Having standardization that all counties follow re: metadata and database structure.
Initiatives	Yes. The Forestry Division's number one application development priority is the Wisconsin Forest Inventory & Reporting System (WisFIRS) project, which is responsible for managing the core business functions of the public (state and county) and private (forest tax law) lands in Wisconsin. This includes information management (GIS data creation and mapping), creating reports, performing calculations, invoicing, etc. for over 7 million acres of Forests in Wisconsin, which is used or will be used by hundreds of DNR staff, county forest partners and private consulting foresters.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

Business Program #2  
**Wisconsin Forest Inventory & Reporting System (WisFIRS) Project**

Janel.Pike@Wisconsin.gov

Name	Wisconsin Forest Inventory & Reporting System (WisFIRS) project.
Description	The Forestry Division's number one priority is the Wisconsin Forest Inventory & Reporting System (WisFIRS) project, which is responsible for managing the core business functions of the public (state and county) and private (forest tax law) lands in Wisconsin. This includes information management, creating reports, performing calculations, invoicing, etc. for over 7 million acres of Forests in Wisconsin, which is used or will be used by hundreds of DNR staff, county forest partners and private consulting foresters.
Area	Division of Forestry, Bureau of Forestry Services
Statute*	Yes
Services	Web Coverage; Coordinate Conversion; Geoprocessing; Data Creation; Data Translation; Web Feature; Web Mapping; Georeferencing; Applications Development; Spatial Analysis

Collaboration We obtain data from local units of govt., (counties) state govt. We provide data to local units of govt. and the federal govt.  
 Barriers Lack of an easily accessible ftp site. lack of standard seamless parcel data from the counties.  
 Initiatives Under development.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Bureau of Endangered Resources**– Angela Engelman, Conservation Biologist

Goals The importance of the ATRI system in enabling Department staff and partners to access, integrate and apply environmental information to landscape scale decision-making is reflected in ATRI being identified as a Department-wide strategic initiative, a performance measure in the Department's strategic implementation plan and a component of the State's Enterprise IT Portfolio.  
 How could the GIO's office help Not Sure

Business Program #1

**Aquatic and Terrestrial Resources Inventory (ATRI)**

angela.engelman@wi.gov

Name Aquatic and Terrestrial Resources Inventory (ATRI)  
 Description The ATRI concept was formed in 1994 by DNR staff and external partners who recognized the need for decision makers to access and integrate environmental information. After considerable analysis concerning the role and structure of ATRI, the program was established by Wisconsin Statute 23.09(2)(km) which directed the Department of Natural Resources to "develop an information system to acquire, integrate and disseminate information concerning inventories and data on aquatic and terrestrial natural resources."  
 Area Division of Land, Bureau of Endangered Resources, Inventory and Monitoring Section  
 Statute\* Yes – Also s.23.09(2)(km)  
 Services Web Mapping, monitoring, inventory and research data  
 Collaboration We obtain data from DNR employees on research projects; we provide data to the general public as well as state and local organizations; we coordinate services with a wide variety of state, local, public, private, and non-profit businesses.  
 Barriers None  
 Initiatives Staff rely on ATRI for taxa specific management decision-making, planning, research and status determination that are required by state statute..

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Bureau of Endangered Resources**– Rori Paloski, Conservation Biologist

Goals Staff rely on GIS web-based mapping tools to conduct reviews of rare species - review is required by state statute.  
 How could the GIO's office help Unsure at this time.

Business Program #1

**Natural Heritage Inventory (NHI) Portal**

rori.paloski@wi.gov

Name Natural Heritage Inventory (NHI) Portal

Description	The NHI database contains all the state and federal rare species information for Wisconsin.
Area	Division of Land, Bureau of Endangered Resources
Statute*	Yes – Also s.29.604
Services	Delivery of species status data
Collaboration	Participate in the nationwide NatureServe Consortia
Barriers	Cost of maintenance and enhancements
Initiatives	None at this time due to budget shortfalls

\* “Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”

**Bureau of Facilities & Lands – Jeffrey Walters, Real Estate Specialist**

**Goals** GIS is extremely important in our day to day operations of Real Estate. From mapping, to long range planning, to servicing the public on where our lands are located.

**How could the GIO's office help** Integrated, seamless, updated county parcel data. Integrated, seamless, updated statewide aerial photos. Integrated, seamless, updated road data

**Business Program #1  
DNR Managed Lands GIS layer**  
Jeffrey.Walters@wisconsin.gov

Name	DNR Managed Lands GIS layer - A representation of the State of Wisconsin DNR ownership.
Description	The WI-DNR manages approximately 1.6 million acres of land. From fee-title to easement these lands are tracked spatially via the DNR Managed Lands GIS layer and a Wisconsin DNR Land Records System.
Area	Division of Land, Bureau of Lands and Facilities, Real Estate Section
Statute*	Yes
Services	Spatial Analysis; Applications Development; Data Creation; Vectorization; Web Mapping
Collaboration	No
Barriers	No
Initiatives	Not at this time

\* “Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”

**Business Program #2  
DNR Project Boundary GIS layer**  
Jeffrey.Walters@wisconsin.gov

Name	Wisconsin DNR Project Boundary - GIS layer
Description	The Wisconsin DNR manages 1.6 million acres of land - we acquire these lands in DNR Natural Resource Board approved project areas or project boundaries.
Area	Division of Land, Bureau of Lands and Facilities, Real Estate Section
Statute*	No
Services	Spatial Analysis; Data Creation; Web Mapping; Custom Map Creation; Vectorization
Collaboration	The resources to build this layer are all contained within the WI-DNR. Roads, water, air photos.
Barriers	No
Initiatives	Not at this time.

\* “Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”

**Wildlife Management** – Tim Weiss, Wildlife Biologist

Goals Potentially great. Too expensive and not supported adequately by agency.

How could the GIO's office help Convince agency that GIS needs to be supported (staff, equipment, organization)

Business Program #1  
**Bureau of Wildlife Management**  
 nondor.weiss@wisconsin.gov

Name Division of Land, Bureau of Wildlife Management  
 Description Manage Wildlife Resources Statewide  
 Area Land Division  
 Statute\* No  
 Services Spatial Analysis; Applications Development; Web Feature; Web Mapping; Data Creation; Custom Map Creation; Rasterization; Web Registry / Catalog; Web Coverage; Coordinate Conversion; Data Modeling; Re-projection  
 Collaboration Yes. See previous answers  
 Barriers Yes. Agency resources not in place to sustain GIS statewide  
 Initiatives No. Cost and poor infrastructure hinder future work

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

**Water Division** – Ann Schachte, Drinking Water & Groundwater GIS Coordinator

Goals The Water Division uses GIS to support data integration, resource mapping and analysis.

How could the GIO's office help Support an integrated infrastructure where spatial and tabular data are managed together instead of in separate environments. This would facilitate spatial queries using tabular methods (e.g. spatial field on tabular db).

Business Program #1  
**Water Division IT - Data Integration (Surface Water Integration System)**  
 ann.schachte@wi.gov

Name Water Division IT - Data Integration (Surface Water Integration System)  
 Description SWIS provides the framework for integrating the Water Division's surface water related data. The framework pieces include: 1.) Statewide 1:24,000 scale Hydrography GIS layer; 2.) Embeddable Locator Tool (eLT); 3.) Register of Waterbodies (ROW); 4.) Surface Water Data Viewer. The framework is used by the individual programs to locate their activities using the eLT. Once located, the data becomes available in the Surface Water Data Viewer and is accessible to everyone, including the public.  
 Area Division of Water  
 Statute\* No  
 Services Georeferencing; Data Creation; Geoprocessing; Web Mapping; Vectorization  
 Collaboration Program business needs do not presently require collaboration with another agency. However, we do provide database updates to several local units of government and to the US Forest Service. We are currently working with the USGS to determine how much work and cost there will be in bringing the current state Hydrography model together with the federal model (NHD). Once integrated, it will be necessary to coordinate with the USFS (to begin with) on editing procedures.  
 Barriers A disconnect currently exists in communicating directly with federal agencies due to the differences in

our framework Hydrography GIS layers. The feds have just recently completed their hydrography GIS layer nation-wide at 1:24,000 scale. We are working with our USGS state liaison to obtain some funding to begin work on evaluating the workload and associated costs of moving toward the federal standard. Another issue is that USEPA is still using the federal 1:100,000 scale hydrography layer for managing the surface water quality data. This means that our more detailed locations are being located along a less detailed data source.

Initiatives

The WDNR Hydrography layer is currently undergoing a migration from ArcInfo coverage to geodatabase. We hope to have the migration complete at the end of FY09. The Embeddable Locator Tool (eLT) is undergoing a conversion to .NET technology. Phase I (server side) will be completed by end of FY09. Phase II (map interface portion) is scheduled to take place in FY10.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

Business Program #2  
**Vulnerability Assessment Program**  
 ann.schachte@wi.gov

Name Vulnerability Assessment Program  
 Description Wisconsin's Vulnerability Assessment program was developed in 1992 to eliminate unnecessary and costly monitoring. The assessment is performed for all community and nontransient noncommunity public water systems every three years.  
 Area Division of Water, Bureau of Drinking Water and Groundwater, Public Water Supply Section  
 Statute\* No  
 Services Web Mapping; Data Creation; Georeferencing; Vectorization  
 Collaboration No  
 Barriers There is currently a restriction on sharing public well locations outside the agency due to 9/11 security related concerns.  
 Initiatives The Vulnerability Assessment Tool will be rewritten into current technology. It currently resides in Arcview 3.3. Options being considered include a web mapping application or an ArcView 9.x application.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

Business Program #3  
**Trout Stream Classification and Trout Regulations**  
 ann.schachte@wi.gov

Name Trout Stream Classification and Trout Regulations  
 Description Management of the fishery in the state of Wisconsin  
 Area Division of Water, Bureau of Fisheries Management  
 Statute\* Yes  
 Services Georeferencing; Data Creation; Web Mapping  
 Collaboration No  
 Barriers No  
 Initiatives Plan to create a spatial data layer for all fish regulations and fish consumption advisories.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

Business Program #4  
**Groundwater Quality**  
 ann.schachte@wi.gov

Name Groundwater Quality  
 Description  
 1. Goal: Protect public health and safety, and the state's groundwater resources, by ensuring wells are constructed according to Department regulations.  
 2. Goal: Protect public health and safety by ensuring public water systems are properly operated and maintained.  
 3. Goal: Protect public health and safety by reviewing community water system facilities prior to construction.  
 4. Goal: Protect public health and safety by ensuring that all public water systems meet drinking water quality standards.

- 5. Goal: Protect public health and safety by ensuring that all public water systems are sampled at the appropriate frequency.
- 6. Goal: Protect public health and safety, and the state's groundwater resources, by reviewing plans for high capacity wells prior to construction.
- 7. Goal: Protect outstanding resource waters, exceptional resource waters, and any class I, II, or III trout stream, from excessive groundwater withdrawal.
- 8. Goal: Obtain and manage baseline data on water use in the Great Lakes Basin necessary to implement water management and water conservation and efficiency programs.
- 9. Goal: Promulgate administrative rules to implement Wisconsin's Great Lakes Compact legislation (2007 Wisconsin Act 227).

Area Division of Water, Bureau of Drinking Water & Groundwater  
 Statute\* No  
 Services Georeferencing; Coordinate Conversion; Data Creation  
 Collaboration No  
 Barriers [No Response Provided]  
 Initiatives We plan to develop a GIS application to specifically support the Great Lakes Compact (water diversion tracking and analysis) within the next two years. This may include some coordination with other Great Lakes states and Canada.

\* "Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"

**Water Division – Matt Rehwald, GIS Analyst & Data Manager**

**Goals** The DNR Bureau of Watershed Management (WT or the Bureau) is responsible for a wide range of regulatory and educational work. To succeed in an ever-more complex world, the Bureau relies on numerous applications and datasets to support water resource activities. Anticipated institutional, fiscal and technological change provides challenges as well as opportunities that potentially affect all aspects of data management. The Bureau is embracing the need to carefully plan for and address the complexity of data management. In 1992, the former Waters Resources Bureau initiated a strategic process of building a GIS-based infrastructure, which included developing the state's streams and lakes (1:24,000-scale Hydrography) data layer and providing an ongoing system of maintenance and management. Another product was the Surface Water Integration System (SWIS), a GIS-based system designed to provide a standard framework for integrating surface water related information. Since that time, additional GIS and tabular systems have been developed and program needs have evolved. Many of the business programs enumerated in this survey manage their geodata in the Surface Water Integrated Monitoring System (SWIMS) and the Waterbody Assessment Tracking & Electronic Reporting System (WATERS). These data systems have both spatial and tabular components, and function through a combination of ArcSDE, ArcIMS, ArcGIS Server, and Oracle technology. GIS will continue to play a leading role in these systems, and will continue to provide a picture of the health of Wisconsin's waters for DNR staff and the public.

**How could the GIO's office help** The GIO's office could assist with spatial data infrastructure - spatial data warehousing and shared GIS services. Data from many of the Bureau's programs is available online on the Surface Water Data Viewer (SWDV). The size and user base of the SWDV are putting a strain on DNR's SDE and IMS resources. Perhaps it is worth investigating whether the GIO's infrastructure could help with some of the load. Additionally, DNR's Wetlands program is in need of up-to-date county orthophotos for wetland delineation. The GIO's office could act as a state clearinghouse for such data.

Business Program #1  
**Waterbody Assessments (305b)**  
 matt.rehwald@wisconsin.gov

**Name** Waterbody assessments (305b)  
**Description** Conducting condition assessments on all waters of the state to determine overall river, lake and stream condition & water condition assessments (Clean Water Act section 305b)  
**Area** Division of Water, Bureau of Watershed Management, Water Evaluation Section  
**Statute\*** Yes  
**Services** Geoprocessing; Web Mapping; Georeferencing; Applications Development  
**Collaboration** DNR collaborates with USGS on the deployment of USGS Flow Gage stations, which provide critical information related to concentrations of contaminants and flow levels in the waters where we collect

our samples. We also receive data from partners and interested public for evaluating water condition if the data meets data quality documentation guidelines.

- Barriers Server capacity and staff resource support limits reduce the availability of the data to the public. EPA would like us to submit our data using NHD identifiers, instead of DNR's 24k Hydrography. DNR and USGS are evaluating how the two datasets could be integrated together to meet this goal.
- Initiatives We plan to better integrate the spatial data/functionality of our monitoring and assessments datatypes in the future to allow for more analytical capability. This could involve geoprocessing webservices too; for example, find monitoring data on a particular assessment unit to support the assessed quality of a stream.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #2  
**Impaired Waters Program (Clean Water Act Section 303(d))**  
 matt.rehwald@wisconsin.gov

- Name Impaired Waters Program (Clean Water Act Section 303(d))
- Description Identifying waters in the state that do not meet water quality standards, creating special note of these areas when creating watershed plans or point or nonpoint source permits or incentive based grant funded actions, such as cost-share agreements with agricultural interests.
- Area Division of Water, Bureau of Watershed Management, Water Evaluation Section
- Statute\* Yes
- Services Web Mapping; Applications Development; Georeferencing; Geoprocessing
- Collaboration DNR collaborates with USGS on the deployment of USGS Flow Gage stations, which provide critical information related to concentrations of contaminants and flow levels in the waters where we collect our samples. We also receive data from partners and interested public for evaluating water condition if the data meets data quality documentation guidelines. The WDNR also relies on partnership groups to create community or organizational based coalitions for the development and implementation of Total Maximum Daily Load (TMDL) Plans.
- Barriers Server capacity and staff resource support limits reduce the availability of the data to the public.
- Initiatives We hope to host a water condition assessment theme in DNR's Surface Water Data Viewer with this dataset in the future.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #3  
**Water Quality Standards - Use Designations (NR102) and Variance Waters (NR104)**  
 matt.rehwald@wisconsin.gov

- Name Clean Water Act, Water Quality Standards Use Designations (NR102) and Variance Waters (NR104) listings.
- Description Identifying use designations for waters of the state under the Clean Water Act for a variety of uses, including Fish and Aquatic Life, Public Health and Welfare, Recreational Use, Drinking Water Use. These uses help gauge the attainable condition of a water, which in turn helps aquatic biologists single out waters that do not meet water quality standards (see Impaired Waters List: CWA Section 303d). The state water quality standards categories under a given use designation, such as Fish and Aquatic Life, provide specific ambient water quality standards and criteria for evaluating water condition. This data drives statewide monitoring, management, restoration and partnership program efforts.
- Area Division of Water, Bureau of Watershed Management, Water Evaluation Section
- Statute\* Yes
- Services Geoprocessing; Applications Development; Web Mapping; Georeferencing
- Collaboration DNR collaborates with USGS on the deployment of USGS Flow Gage stations, which provide critical information related to concentrations of contaminants and flow levels in the waters where we collect our samples. We also receive data from partners and interested public for evaluating water condition if the data meets data quality documentation guidelines. The WDNR also relies on partnership groups to create community or organizational based coalitions for the development and implementation of Total Maximum Daily Load (TMDL) Plans.
- Barriers Server capacity and staff resource support limits reduce the availability of the data to the public.
- Initiatives We hope to host a water condition assessment theme in DNR's Surface Water Data Viewer with this dataset in the future.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #4  
**Water Quality Standards - State Outstanding & Exceptional Resource Waters (NR102)**  
 matt.rehwald@wisconsin.gov

Name	Clean Water Act, Water Quality Standards State Outstanding & Exceptional Resource Waters (NR102) and Anti-Degradation provisions of NR207.
Description	Clearly identifying Wisconsin waters designated as state Outstanding & Exceptional Resource Waters under provisions of the Clean Water Act and the state's implementing regulations, including NR102, Wisconsin Water Quality Standards. These designations confer special protection for listed waters through a variety of programs, primarily but not limited to the Wisconsin Permit Elimination System (WPDES). Surface water discharges to an Outstanding or Exceptional Resource Water must meet or exceed background water quality. These and related requirements make ready access and high quality display critical for meeting the program mission. The presence of an O/ERW designation often drives monitoring, management, restoration and partnership program efforts across the state.
Area	Division of Water, Bureau of Watershed Management, Water Evaluation Section
Statute*	Yes
Services	Georeferencing; Geoprocessing; Applications Development; Web Mapping
Collaboration	DNR collaborates with USGS on the deployment of USGS Flow Gage stations, which provide critical information related to concentrations of contaminants and flow levels in the waters where we collect our samples. We also receive data from partners and interested public for evaluating water condition if the data meets data quality documentation guidelines. The WDNR also relies on partnership groups to create community or organizational based coalitions for the development and implementation of Total Maximum Daily Load (TMDL) Plans.
Barriers	Server capacity and staff resource support limits reduce the availability of the data to the public.
Initiatives	We hope to host a water condition assessment theme in DNR's Surface Water Data Viewer with this dataset in the future.

*"Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"*

Business Program #5  
**Surface Water Integrated Monitoring System (SWIMS) Monitoring Stations and data**  
 matt.rehwald@wisconsin.gov

Name	State of Wisconsin Surface Water Integrated Monitoring System (SWIMS) Monitoring Stations and data.
Description	The point, line and polygon locations of monitoring data in the state stored in the SWIMS system, an integrated monitoring system linking geo-located surface water and biological resource datasets. SWIMS stations represent historical and current surface water, sediment, and biological monitoring sites, providing the research information behind the state's water quality standards, effluent limit calculations as well as impaired waters listings, outstanding and exceptional resource waters designations, and water classification or use designations under the Clean Water Act. SWIMS stations can also represent the location of citizen volunteer monitoring for lakes, streams, wetlands, and other resource surveillance activities.
Area	Division of Water, Bureau of Watershed Management, Water Evaluation Section
Statute*	Yes
Services	Applications Development; Georeferencing; Web Mapping; Geoprocessing
Collaboration	DNR collaborates with USGS on the deployment of USGS Flow Gage stations, monitoring activities and stations, all of which provide critical information related to concentrations of contaminants and flow levels in the waters where we collect our samples. We also receive monitoring data from partners and interested public for evaluating water condition if the data meets data quality documentation guidelines. The WDNR also relies on partnership groups to create community or organizational based coalitions for the development and implementation of Total Maximum Daily Load (TMDL) Plans and elements of program management, such as the Beach Health Program.
Barriers	Server capacity and staff resource support limits reduce the availability of the data to the public.
Initiatives	We hope to host a water condition assessment theme in DNR's Surface Water Data Viewer with this dataset in the future.

*"Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"*

Business Program #6  
**Beach Monitoring Program**

matt.rehwald@wisconsin.gov

Name	State of Wisconsin Beach Monitoring Program
Description	A good portion of the locations and monitoring data for inland and Great Lakes beach monitoring sites in the state are stored in SWIMS, the Surface Water Integrated Monitoring System, which links geo-located surface water and a variety of biological resource datasets. SWIMS stations representing Beach Monitoring sites enable the WDNR to display concentrations of specific pathogens juxtaposed with impaired or potentially-impaired line and polygon features from the state's related data sets (305b assessments, 303d waters, or Use Designation data) These points and related data represent historical and current surface water, condition, providing the research information behind the state's water quality standards, effluent limit calculations, and impaired waters listings for the Recreational Designated Use under Wisconsin's Water Quality Standards program to implement the Clean Water Act.
Area	Division of Water, Bureau of Watershed Management, Water Evaluation Section
Statute*	Yes
Services	Web Mapping; Applications Development; Georeferencing; Geoprocessing
Collaboration	DNR collaborates with USGS on the deployment of USGS Flow Gage stations, monitoring activities and stations, all of which provide critical information related to concentrations of contaminants and flow levels in the waters where we collect our samples. We also receive monitoring data from partners and interested public for evaluating water condition if the data meets data quality documentation guidelines. The WDNR also relies on partnership groups to create community or organizational based coalitions for the development and implementation of Total Maximum Daily Load (TMDL) Plans and elements of program management, such as the Beach Health Program.
Barriers	Server capacity and staff resource support limits reduce the availability of the data to the public.
Initiatives	We hope to host a water condition assessment theme in DNR's Surface Water Data Viewer with this dataset in the future and better integrate it with the Beaches website, <a href="http://www.wibeaches.us/">http://www.wibeaches.us/</a> .

*"Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"*

Business Program #7  
**Watershed Assessments Planning Program**

matt.rehwald@wisconsin.gov

Name	State of Wisconsin Watershed Assessments Planning Program
Description	Wisconsin, a state delegated with responsibility for implementing the Clean Water Act, is charged with creating and updating comprehensive water resource plans based on watersheds or other hydrologic extents. In 1987 this CWA requirement was embodied in the state implementing rule NR121, State Administrative Code. NR121 and Clean Water Act 205(j) require the state to prepare comprehensive watershed-based plans inventorying the state's aquatic resources, identifying areas in need of protection or restoration, and listing specific actions that need to occur to ensure that state regulated activities result in decisions that are in conformance with the state's Area-wide Water Quality Management Plan (AWQMP), or Basin Plan. Wisconsin has created online GIS-based tools and linked data systems to hold decisions, documents and descriptive information relating to water/sheds in the state. These water/shed areas provide critical status information to counties, regional planning commissions, and municipalities which may be undertaking planning, protection or restoration activities or incentive programs. <sup>68</sup>
Area	Division of Water, Bureau of Watershed Management, Watershed Planning, Policy and Communications Unit; spans multiple watershed programs.
Statute*	Yes
Services	Georeferencing; Applications Development; Web Mapping
Collaboration	DNR collaborates with the Department of Agriculture, Trade and Consumer Protection (DATCP) to design, review, and implement county land and water plans, which are integrally linked to basin plans and data. DNR also works closely with County Land Conservation Departments and Regional Planning Commissions which use this type of data for project planning and implementation work. The state's mandate under the Clean Water Act to develop Total Maximum Daily Load (TMDL) plans requires this datasets formulate the basis against which restoration goals and strategies are developed.
Barriers	Server capacity and staff resource support limits reduce the availability of the data to the public.
Initiatives	A watershed planning theme will soon be incorporated in DNR's Surface Water Data Viewer to share WDNR's progress in updating state water/shed management plans and related, such as approved

TMDL Plans which are formal amendments to the AWQMP.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

**Business Program #8**  
**River Grants Program**  
 matt.rehwald@wisconsin.gov

Name State of Wisconsin River Grants Program  
 Description Wisconsin provides grants to interested parties, including local agencies, nonprofit groups, and citizen organizations to organize, advocate, and create and implement river restoration plans for waters throughout the state. This dataset displays who, why, how much, and the final reports for this annual distribution of funds to enhance, steward and help restore the state’s riverine waters.  
 Area Division of Water, Bureau of Watershed Management, Waterways Protection Section  
 Statute\* Yes  
 Services Geoprocessing; Georeferencing; Web Mapping  
 Collaboration No.  
 Barriers Server capacity and staff resource support limits reduce the availability of the data to the public.  
 Initiatives We currently represent river grants spatially as points but are exploring ways to present the grant data in a geometry that's more representative of the grant location (river, river and tributaries, watershed, etc.)

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

**Business Program #9**  
**Aquatic Invasive Species (AIS)**  
 matt.rehwald@wisconsin.gov

Name Aquatic Invasive Species (AIS)  
 Description Wisconsin’s aquatic invasive species program focuses on preventing the introduction of new invasive species of Plants and Animals to Wisconsin, preventing the spread of invasive species that are already in the state, and controlling established populations. DNR currently tracks 11 different species of flora and fauna that inhabit waters of the state.  
 Area Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section  
 Statute\* Yes  
 Services Georeferencing; Web Mapping; Geoprocessing  
 Collaboration We obtain data from Biologists in the field, DNR Staff, University Botanists, Biologists, Fish Experts, Citizen Lake Volunteers; we provide data to DNR Experts for Verification; we coordinate services with UW-Extension, Sea Grant, Federal Government, USGS.  
 Barriers Generally, no.  
 Initiatives Limited staff availability will prevent further AIS data initiatives from moving forward quickly.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

**Business Program #10**  
**Critical Habitat Designation**  
 matt.rehwald@wisconsin.gov

Name Critical Habitat Designation  
 Description Every waterbody has critical habitat - those areas that are most important to the overall health of the aquatic plants and animals. Remarkably, eighty percent of the plants and animals on the state’s endangered and threatened species list spend all or part of their life cycle within the near shore zone. As many as ninety percent of the living things in lakes and rivers are found along the shallow margins and shores. Wisconsin law mandates special protections for these critical habitats. Critical Habitat Designation is a program that recognizes those areas and maps them so that everyone knows which areas are most vulnerable to impacts from human activity. A critical habitat designation assists waterfront owners by identifying these areas up front, so they can design their waterfront projects to protect habitat and ensure the long-term health of the lake they where they live.  
 Area Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section; Bureau of Fisheries Management; Lake Coordinators in the DNR Region Offices; Wildlife Managers; Shoreland

Managers.  
 Statute\* Yes  
 Services Geoprocessing; Georeferencing; Data Creation; Web Mapping  
 Collaboration We obtain data from Regional Staff of Team experts; we coordinate services with Lakes and Wetland Section and Fisheries Management.  
 Barriers No  
 Initiatives No

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #11  
**Wild Rice Harvest**  
 matt.rehwald@wisconsin.gov

Name Wild Rice Harvest in Wisconsin  
 Description The Great Lakes Indian Fish & Wildlife Commission (GLIFWC) is an inter-tribal, co-management agency committed to the implementation of off-reservation treaty rights on behalf of its eleven Ojibwe member tribes. Lakes are listed by county within the ceded territory of northern Wisconsin under these treaty agreements. A license is required so only Wisconsin residents may harvest wild rice in the state.  
 Area Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section; Bureau of Wildlife Management; Aquatic Plant Management staff with Great Lakes Indian Fish & Wildlife Commission  
 Statute\* Yes  
 Services Georeferencing; Data Creation; Web Mapping; Geoprocessing  
 Collaboration Great Lakes Indian Fish & Wildlife Commission (GLIFWC)  
 Barriers Streamlining the listing process is a common goal between DNR and GLIFWC.  
 Initiatives No

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #12  
**Lakes Grant Program**  
 matt.rehwald@wisconsin.gov

Name Wisconsin Lakes Grant Program  
 Description Wisconsin has several types of lake grants available to qualified lake organizations and municipalities. Small-scale lake planning grants of up to \$3,000 are available to get you started. They can be used to obtain and disseminate lake information, conduct education projects, and develop management goals. These grants are ideal for lake groups just beginning the planning process or for activities that supplement an existing plan. Large-scale lake planning grants of up to \$10,000 per project are available for bigger projects. Multiple grants, up to a cumulative total of \$100,000 per lake, can be used in phases to complete large projects but sponsors are limited to two grants per funding cycle. The intent of the large-scale program is to conduct technical studies to help develop elements of or complete comprehensive management plans. Depending on the condition and needs of the lake (which the planning process will help determine), the plan will specify activities, for example, improving water quality, managing user conflicts, or improving fishing. Lake protection grants provide funding for implementing projects to protect or improve a lake. As one progresses from planning to implementation, the costs and the time involved increase. Because implementation is more expensive, protection grants are available for up to \$200,000 per project.  
 Area Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section  
 Statute\* No  
 Services Geoprocessing; Web Mapping; Georeferencing  
 Collaboration We obtain data from people applying for the grants; we provide data to public in form of reports; we coordinate services with Bureau of Community Financial Assistance, UW-Extension-Lakes, Lake Consultants, and Lake Organizations.  
 Barriers No  
 Initiatives No

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #13  
**Aquatic Invasive Species Grant Program**  
 matt.rehwald@wisconsin.gov

Name Aquatic Invasive Species Grant Program  
 Description Public and Others apply for funding for an aquatic invasive species prevention or control project for any waters of the state including lakes, rivers, streams, wetlands and the Great Lakes.  
 Area Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section  
 Statute\* No  
 Services Geoprocessing; Georeferencing; Web Mapping  
 Collaboration We obtain data from Lake Grant Coordinators, consultants, Lake Organizations; we provide data to Public, State Legislators on where the grants were spent; we coordinate services with UW-Extension Lakes.  
 Barriers No  
 Initiatives No

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #14  
**Blue Green Algae Toxic Bloom Lakes**  
 matt.rehwald@wisconsin.gov

Name Blue green algae toxic bloom lakes in Wisconsin  
 Description Tracking lakes in Wisconsin that have blooms of toxic Blue Green Algae. Monitoring Data and incidents of animal and human illnesses and deaths related to the toxins. Work with Department of Health Services and CDC to gather this information. Alert County Health Departments of occurrences and the DNR Field staff, Lake Coordinators and Lake Organizations.  
 Area Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section  
 Statute\* No  
 Services Georeferencing  
 Collaboration We obtain data from State Lab of Hygiene, DHS, Local Depts. of Health, Cities, Citizen Volunteers, DNR state parks, Beaches; we provide data to Public, Lake Coordinators in the DNR, DHS, Local Health Departments; we coordinate services with DHS.  
 Barriers We have a communication plan that helps reduce such barriers.  
 Initiatives We are working with DHS who have a 5 Year grant from the CDC to work on this.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #15  
**DNR Watersheds**  
 matt.rehwald@wisconsin.gov

Name DNR Watersheds  
 Description DNR watershed delineations generally indicate areas that drain into a common river system or lake, but may also be based on DNR basin management criteria. DNR watershed boundary delineations are used primarily to prepare reference basemaps for the DNR Nonpoint Source Water Pollution Abatement Program, also generally known as the Priority Watershed Program. Priority watershed projects are designed to address water quality problems caused by nonpoint sources of pollution in selected watersheds.  
 Area Division of Water, Bureau of Watershed Management  
 Statute\* Yes  
 Services Data Creation; Geoprocessing; Spatial Analysis  
 Collaboration No  
 Barriers No  
 Initiatives DNR Watersheds will likely be gradually phased out and replaced with the USGS/NRCS Watershed Boundary Dataset (8, 10, and 12 digit hydrologic units) as the Priority Watershed Program is phased out. DNR Watersheds are analogous to 10 digit HUCs.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #16  
**Dam Safety (Dams inventory)**  
 matt.rehwald@wisconsin.gov

Name	Dam Safety (Dams inventory)
Description	The Dam Safety program is charged under Chapter 31 of State Regulations to ensure that dams throughout the State are safely built, operated and maintained. We also work with NR333, which provides design and construction standards for large dams, and NR335 and NR 336, which covers the administration of several dam grant programs. NR 116.08 also provides guidance on zoning restrictions downstream of dams, so our program ensures that we identify that location.
Area	Division of Water, Bureau of Watershed Management, Dam Safety and Floodplain Management Section
Statutes	Yes
Services	Custom Map Creation; Geoprocessing; Spatial Analysis; Georeferencing; Web Mapping; Data Creation; Data Modeling; Vectorization
Collaboration	We obtain data from DOT, USGS, FERC, NRCS, Forest Service, Fish and Wildlife Service, private contractors, local governments, and the public. We provide data to DOT, FERC, FEMA, ACOE, NRCS, private contractors, local governments, and the public. We coordinate services with DOT.
Barriers	The fact that dams have been identified as critical infrastructure has made each agency decide what data about dams they feel should be restricted. No uniform policy has been developed.
Initiatives	To meet the needs of local zoning officials, we plan to create spatial layers of dam failure locations, which they can adopt into their ordinances to protect the citizens of their communities from developing in those areas.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #17  
**Floodplain Zoning**  
 matt.rehwald@wisconsin.gov

Name	Floodplain Zoning
Description	To protect people and their property from unwise floodplain development, as well as to protect society from the costs which are associated with developed floodplains.
Area	Division of Water, Bureau of Watershed Management, Dam Safety and Floodplain Management Section
Statute*	No
Services	Spatial Analysis; Web Mapping; Custom Map Creation
Collaboration	We obtain data from FEMA, local government, general public, DMA/WEM. We coordinate services with FEMA, DMA/WEM and local government.
Barriers	No
Initiatives	To meet our business objectives, we plan to update our web mapping services to include additional information related to zoning in the future.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #18  
**Floodplain Engineering**  
 matt.rehwald@wisconsin.gov

Name	Floodplain Engineering
Description	To protect people and their property from unwise floodplain development, as well as to protect society from the costs which are associated with developed floodplains. To meet this goal, we are also charged with identifying where areas of high risk from flooding will be. We maintain an inventory of hydrologic and hydraulic models for many flooding sources throughout the State. Additionally, we work with FEMA to map flood risks and deliver that information to communities throughout the State.
Area	Division of Water, Bureau of Watershed Management, Dam Safety and Floodplain Management Section
Statute*	Yes
Services	Data Modeling; Georeferencing; Rasterization; Data Creation; Web Mapping; Coordinate Conversion;

Applications Development; Vectorization; Re-projection; Spatial Analysis; Custom Map Creation; Data Translation; Geoprocessing

**Collaboration** We obtain data from DOT, private consultants, USGS, NGS, NRCS, DMA/WEM, FEMA and local government. We provide data to DOT, private consultants, USGS, NGS, NRCS, DMA/WEM, FEMA and local government. We coordinate services with FEMA and local government.

**Barriers** We collect a lot of data from local government entities that have a restricted use attached to it. We are permitted to use it in-house for the purposes of this project, but are not allowed to distribute it to others. We tend to get a lot of requests for elevation data, but end up sending the requests back to the data creator.

**Initiatives** To meet our program business needs we plan to continue increasing the quality and coverage of floodplain risk mapping throughout the State. We also plan to find new and inventive ways to provide access to this information to the public through our web applications.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #19  
**WPDES Permit Program (Facility Outfalls)**  
 matt.rehwald@wisconsin.gov

**Name** WPDES Permit Program (Facility Outfalls)  
**Description** Provides Wisconsin Pollutant Discharge Elimination System (WPDES) permit related information to permit writers, permittees and the public.  
**Area** Division of Water, Bureau of Watershed Management, Permits Section  
**Statute\*** Yes  
**Services** Data Creation; Georeferencing; Web Mapping  
**Collaboration** No  
**Barriers** No  
**Initiatives** To better meet the WPDES permit program objectives, we would like to have Sanitary Sewer Overflows (SSOs) and Combined Sewer Overflows (CSOs) geo-located.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #20  
**Wisconsin Wetland Inventory**  
 matt.rehwald@wisconsin.gov

**Name** Wisconsin Wetland Inventory  
**Description** The Wisconsin Wetland Inventory creates/provides wetland information for the entire state of Wisconsin. Rectified aerial photography provides current boundary delineations, acreage totals, and wetland classification to both public and private sectors, in and out of the state of Wisconsin. The maps are also used as a guide for those entities involved in regulation of wetlands.  
**Area** Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section  
**Statute\*** Yes  
**Services** Geoprocessing; Data Creation; Vectorization; Web Mapping  
**Collaboration** No  
**Barriers** No, except that external interests would like to see more frequent updates of wetland map products that we cannot provide due to limited staff and funding. Watershed Management currently provides the most current wetland information ONLINE with the DNR Surface Water Data Viewer. If prospective customers desire the GIS wetland data for in-house data study, they can purchase the GIS data from Watershed Management.  
**Initiatives** No

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

**Bureau of Watershed Management – Matt Rehwald, GIS Analyst & Data Manager**

**Goals** The Bureau of Watershed Management (WT or the Bureau) is responsible for a wide range of regulatory and educational work. To succeed in an ever-more complex world, the Bureau relies on numerous applications and datasets to support water resource activities. Anticipated institutional, fiscal and technological change provides challenges as well as opportunities that potentially affect all aspects of data management. The Bureau is embracing the need to carefully plan for and address the complexity of data management. In 1992, the former Water Resources Bureau initiated a strategic process of building a GIS-based infrastructure, which included developing the state's streams and lakes (1:24,000-scale Hydrography) data layer and providing an ongoing system of maintenance and management. Another product was the Surface Water Integration System (SWIS), a GIS-based system designed to provide a standard framework for integrating surface water related information. Since that time, additional GIS and tabular systems have been developed and program needs have evolved. Many of the business programs enumerated in this survey manage their geodata in the Surface Water Integrated Monitoring System (SWIMS) and the Waterbody Assessment Tracking & Electronic Reporting System (WATERS). These data systems have both spatial and tabular components, and function through a combination of ArcSDE, ArcIMS, ArcGIS Server, and Oracle technology. GIS will continue to play a leading role in these systems, and will continue to provide a picture of the health of Wisconsin's waters for DNR staff and the public.

**How could the GIO's office help** The GIO's office could assist with spatial data infrastructure - spatial data warehousing and shared GIS services. Data from many of the Bureau's programs is available online on the Surface Water Data Viewer (SWDV). The size and user base of the SWDV are putting a strain on DNR's SDE and IMS resources. Perhaps it's worth investigating whether the GIO's infrastructure could help with some of the load. Additionally, DNR's Wetlands program is in need of up-to-date county orthophotos for wetland delineation. The Wetlands Assessment program is also in need of continued development of common scale layers of the state. For assessing wetland functions the focus should be concentrated on a 10m or 15m Digital Elevation Model for better topography, with similarly scaled layers for Quaternary Geology and Bedrock Geology for geomorphology, as these are some of the grossest scale layers for statewide use. The GIO's office could act as a state clearinghouse for such data.

**Business Program #1  
Wetland Activity Tracking**  
matt.rehwald@wi.gov

**Name** Wetland Activity Tracking: Activities Affecting Wetlands - permitted loss and disturbance, compensatory mitigation, voluntary restoration

**Description** GIS technology (ArcGIS suite) is used to assemble and display spatial data on wetland activities tracked through DNR wetland programs (run by the Office of Energy and Environmental Analysis, Bureau of Watershed Mgmt and Bureau of Wildlife Management) as well as cooperating federal agencies (USFWS, NRCS) and the state Department of Transportation. GIS and basic aerial photo-interpretation play an essential role in maintaining quality control of the data, especially for the wetland restoration tracking program. The data is reported annually, displayed in maps and several geodatabases are maintained by the program. Data on wetland restoration activities is displayed on the Surface Water Data Viewer. Funding is being sought for future expansion of the program to add older wetland restoration projects into the wetland restoration geodatabase.

**Area** Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section

**Statute\*** No

**Services** Spatial Analysis; Data Creation; Data Modeling; Geoprocessing; Web Mapping

**Collaboration** We gather data on wetland gains, losses and acre-neutral activities on an annual basis from 2 DNR databases (compensatory mitigation database, wetland and waterway permit database), from DNR Wildlife Mgmt staff, a DOT maintained project file system, 2 federal agency databases on wetland restoration projects (NRCS WRP database and USFWS HabITS Tracking System), and compile these into an annual report. Maintain several geodatabase, supply data to water resources programs (including 305(b) reports), watershed planners, participating agencies, and make data on wetland restorations available on the Surface Water Data Viewer. We provide data to same when asked, and regional managers.

**Barriers** A good FTP site would be useful as data distribution can be quite large.

**Initiatives** To further update the data set will require yearly input of new restorations as well as the continued input of pre-existing datasets into our framework.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

**Business Program #2  
Wetland Assessment and Planning**

matt.rehwald@wi.gov

Name	Wetland Assessment and Planning
Description	Wetland Assessment and Planning Data is of 3 types - landscape/watershed level, site level rapid assessments and site level intensive assessments. Two GIS layers of Assessment and Planning data currently exist: Reed Canary Grass Dominated Wetlands for the entire state and Potentially Restorable Wetlands (PRW) for the southern third of the state. These layers will be provided for use in several Water Resources business programs such as 305(b) reports and watershed planning, as well as other agencies, local government and other end users for use in wetland restoration planning, but they will be maintained by the Wetland Assessment program within the Lakes & Wetlands Section. Our goal is to have all data in ArcSDE format for display in DNR's Surface Water Data Viewer. PRW data for the southern third of the state is currently in quality review. We will generate new Potentially Restorable Wetlands layer for additional water basins of the state as funding is available. Site level-rapid and site-level data is not yet being gathered except for special projects. We expect to expand into systematic collection of site level data in the next 2-5 years. As we begin to collect site data, major design decisions will be required.
Area	Division of Water, Bureau of Watershed Management, Lakes and Wetlands Section
Statute*	No
Services	Data Modeling; Geoprocessing; Web Mapping; Data Creation; Spatial Analysis
Collaboration	Data is obtained from the USF&WS as well as USGS where applicable. We provide data to instate managers based on their location, as well as to the USGS, EPA, and USF&WS. We also coordinate with the agencies to get the best land use data from their permit databases.
Barriers	Yes, a good FTP site would be useful. There have been times that files, even zipped have been in excess of 2Gb. It would be nice to be able to come up some other method of transfer other than "Sneaker-net" or snail mail.
Initiatives	Continued use of ESRI products as well as updates and customizing the needs of these products to meet the demands of program. We will continue to expand of the Potential Ephemeral Ponds layer (PEP) as well as the Potentially Restorable Wetlands layer (PRW). Also the Restoration Database and accompanying layers will be revisited for further additions for both future restorations as well as restorations that took place before 2005.

*"Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"*

**Business Program #3  
Waterway & Wetland Alterations (Chapter 30 permits)**

matt.rehwald@wi.gov

Name	Waterway & wetland alterations (Chapter 30 permits)
Description	Under Chapter 30 of the State statutes, our program is charged with protecting the State's navigable waterways that are held in public trust to all citizens of Wisconsin. For most projects in or near navigable waterways, a permit is required from this program to ensure that water levels and flows are maintained, habitat is protected and streams are free from obstructions to ensure top quality water recreation. The program is also charged with designating waters as either Priority Navigable Waters, Public Rights Features and Areas of Special Natural Resource Interest and this information is used to determine the type of permit that is required.
Area	Division of Water, Bureau of Watershed Management, Waterways Protection Section
Statute*	Yes
Services	Address Geocoding; Web Mapping; Web Coverage; Data Creation; Data Modeling; Georeferencing; Applications Development; Spatial Analysis; Address Verification; Coordinate Conversion; Logistics; Re-projection; Vectorization; Web Feature; Custom Map Creation; Rasterization; Web Registry / Catalog; Data Translation; Geoprocessing
Collaboration	We obtain data, share data with and coordinate services with: feds, local gov, other state agencies, and private consultants and contractors.
Barriers	No
Initiatives	To meet our business objective we plan to update our spatial data on landscape alterations to be looked at under a variety of contexts (activity based, resource based, water designation based, etc).

*"Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"*

Business Program #4  
**WPDES Permit Program for Concentrated Animal Feeding Operations (CAFOs)**  
 matt.rehwald@wi.gov

Name WPDES Permit Program for Concentrated Animal Feeding Operations (CAFOs)  
 Description Provide CAFO permit related information to permit writers, permittees and the public.  
 Area Division of Water, Bureau of Watershed Management, Runoff Management Section in coordination with Permits Section  
 Statute\* No  
 Services Georeferencing; Data Creation; Web Mapping  
 Collaboration No  
 Barriers Yes. Technology barriers exist between getting information in the database to the internet to be accessible to the public.  
 Initiatives To meet the needs of permit writers and reviewers, we would like to have more precise geo-locations of CAFOs and have the capabilities to easily access other GIS data layers (e.g. wetlands).

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #5  
**Sediment Inventory**  
 matt.rehwald@wi.gov

Name Sediment Inventory  
 Description Sediment Inventory sites are those places in the state where known sediment contamination exists. The sites may be the outcome of sediment dredging permits issued under NR327 (sediment quality samples are required of sites before material is relocated or disturbed). Sediment inventory sites are represented as complete or partial polygons and are often also identified on the state's impaired waters list. These sites are updated annually based on program information and available chemistry data. The sites are managed under the Sediments Management Section of the Bureau of Watershed Management. The legal basis for the work is NR327 and NR102, and the data is managed in DNR's SWIMS data system.  
 Area Division of Water, Bureau of Watershed Management, Sediment Management Section  
 Statute\* No  
 Services Web Mapping; Geoprocessing; Georeferencing; Data Creation  
 Collaboration DNR collaborates with USGS on the deployment of USGS Flow Gage stations, monitoring activities and stations, all of which provide critical information related to concentrations of contaminants and flow levels in the waters where we collect our samples. We also receive monitoring data from partners and interested public for evaluating water condition if the data meets data quality documentation guidelines. The WDNR also relies on partnership groups to create community or organizational based coalitions for the development and implementation of Total Maximum Daily Load (TMDL) Plans.  
 Barriers Server capacity and staff resource support limits reduce the availability of the data to the public.  
 Initiatives We hope to host a water condition assessment theme in DNR's Surface Water Data Viewer with this dataset in the future.

*“Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?”*

Business Program #6  
**Nonpoint Source (NPS) Rankings**  
 matt.rehwald@wi.gov

Name NPS rankings  
 Description Nonpoint source rankings identify whether a watershed is ranked high, medium, or low impact from nonpoint sources of pollution. Sediment runoff, excess phosphorus, and depressed dissolved oxygen values are the most common pollutants in the state, affecting watersheds statewide. Rankings are updated through the state's watershed planning process and influence the point valuation received for potential grant funding opportunities under the Runoff Management Program.

The data is managed in DNR's WATERS data system as part of the 305b assessments dataset.  
 Division of Water, Bureau of Watershed Management, Runoff Management Section

Area  
 Statute\* Yes  
 Services Geoprocessing; Web Mapping; Georeferencing  
 Collaboration DNR collaborates with USGS on the deployment of USGS Flow Gage stations, which provide critical information related to concentrations of contaminants and flow levels in the waters where we collect our samples. We also receive data from partners and interested public for evaluating water condition if the data meets data quality documentation guidelines.  
 Barriers Server capacity and staff resource support limits reduce the availability of the data to the public.  
 Initiatives No

*"Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"*

**Business Program #7**

**Runoff Events**

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Name Runoff events  
 Description Runoff events are the locations where known or suspected situations have occurred where rainfall or other spills or material management accidents have resulted in known or suspected contamination of surface or groundwater. These events may result in groundwater contamination or fish kills. These data are jointly generated by the Fisheries Program and the Runoff Management Program in DNR's SWIMS data system.  
 Area Division of Water, Bureau of Watershed Management, Runoff Management Section in coordination with Bureau of Fisheries Management  
 Statute\* No  
 Services Data Creation; Georeferencing; Geoprocessing; Web Mapping  
 Collaboration DNR Watershed Management and Fisheries Management collaborate to maintain this dataset.  
 Barriers Server capacity and staff resource support limits reduce the availability of the data to the public.  
 Initiatives No

*"Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"*

**Business Program #8**

**Nonpoint Source (NPS) Grants**

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Name NPS Grants  
 Description The location of nonpoint source grants in the state. These pass-through grants provide cost-share funds for urban and agricultural landowners and/or local governments for the installation of management practices to reduce or prevent runoff pollution. The grants are administered by the Runoff Management Section with geodata managed in DNR's SWIMS data system.  
 Area Division of Water, Bureau of Watershed Management, Runoff Management Section  
 Statute\* No  
 Services Geoprocessing; Georeferencing; Web Mapping; Data Creation  
 Collaboration We obtain data from people applying for the grants; we provide data to public in form of reports; we coordinate services with Bureau of Community Financial Assistance.  
 Barriers Server capacity and staff resource support limits reduce the availability of the data to the public.  
 Initiatives We're working to streamline the workflow of geolocating NPS grants and other Runoff Management data such as construction site permits by having applicants digitize project areas on screen. This work is in progress and should be finalized this year.

*"Are applications or data used by this program necessary for local comprehensive planning under s.66.1001(2), Wis. Stats?"*