

DATCP 2008

Geographic Information Modernization & Integration Plan



Wisconsin Department of Agriculture,
Trade and Consumer Protection

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I. EXECUTIVE SUMMARY

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has a statutory requirement (Wis. Stat. Sec. 16.967(6)) to provide the Wisconsin Department of Administration with an annual plan that describes its geographic information modernization and integration activities. This plan includes activities within DATCP, as well as coordination with external partners. This plan is considered an appendix to the DATCP information technology (IT) plan.

Many DATCP programs collect, use, maintain, and share geographic information in a variety of formats. DATCP has a centralized geographic information system (GIS) infrastructure to support a shared GIS data repository and interactive web mapping applications. Much of 2007 was spent upgrading ESRI desktop and server software to version 9.2, testing of ArcGIS Server 9.2, implementation of a virtual development environment, and use of GIS to support division business needs.

Major activities planned for 2008 include:

- Consolidation of GIS server infrastructure
- Migration of existing web mapping applications to ArcGIS Server 9.2
- Acquisition of critical data sets and negotiation of associated data sharing agreements

Design, acquisition, funding, and management of shared DATCP GIS resources are coordinated by the DATCP Agency GIS Coordinator. Coordination of GIS resources on an agency level mirrors the move toward integration of tabular data and databases within the department, and consolidation of IT infrastructure at the state level. DATCP coordinates GIS activities with partners, whenever possible, and encourages DOA to support the Geographic Information Officer's enterprise GIS coordination efforts.

DATCP programs fund their specific geographic information activities. The Divisions of Animal Health and Agricultural Resource Management have dedicated GIS staff and resources, and have integrated GIS data, tools and applications into their program planning, communication, management, and evaluation activities. The Division of Management Services supports the GIS and GPS needs of the remaining divisions (Food Safety, Agricultural Development, and Trade and Consumer Protection) and the Office of the Secretary. The federal Wisconsin Agricultural Statistics Service, a cooperative effort between the U.S. Department of Agriculture and DATCP, also uses geographic information and GIS tools to support its business needs.

DATCP representatives actively participate on many geographic information and GIS related committees and work groups, including the State Agency Geographic Information Coordination (SAGIC) team. DATCP works with other federal, state, county, and local agencies, utilities, industry, interest groups, and private sector entities to coordinate activities and achieve common geographic information goals. In addition, DATCP continues to be an active participant in efforts, such as the Working Lands Initiative, which promote analysis of geographic information to maximize agricultural, environmental and economic returns.

Preparation of this plan was coordinated by the Agency GIS Coordinator (see contact information below) with review by division GIS and program staff.

Lisa Morrison
DATCP
P.O. Box 8911
Madison, WI 53708-8911

Phone: (608) 224-4819
Lisa.Morrison@wi.gov

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II. ARCHITECTURES

Many DATCP programs collect, use and maintain geographic information to support their daily and long-term planning, communication, management, implementation, and evaluation activities. DATCP recognizes the need to (1) consolidate and share geographic information among its programs and with external partners, (2) pool program resources to support agency GIS activities, and (3) utilize GIS and GPS technology efficiently and effectively. DATCP goals are to:

- Reduce duplication of effort
- Provide more accessible, useable, complete, accurate, and timely data
- Improve program analyses, decision support, communication, and administration
- Reduce GIS related costs

DATCP divisions are the custodians of their geographic information and applications. The abbreviation of the custodial DATCP division (table below) is listed after data and applications, where applicable.

Division	Abbreviation
Agriculture Development	DAD
Agriculture Resources Management	DARM
Animal Health	DAH
Food Safety	DFS
Management Services	DMS
Trade and Consumer Protection	DTCP
Office of the Secretary	OS
Wisconsin Agriculture Statistics Service	WASS

A. Applications Architecture

DATCP desktop, web mapping, and non-GIS applications that incorporate geographic information from tabular databases, GIS layers, GPS, maps, or other sources are listed below. Specific details (e.g., resource requirements, project timelines) for *Future Initiatives* are still to be determined.

WEB MAPPING APPLICATIONS

DATCP has a handful of intranet web applications developed by DARM division staff and maintained by DARM and DMS. DATCP was not able to hire an LTE in 2007 to help enhance and migrate existing applications to ArcGIS Server 9.2 and develop new applications for internal and external customers. DATCP web mapping applications are listed below.

DATCPview (DMS): Prototype ArcGIS Server 9.2 application that integrates program data from a variety of sources to promote coordinated planning and management across DATCP divisions. *Future Initiatives: Internet application to provide access to the public.*

Farm Center Resource Finder (DAD): Internal ArcIMS 9.2 application that integrates data about assistance resources (e.g., financial advisors, mental health, vocational training) so that Farm Center staff can more easily provide information to the public.

Animal Disease Response (DAH): Secured ArcIMS 9.2 application integrates livestock premises registration, AMANDA, other tabular, and GIS data to identify and respond to serious livestock diseases, and to protect humans from animal diseases. Application is accessible in the Emergency Operations Center (EOC) via the WEM eSpender application. *Future Initiatives: Use GPS and local data (e.g., parcels, livestock) to improve the accuracy of livestock premises locations.*

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Well Logs (DARM): Intranet ArcIMS 9.2 application to select and view well construction reports (in PDF) throughout Wisconsin for groundwater quality and quantity issues. *Future Initiatives: Secured internet application to provide access to partner state agencies.*

Lead Arsenate (DARM): Prototype intranet ArcIMS 9.2 application that identifies former orchard locations where lead arsenate concentrations in soil may pose a health hazard. *Future Initiatives: Internet application to provide access to external partners and the public.*

DESKTOP APPLICATIONS

Several DATCP programs create GIS desktop applications for data integration, spatial analyses, map production, etc. These applications support various program planning, communication, management, implementation, and evaluation activities. DATCP desktop applications are described below.

Aquaculture Program (DAH): Aquaculture activities within the state. Related environmental permitting is coordinated with Wisconsin DNR.

Humane Officers and Offices (DAH): Trained and certified animal humane officers and their office locations.

Johne's Risk Assessment Program (DAH): Progress of the vaccination program for the Wisconsin milking herd population.

Deer and Elk Farms (DAH): Cervidae farm related activities. Chronic Wasting Disease (CWD) activities are coordinated with Wisconsin DNR. *Future Initiatives: Consolidate permit, CWD, and license databases, and improve the accuracy of farm locations for GIS purposes.*

Animal Health Emergency Management Operations (DAH): Emergency planning, response and management activities associated with animal health outbreaks.

Inspectors, Compliance Officers, and Veterinarian Services (DAH): Inspector, compliance officer, veterinarian, and veterinarian tech headquarters and operations used for work planning and emergency response activities.

Livestock Premises (DAH): Registered livestock premises in Wisconsin used for animal health emergencies.

Animal Markets, Truckers and Dealers (DAH): Livestock related markets and transporters.

Agrichemicals in Groundwater (DARM): Pesticides and nitrate in Wisconsin's private drinking water wells and DATCP monitoring wells.

Pesticide Management Areas and Use Prohibition Areas (DARM): Pesticide management areas and pesticide use prohibition areas in Wisconsin.

Regulatory Compliance at Agrichemical Sites (DARM): Inspection, investigation, monitoring, and compliance activities at regulated agrichemical sites. *Future Initiative: Identify data required for emergency response activities.*

Endangered Species (DARM): Pesticide management plans for endangered species and their habitats. Activities are coordinated with UWEX and others.

Farmland Preservation Program (DARM): Jurisdictions with exclusive agricultural zoning (EAZ) ordinances and areas covered by a Farmland Preservation Agreement (FPA). *Future Initiatives:*

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Redesign and consolidate tabular databases, and require data be submitted in a standard GIS format. Desktop and/or intranet applications that compare old and new data for program planning, management, and evaluation. Identification of parcels ineligible for tax credits.

Conservation Reserve Enhancement Program (DARM): Tabular, GIS and GPS data integrated to generate maps and survey descriptions of land under CREP contracts. Tabular database includes conversion, transfer, buyout, violation and any incidental activity related to those contracts, and is linked to WISMART to produce incentive, cost share and staged payments to participants.

Livestock Facility Siting (DARM): Help with Livestock Facility Siting program management, including county and local ordinances, businesses and facilities. *Future Initiatives: Migrate internet application, currently hosted by UWEX, to DATCP.*

Manure Storage and Animal Waste Management (DARM): Tracking of county manure storage and animal waste management ordinances, including permitting requirements, fees, more stringent standards, and local implementation of agricultural performance standards.

Land and Water Resource Management Program (DARM): Tracking of county land and water resource management plans, including annual reporting of conservation practices cost-shared through the Soil and Water Resource Management (SWRM) grant program.

Agricultural Impact Program (DARM): Agricultural Impact Statements are prepared on public projects, such as pipelines and transmission lines, involving eminent domain. DATCP has custodial responsibilities for the final reports generated by its assessments.

Nurseries and Christmas Trees (DARM): Plan and track inspections, and manage the program that certifies that Wisconsin's nursery stock and Christmas trees are free from pests and diseases prior to export out of the state.

Gypsy Moth Program (DARM): Monitor and control gypsy moth occurrences in Wisconsin. The Gypsy Moth program uses GIS and GPS technology and applications to track gypsy moth movement in Wisconsin and to assist in accurate treatment. The program coordinates data collection and analyses with the U.S. Forest Service, USDA Animal and Plant Health Inspection Service, WI DNR, and UW-Madison.

Emerald Ash Borer (DARM): Identify and track ash trees for Emerald Ash Borer program sampling and detection activities.

Pest Survey Program (DARM): Monitor regulated plant pests. Surveys are conducted to (1) identify (1) incidences and severities of plant disease and pest outbreaks, (2) pest population levels and trends, and (3) new diseases or exotic pests.

Potato Rot Nematode Program (DARM): Manage the program responsible for inspecting harvested potato crops for nematode infestations, so that potatoes can be certified nematode free to be used for seed purposes. Inspections are conducted at fields going into seed production for the first time and at fields already infested.

Food Safety Program (DFS): Help manage programs responsible for dairy, meat and food inspections. Identify inspector areas and area re-assignments, supervisor areas, local and county food inspectors, licensed businesses, and other activities. *Future Initiatives: Identify critical data and create secured internet application for food chain emergency response.*

Trade and Consumer Protection Division (DTCP): Map consumer complaints for informational purposes, and inspected facilities to aid in decision making. Use GPS and GIS to locate inspected vehicle scales and define inspector areas.

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Agricultural Development (DAD): Maps to help market Wisconsin's agricultural products and services.

Office of the Secretary (OS): GIS supports most DATCP homeland security and emergency response activities. Maps of agricultural infrastructure and production areas for decision making and planning.

Wisconsin Agricultural Statistics Service (WASS): A cooperative statistics service between USDA and DATCP, WASS collects and analyzes agricultural production information and publishes statistics by county or WASS districts. WASS also performs special statistical surveys. GIS, remote sensing, and image processing tools are used for data analyses and publication functions. WASS produces a statewide raster Cropland Data Layer (CDL) which classifies crop and land cover from satellite imagery to augment statistical methods. *Future Initiatives: Identify ways to improve CDL classification and accuracy via collection of "ground truth" data and "smoothing" techniques. Work with the UW and other state agencies to produce an updated Wisconsin land cover dataset.*

NON-GIS APPLICATIONS

Some DATCP programs still rely on geographic information in other formats (e.g., paper maps, addresses). Most field staff use plat books, Gazetteers, county maps, and other tools for field navigation and activity planning. Examples of non-GIS applications are described below.

Landscape Application Program (DARM): Information about pesticide applications to lawns and landscapes by address.

Drainage District Program (DARM): Maps of drains and ditch profiles currently submitted by Drainage Districts in paper format. *Future Initiative: Convert drainage district maps to GIS format and require submission in a standard GIS format. Desktop or intranet application for program management.*

INTEGRATION EFFORTS

DATCP has taken steps to integrate both its tabular and GIS-based geographic information and applications. This includes internal integration, and integration with external partners. DATCP programs continue to assess their business needs, standardize data collection procedures, improve existing data accuracy and completeness, and integrate data among programs, where possible.

DATCP GIS Data Repository: DATCP maintains a centralized ArcSDE/SQLServer GIS data repository of base map layers, imagery and program data. All desktop and web mapping applications use this repository.

Shared Information Services (SIS): As a state agency, DATCP participates in, and is influenced by, activities and decisions associated with the DOA server consolidation and SIS initiatives.

GIS, IT and Program Coordination: GIS, IT and program staff work together on many GIS infrastructure issues.

SAGIC Participation: The DATCP Agency GIS Coordinator is chair of the State Agency Geographic Information Coordination (SAGIC) team. SAGIC promotes and improves the collaboration, communication, quality, and sharing of best practices among state agency users and developers of geospatial data and technologies.

AMANDA: The AMANDA database integrates license and related data for several DATCP divisions. Livestock Premises IDs from the Livestock Premises Registration database have also been linked to relevant AMANDA licensed properties (e.g., dairy producers) to streamline AMANDA license renewal and premises registration notification.

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DARM Case Tracking System (CTS): DARM's CTS tracks regulated agrichemical customers and the sites where staff from various programs conduct sampling, inspections, investigations, and other compliance activities.

COMPREHENSIVE PLANNING

DATCP has not developed specific GIS tools to assist local governments, counties, and/or regional planning commissions with comprehensive planning activities. Several DATCP programs use comprehensive plan data (e.g., agricultural, natural resources, land use, and implementation), or are involved in reviewing agricultural related plans. DATCP continues to be an active participant and partner in efforts, such as the Working Land Initiative, which promote analysis of land use options to maximize agricultural, environmental and economic returns.

BUSINESS NEED FOR COORDINATED ENTERPRISE GIS

DATCP could benefit from the coordination of GIS data, services, tools, and applications among state agencies and their partners. It is assumed that the primary responsibility for enterprise coordination among state agencies rests with the GIO, who would take actions based on recommendations from groups like SAGIC and the Wisconsin Geographic Information Coordination Council (WIGICC). In order to be effective, any GIS services provided by DOA must be (1) delivered in a timely and efficient manner, (2) adequately supported, (3) supportive of agency business needs, and (4) affordable for state agencies.

Shared GIS Data Acquisition, Access and Storage: A centralized repository of "official" GIS data with enterprise-level data sharing arrangements would reduce costs associated with data storage, as well as agency staff time spent acquiring and managing the data. Such a repository would also improve the consistency of decisions and data sharing among state agencies.

Shared GIS Infrastructure: A "shared" GIS server infrastructure would provide DATCP with access to additional R&D and development environments that it cannot currently afford build and maintain itself.

Shared GIS Training: Coordination of affordable GIS training would reduce DATCP training costs.

Shared GIS Services: Affordable and reliable GIS services would help reduce costs and improve consistency among state agencies. Policies and standards must be developed to simplify and standardize processes such as address geocoding, application development, data sharing, etc...

BUSINESS NEED FOR PARCEL DATA

Several DATCP programs need access to parcel data. DATCP programs have completed the WI Land Information Association (WLIA) Parcel Data Model Task Force on-line survey, and await survey results and recommendations from WLIA and SAGIC.

B. Information Architecture

GEOGRAPHIC INFORMATION

Data sets containing geographic information are created by many DATCP programs and are stored and managed in various formats (e.g., spreadsheets, databases, maps, GIS layers). DATCP divisions are custodians of the data they create, and are responsible for ensuring the quality and integrity of the data content. Geographic information is referenced to one or more systems - e.g., address, Public

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Land Survey System (PLSS), parcel ID, x-y coordinates (e.g., WTM91, latitude/longitude). Major DATCP geographic information data sets are described below.

AMANDA (DAH, DARM, DFS, DTCP): AMANDA database integrates license and related data for several DATCP divisions, and identifies multiple licenses and programs associated with a licensee or property. AMANDA property addresses are geocoded or GPSed to create corresponding GIS layers.

Livestock Premises (DAH): DATCP generates a GIS data set of registered livestock premises by geocoding addresses from the Wisconsin Livestock Identification Consortium Livestock Premises Registration database. Livestock premises data are confidential, and access is restricted by state law. Data are used only for animal health related activities, and only by individuals authorized by DATCP.

Humane Offices (DAH): Tabular and GIS data for certified animal humane officers and offices.

Private Drinking Water Wells (DARM): Well and sample data compiled from multiple sources (e.g., DATCP, WI DNR, pesticide manufacturer studies, UWEX, and UW). Most well coordinates are geocoded from PLSS centroids. The Wisconsin Unique Well Number (WUWN) links attribute and spatial data. DATCP programs produce statewide GIS data layers for private wells tested for pesticides and nitrate. DNR Source Water Protection guidelines discuss data access issues (http://www.dnr.state.wi.us/org/es/science/publications/SS_988_2003.pdf)

Monitoring Wells (DARM): DARM maintains several networks of groundwater monitoring wells, and is the custodian for monitoring site and sample data for its projects. DATCP reports construction log data generated during well installation to DNR as required by statute.

Atrazine Use Prohibition Areas (DARM): Tabular and GIS data of atrazine use prohibition areas in Wisconsin. Staff produces annual statewide data and GIS layers along with metadata of atrazine use prohibition areas digitized from USGS 1:24,000-scale topographic maps.

Agrichemical Sites (DARM): Tabular and GIS data for regulated agrichemical customers and sites. Tracked sites include farms, greenhouses, spill areas, nurseries, feedlots, commercial businesses, parks airports, golf courses, residential properties, landfills and dumps, soil and groundwater remediation sites and others. Site locations are geocoded from addresses or PLSS descriptions. GPS is used to collect coordinates for some license types.

Endangered Species (DARM): Pesticide management plans for endangered species and their habitats. Staff use Wisconsin DNR Natural Heritage Inventory database to locate endangered and threatened species occurrences, and then collect and maintain program data, including PLSS locations or GPS coordinates, related to these sites. GIS layers are created and maintained using this information. All DNR data and some of DATCP's related data are confidential.

Gypsy Moth Treatment Sites and Trap Locations (DARM): Statewide traps are set each year and located using GPS. GIS layers of trap locations and treatment sites are then created.

Nursery and Christmas Trees (DARM): Tabular, GIS and GPS data for licensed nurseries and Christmas tree plantations. Locations of nurseries and plantations are geocoded from addresses or PLSS descriptions, or collected using GPS.

Plant Diseases and Pests (DARM): Tabular, GIS and GPS data of plant disease and pest outbreaks.

Farmland Preservation (DARM): Tabular and GIS data to administer Wisconsin's Farmland Preservation Law. Properties are identified by tax parcel ID and PLSS. DATCP maintains a statewide GIS layer of exclusive agricultural zoning authorities by county, town, and municipality, as well as rezones by PLSS.

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Conservation Reserve Enhancement Program (DARM): Tabular, GIS and GPS data necessary to administer Wisconsin CREP. GPS data of easement boundaries for enrolled properties is collected and submitted to DATCP. Staff verify easements using GPS and GIS tools. PLSS data to the ¼-¼ section level are used for GIS applications and shared with external partners upon request.

Soil and Water Resource Management Grants (DARM): Tabular and GIS data of conservation practices funded by the Soil and Water Resource Management (SWRM) grant program. Data can be analyzed by county or watershed.

Wisconsin Agricultural Statistics Service (WASS): WASS generates the Cropland Data Layer (CDL) annually, and collects information about agricultural production from sample individuals across the state, and provides analyses related to a broad range of agricultural issues. Original data collected from individuals is confidential, while aggregated data is available to the public.

ACCESS & DISTRIBUTION

Most external requests for DATCP data are handled via “Open Records” processes by the custodial division. DATCP data and metadata are distributed by CD, DVD, portable memory device, or email (depending on file size). At this time, no DATCP GIS data or metadata is available through its website, although a few static map files are available for viewing. Examples:

- http://www.datcp.state.wi.us/arm/agriculture/pest-fert/pesticides/atrazine/cnty_list.jsp
- http://www.datcp.state.wi.us/arm/agriculture/pest-fert/pesticides/clean-sweep/map_2006.jsp

Once adequate security policies, standards and infrastructure are in place, DATCP intends to make non-confidential GIS data and corresponding metadata available to internal staff via intranet mapping applications. Secured intranet or internet applications will be developed for specific DATCP user groups with clearly-defined business needs for access to confidential GIS data sets. In the future, DATCP intends to make some non-confidential GIS data sets and corresponding metadata available to external partners and the public via internet mapping applications and data download functions.

POLICIES & STANDARDS

DATCP has formally or informally adopted the following policies and standards related to geographic information.

- **ArcSDE GIS Repository Standards:** Naming and structure standards for the DATCP ArcSDE/SQLServer GIS data repository
- **Global Positioning System (GPS) Best Practices:** Standard GPS configuration settings and data collection procedures used by all DATCP programs.
- **WI DNR Locational Data Standards:** Standard geographic data elements and domains. DATCP intends to create a modified version of these standards for agency use in the future.
- **Federal Geographic Data Committee (FGDC) Metadata Standards:** Standards for the structure and content of GIS metadata.
- **GIS Data Sharing Agreement Process:** Documented process for entering into GIS data sharing arrangements with external parties.

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Several DATCP staff members participate on interagency workgroups and committees that address geographic information, GIS and GPS standards issues. The Agency GIS Coordinator actively participates on state agency and inter-agency workgroups that develop GIS policies and standards.

DATA SOURCES & INTEGRATION WITH OTHER STATE AGENCIES

Several DATCP programs work with, and acquire geographic information from, external sources to support business needs and applications. DATCP acquires this information in a variety of formats (e.g., paper maps, text files, spread sheets, database, GIS layers, internet mapping applications). Wisconsin DNR is DATCP's primary source for "base map" data sets. Other sources include (but are not limited to) local and county agencies, other state agencies, federal agencies, utilities, UW, and UWEX. DATCP does not redistribute these data sets; requests are referred back to the source. A few DATCP programs also access geographic information via internet applications.

DATCP programs can usually acquire most of the geographic information they need, but some significant problems still exist:

Non-existent Geographic Information: Several statewide GIS data sets that would be extremely useful for DATCP regulatory and oversight programs are simply not available at this time. Examples:

- Wisconsin master address list
- Accurate road network with addresses
- State-level soil survey attribute tables
- County and local zoning
- Parcels
- Wetlands
- Updated land use and land cover

Lack of efficient land information sharing arrangements: Several useful GIS data sets exist, but require formal data sharing agreements with other local, county or state agencies to access and use them. The workload involved in coordinating the review and management of a large number of data sharing agreements (e.g., 72 different agreements for county parcels) is significant. GIO facilitation of enterprise GIS data sharing agreements among state agencies and with local, county and federal agencies would reduce redundancy and improve efficiency.

Lack of funding for land information: Several useful GIS data sets exist, but DATCP does not have the funds to purchase or cost-share the data, or to properly maintain and support it. For example, DATCP and WASS identified a potential need to fund additional land cover and land use "ground truth" data in order to help expand the content and improve the usability of the cropland dataset. Enterprise coordination of funding for GIS data and services would greatly increase the "buying power" of individual state agencies.

Lack of standards: The lack of standards for geospatial data models, data formats, and exchange/transfer/load (ETL) processes creates problems for DATCP staff attempting to acquire and use land information from other sources. Problems such as inability to read data, Internet connection and security issues, and the time spent manipulating acquired data so it can be used by DATCP programs (e.g., multitude of county coordinates systems, converting data for federal reporting).

Requests for DATCP's geographic information come from partners and customers at all levels of government, universities, agricultural industry, private sector entities, the public, and others. The number of requests for DATCP data continues to increase.

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METADATA

Metadata created by DATCP is developed to meet Federal Geographic Data Committee (FGDC) metadata standards. DATCP custodians use ArcCatalog to develop and maintain metadata for their data sets.

C. Technology Architecture

HARDWARE, SOFTWARE & EQUIPMENT

DATCP has a centralized GIS technology infrastructure that supports a shared GIS data repository, web applications, and networked printers. Concurrent licenses are shared among all divisions via a license server. In addition to shared infrastructure and software, some DATCP divisions maintain additional GIS and GPS data and tools to support specific program needs. All server and desktop GIS software is at version 9.2. DATCP is currently planning for consolidation of its GIS server infrastructure, tentatively scheduled for October 2008. DATCP is also testing a virtual GIS “development” environment. Components of DATCP’s GIS technology include:

- ArcGIS Server/ArcSDE/SQLServer software and servers
- GIS data storage servers
- Desktop ArcGIS licenses (6 ArcInfo, 4 concurrent use ArcView, 6 single use ArcView)
- Laptops for GIS field work and presentations
- Centrus Desktop for address geocoding
- Large and small format color printers
- Concurrent use ArcGIS Spatial Analyst extension
- ArcGIS Server Network Analyst extension
- AutoCAD (various versions)
- HP document scanner
- Garmin GPS receivers (several models)

TECHNOLOGY ARCHITECTURE VISION

As the number of DATCP programs utilizing GIS technology grows, DATCP continues to evaluate options for making GIS/GPS data, applications, and tools accessible to them. It is anticipated that the vast majority of DATCP GIS users will ultimately rely on program-specific web or desktop applications to support their business needs. More advanced ArcGIS analysis software and equipment will be acquired only when needed for clearly defined business requirements.

DATCP also intends to make appropriate GIS data and maps available to external partners and the public via Internet web mapping applications. Public access, however, requires additional GIS and security infrastructure. DATCP has developed an Internet web mapping infrastructure and prototype security system, and will test these once the migration to ArcGIS Server 9.2 is complete.

Finally, as a state agency, GIS technology at DATCP is affected by SIS and consolidation initiatives, as well as the activities of the GIO.

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D. Organizational Architecture

INTERNAL GIS ORGANIZATION

The DATCP Agency GIS Coordinator facilitates and coordinates GIS activities across the agency. This position is responsible for assessing needs, prioritizing activities, strategic planning, developing policies and standards, communicating options, designing infrastructure, and identifying funding for internal, agency-wide GIS activities. The Agency GIS Coordinator also produces GIS data and products for divisions without dedicated GIS staff and resources, participates on external work groups and committees, and helps identify opportunities for interagency collaboration and integration with external government partners and other public and private entities. This position reports directly to the DMS administrator.

DARM has two dedicated full-time GIS professional positions - one in the Agrichemical Management bureau and one in the Plant Industry bureau. DARM also has around 25 desktop GIS users. Several DARM programs use Garmin GPS receivers to collect feature locations. DAH has one dedicated GIS project position, and around 25 GPS users. Weights and Measures inspectors in DTCP also use GIS and GPS to collect features locations. GIS users in program areas coordinate applicable activities with the Agency GIS Coordinator.

In 2007, DATCP's GIS Technical Committee voted to disband itself in favor of creating a broader agency GIS User Group. The Agency GIS Coordinator is in the process of creating the DATCP User Group, which will meet 2-4 times per year to discuss GIS issues affecting the agency.

Bureau of Information Technology Services (BITS) staff maintain DATCP's centralized GIS technology infrastructure, including server, backup, and network environments. The Agency GIS Coordinator works closely with BITS staff on GIS infrastructure activities.

The number of requests for GIS data, tools and applications from DATCP divisions without dedicated GIS staff or resources continue to increase. These requests are currently handled by the Agency GIS Coordinator.

DATA SHARING

DATCP employs informal and formal data sharing techniques with external land information partners and customers.

DATCP enters into formal geographic information sharing arrangements, as necessary, to acquire or provide data. Most of these data sharing agreements are with UW, county, state, or federal agencies, and allow DATCP to acquire and use land information for internal purposes, while prohibiting DATCP from redistributing the information to other external partners or customers. For example, DATCP has data sharing agreements with several counties for DOPs, and with Wisconsin Public Service Commission (PSC) for transmission line data. DATCP has documented the process by which data sharing agreements with external parties are signed, in order to ensure consistency and coordination within the agency.

ORGANIZATIONAL BENEFITS OF COORDINATED ENTERPRISE GIS

DATCP is an active participant in SAGIC and WIGICC planning activities, and believes that coordination of GIS activities would have the following benefits:

- A centralized data repository and enterprise-level data sharing agreements would simplify DATCP's ability to acquire data from external sources and reduce workload associated with developing and maintaining its own GIS data repository and data sharing agreements.

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- Consolidation of GIS infrastructure, tools and services would generally reduce DATCP's workload and resource needs - *assuming the chargeback mechanism is cost-effective for DATCP.*
- Policies and standards would increase consistency among state agencies and reduce workload and resources associated with data exchange, transfer and conversion, data sharing during emergency situations, etc.

TRAINING

DATCP staff participate in GIS training in a variety of ways. Some use on-line training. Others attend instructor lead training classes held by DATCP GIS staff, UW, ESRI, other state agencies, and private vendors. DATCP has also hired contractors to provide in-house training on various technical GIS topics, and, in one case, invited other state agency staff to participate. DATCP would benefit from cost-effective GIS training coordinated for state agencies by the GIO.

E. Security Architecture

DATCP uses state and industry standard database, network, user account, application, and other security measures to maintain secure IT and GIS infrastructure, systems and data, as appropriate. All DATCP internet pages include links to the agency's legal notice, privacy notice, and acceptable use policies.

DATCP has also developed a prototype Internet security system to support its Livestock Premises Mapping application which uses confidential livestock premises data. This security supports access of the application via WEM's secured eSponder web application in the Emergency Operations Center (EOC) during exercises and real emergencies. DMA planned changes to the eSponder GIS viewer will require additional testing of DATCP secured data sharing procedures in 2008.

As with all state agencies, Wisconsin's "Open Records" regulations and other external and internal policies about public versus private data guide DATCP's data sharing and information security activities. Some information kept by DATCP is confidential by statute. By statute, confidential records generally include the following:

- Wis. Stat. ss. 94.64(6m) - grades or amounts of fertilizer sold or distributed
- Wis. Stat. ss. 95.232 - information identifying owners of livestock herds infected or suspected of being infected with paratuberculosis
- Wis. Stat. ss. 95.51(5) - livestock premises registration information
- Wis. Stat. ss. 95.60(7) - information identifying the type or number of fish or fish eggs bought, raised or sold by a privately owned fish farm or the supplier or purchaser of those eggs
- Wis. Stat. ss. 97.22(10) - information that pertains to individual milk producer production, milk fat and other component tests and quality records
- Wis. Stat. ss. 126.84(1) - contractor financial statements and purchase, storage and procurement records under the agricultural producer security program
- Wis. Stat. ss. 94.50(6) - certain records relating to cultivated ginseng transactions
- Wis. Stat. ss. 94.68(6) - pesticide information which qualifies as a trade secret
- Wis. Stat. ss. 94.72(6)(a) - feed tonnage reports
- Wis. Stat. ss. 96.10(3) and 96.20(5) - individual business information obtained pursuant to a marketing order or marketing agreement
- Wis. Stat. ss. 97.20(3m) - dairy plant producer lists

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Access to legally protected land information and GIS data sets (e.g., livestock premises data) may be further restricted by statute, and/or data sharing, confidentiality or non-disclosure agreements.

DATCP continues to review its existing internal policies related to technology, application and information security. Many of these policies were adopted before DATCP had centralized GIS capabilities, and may need to be updated to address issues related to GIS data, technology, applications, and products. The agency intends to develop and document business rules, policies, and standards to clarify GIS-related security issues. The goal is to simplify access to GIS data sets within the agency, while, at the same time, protecting the information from unauthorized access, use, distribution, and/or disposition.