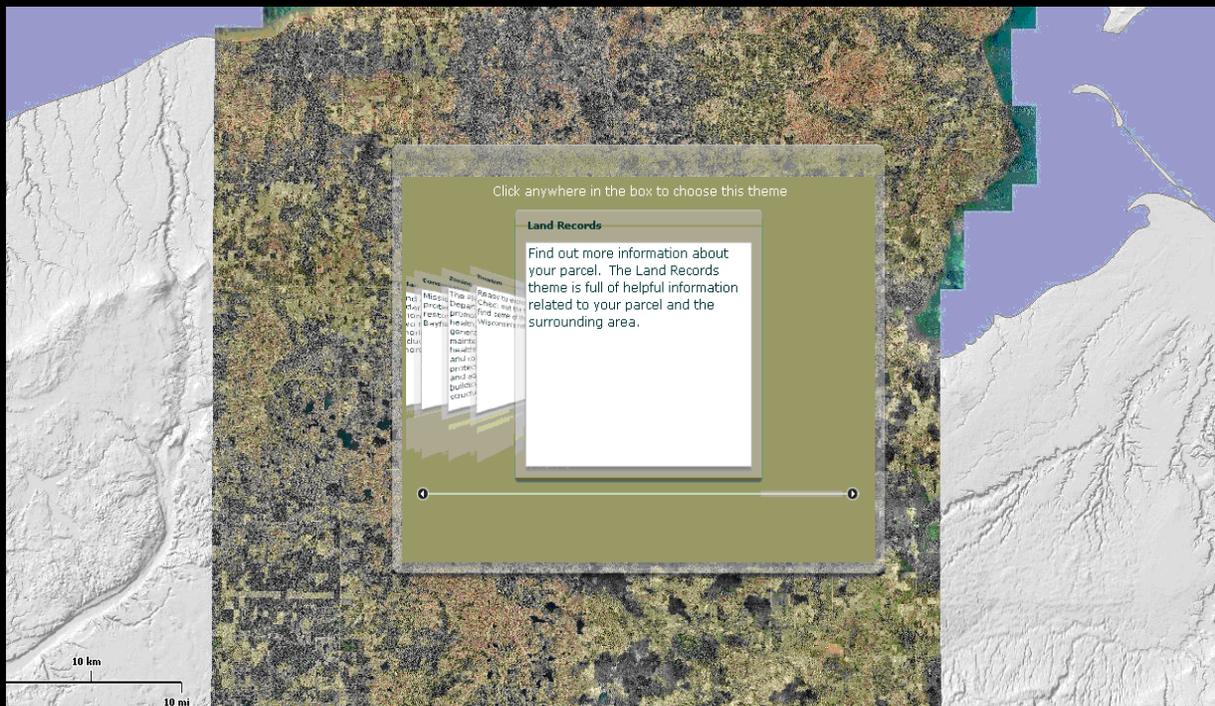


Bayfield County Land Records Modernization Plan 2010 - 2015



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I. Executive Summary

Bayfield County is pleased to submit a Land Records Modernization Plan for the upcoming five year planning horizon. The plan that follows is intended to build on the significant progress that resulted from the implementation of Bayfield County's initial, and subsequent, Land Records Modernization Plans filed in 1992, 1999 and 2005. In order to further the goals of modernizing land records and availing those records to those who need them, Bayfield County intends to continue to develop, maintain, and grow a Geographic Information System (GIS) that will provide ready access to a wide array of spatially referenced digital data sets. This plan was prepared by the Bayfield County Land Records Department overseen by the Executive Committee and Land Records Council of the Bayfield County Board of Supervisors. Designated contact person for information about this plan or the Bayfield County Land Records Modernization Program is:

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In 2010, Bayfield County formed a Land Records Council as per state statute 2009 Wisconsin Act 314. The Land Records Council consists of 8 members. The members include:

Bayfield County Land Records Council Members

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The list below is a list of customers, users and Stakeholders that participated in our input planning sessions for our 2010-15 Land Records Modernization plan update:

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II. Land Information Modernization and Integration Plan

A. Goals and Objectives

Goals

Bayfield County is guided by twelve goals:

- Goal 1. Modernize Bayfield County's existing databases together
 - Integration of existing data sets across databases (Ongoing)
 - Scanned documents
 - Health
 - Zoning
 - Tax
 - Emergency Management
 - Conservation
 - Maintain and enhance the tax collection system/database (Ongoing)

- Goal 2. Incorporate the Z value along with Time
 Use aerial LIDAR and on the ground LIDAR scanning to collect elevation
 Incorporate the changes in time as it relates to changes in the landscape to see changes through out time (2015)
 Analyze data in the third dimension (Ongoing)
 Gather additional elevation data that would meet or exceed FEMA's standards for flood zone mapping (Ongoing)
- Goal 3. Bathymetric
 Gather bathymetric data on Lake Superior and Inland Lakes (2011)
- Goal 4. Incorporate additional accuracy to the datasets and images (Ongoing)
 Continue to maintain and perpetuate Bayfield County's geodetic reference framework and Public Land Survey System (Ongoing)
 Purchase countywide digital orthophotos (every 3-5 years)
 Purchase digital historic photos and orthorectify (Ongoing)
 GPS Monuments with survey grade equipment (Ongoing)
 Create and maintain parcel data that are referenced to the Public Land Survey System (PLSS) These maps need to meet detailed standards that allow use for planning, tax, zoning, survey, conservation, construction, emergency services, Wireless E-911, Health, and other purposes (Ongoing)
 Maintain Forested boundary and stands in GIS (Ongoing)
 Maintain and improve the countywide compilation of accurate, digital maps depicting all real property in this county (Ongoing)
- Goal 5. Make this information accessible to those who need it (Ongoing)
 Web based accessibility
 Maintain an ftp site for professionals to download large datasets (Ongoing)
 Create custom web mapping applications to for specialized use or purchase software for County Departments that will utilize spatial data (Ongoing)
- Goal 6. Hardware
 Purchase additional Global Positioning System (GPS) equipment to save time in the field and office (Ongoing)
 Purchase mobile devices to work in the field and create a smoother workflow
 Purchase field devices for data collection (Ongoing)
 Purchase sonar Equipment for mapping bathymetric information (Ongoing)
 Purchase laser or LIDAR equipment (Ongoing)
 Continuously look at the new technology to increase production (Ongoing)
- Goal 7. Maintain hard copy maps listed below (Ongoing)
 Parcel maps
 Supervisor District
 County Road
 Snowmobile

Plat Book
ATV
Emergency Management Booklet

Goal 8. Software

Utilize other mapping and imaging applications such as free or low cost mapping applications such as Google, MapQuest, MapServer and Photosynth (Ongoing)

Utilize Open Source Mapping applications (Ongoing)

Goal 9. Training on enhancements

Train and/or provide training opportunities for personnel that will increase production and workflow in our training room (Ongoing)

Offer as needed support to other GIS users in the county (Ongoing)

Offer support and training on Bayfield County Interactive mapping to private entities using our data (Ongoing)

Continue to hold and host the Northern Area GIS User Group meetings (Ongoing)

Goal 10. Formats and Documentation

Document the resulting spatially referenced digital data sets through the development of FDGC-compliant metadata (Ongoing)

Adhere to existing and emerging data development, design, and distribution standards (Ongoing)

Refine policies of data distribution, privacy protection, and information sharing (Ongoing)

Creating work flow diagrams (Ongoing)

Scan all historic survey maps (Ongoing)

Work on documenting update and maintenance procedures (Ongoing)

Goal 11. Field Data collection

Collect geo-referenced information on road infrastructure such as culverts, road signs, bridges, elevation and condition (Ongoing)

GPS all grave sites

Gather and collect information to provide the communication center with geo-referenced information to dispatch to Wireless E-911 cellular calls (Ongoing)

Goal 12. Promote GIS, Gain and Continue Partnerships

Encourage and support projects by non-county entities when integration and sharing of data is possible (Ongoing)

Continue dialog and interaction with representative groups of land records stakeholders to recommend and refine policies (Ongoing)

Promote cooperation and integration among all users of land records and seek to integrate land information. Specifically

Federal, Tribal, State, Counties, Cities, Town, Non Profit, Colleges and Private agencies (Ongoing)

Work with volunteers to help with maintenance and data creation (Ongoing)

a. Data or information acquired from state or local sources.

Digital data obtained from the State FTP site includes: Geology, Soils, Bedrock, Water Table Depth, State Boundaries, County Boundaries, State wide Roads, Hydro Polygon; Hydro Line; Watersheds; Wetlands.

b. Data or information needed.

The most important layer to complete is the county Public Land Survey System PLSS. This needs to be modernized so our digital parcel mapping can accurately represent what is on the ground. This is important because Town, Zoning, City, Sections, Townships, Supervisory, Road, Political boundaries need to be located in a way that all different boundary features lay in the same location. This data exists, but is not available to the County. Obstacles such as funding, staff time, training, knowledge base, knowing what's available hinder acquiring this information within the plan period.

c. Data or information transfer.

Bayfield County utilizes five software formats to create, maintain and transfer land records data.

The County uses ArcGIS and a Server database system for faster retrieval by Environmental System Research Institute, Inc. (ESRI). ESRI is a member of the Open GeoSpatial Consortium (OGC) and supports all Open GIS and Open Database Compliant (ODBC) specifications.

The Real Estate Management System (tax & assessment software) is Novus Wisconsin by Manatron utilizing SQL data management program.

The Register of Deeds uses a document imaging software by Fidlar Technologies Inc. The public can subscribe to Tapestry and Laredo.

The E911 mapping software in the Sheriff's Department is Positron.

Bayfield County will also use online editing tools provided to us, such as the Forestry management system and the application provided to us for mapping new supervisor districts.

Bayfield County will continue to use commonly accepted software platforms that is readily translatable for use by others in an industry standard format.

d. Geographical Referencing.

Bayfield County's geographical reference is the Wisconsin Bayfield County Coordinate System, which is mathematically relatable to the North American Datum (NAD) 83(91) and is able to be geographically referenced for use by others.

e. Assurance of currency and maintenance of land information data.

The custodial responsibility of any land information includes a protocol for the continued maintenance of information. Information updates and

corrections are part of the day to day standard operating procedures established by County departments and their staff.

2. Operating System Environment and Database Design

Bayfield County's operating system is Windows and SQL Server. These systems will support all the activities the county plans related to land records. They provide a robust environment to store, update and retrieve data to all levels in Bayfield County. Metadata is maintained for each layer in the ArcSDE and html format. The Real Estate Management system contains its own metadata and can be acquired through Manatron. Database design standards and practices are modeled after industry standards for hardware and software. It is the mission and goal of the County to stay informed as the industry creates hardware, software and technology. Integrated land records are managed in relational databases. The spatial data is topologically structured to assure integration between all levels.

Planning Horizon

Bayfield County is committed to an ambitious and long-termed effort to modernize our land records. Specific objectives continue to evolve in response to ever-changing priorities and technologies, but the overall goals of land records modernization and information sharing remain steadfast. Projected timelines for specific new and ongoing initiatives are discussed throughout in this document. The overall planning period for this Land Records Modernization Plan is the five-year period from May 1, 2010 to December 31, 2015.

B. Progress Report on Ongoing Activities

Bayfield County has made significant progress in its land records modernization efforts. A review of noteworthy accomplishments and on-going activities is as follows:

- The Goals in A. have the progress in parentheses after each goal.
- Completion of High Accuracy Reference Network (HARN) densification initiative. 4 new stations have been established throughout the county in 2009. Wisconsin Department of Transportation (WDOT) will be tie the monuments into the Height Modernization Program. New monuments have been set in 2010 for ongoing in support of WDOT's Height Modernization Project slated for Bayfield County in WDOT's 'Phase 7' of that program.
- Real Estate Management System, Land Records converted over to and went online with the Novus-Wisconsin Land Management System in April of 2006. Novus by Manatron is a software suite that incorporates Real Property, Personal Property, Receipting, Reporting, Tax Management, Address & Road Management, parcel zoning designation, parcel, In Rem and Tax Deed management in one system. It utilizes one enterprise database built on Microsoft NET framework. It contains third party integration and exchange capabilities with both assessment and receipting software across the state, and with the Wisconsin Department of Revenue software. It also contains an online portal open to public access that provides internet access to the

County's real estate assessment/tax listings. Continuing education and training is sponsored by Manatron for real property listers and County Treasurer's.

- Establishment of an ongoing project to document, assign coordinate values, maintain, perpetuate, and re-establish the monuments of our Public Land Survey System. Currently with the amount funding put toward this activity and considering the size of the county it will not sufficiently complete the control in a timely manor, with current dollars it will take 93 years to complete.
- Establishment of a web page (www.bayfieldcounty.org) for the Land Records Office to permit better dissemination and sharing of data and information. A great deal of information can be accessed from this site, such as the ability to view any of our 2,000 property ownership maps the will be converted to a pdf format, information on Lake Superior shoreline erosion, access to geodetic monument datasheets, ability to view oblique aerial photographs of Bayfield County's entire Lake Superior shoreline, rural addressing information, a primer on GIS, and so on. The centerpiece of this site is a custom web mapping program called Bayfield County Land Records Flex viewer along MapViewer as a backup. This program permits a client to interact with dozens 'layers' of GIS data ranging from parcels to topography to zoning districts to aerial photos and to 'mine' data about individual parcels through the use of search tools that permits queries by name, Parcel Identification Number, or legal description. The New version of MapViewer has been very favorably received by a wide range of customers. It is our intent to continue to support both online programs and slowly transition to one mapping application, and the many services provided by our web page, and to add further content and functionality in the future.
- Continued development of countywide rural address system. A comprehensive county address grid and road network map booklet has been compiled and published for use by emergency responders; a forth edition of this booklet is slated for publication later this year. The development of the address system facilitated establishment of Enhanced-911 (E-911). Final address assignment and signage have been completed, and E-911 is 'on-line'. Bayfield County has also committed to support Wireless-911. We have added around 14,000-16,000 building, access points and driveways. This information has been added in our dispatch center and currently calls are being mapped through an automated process. Field verification still is a concern and the Land Records Departments plans to field verify the address locations that we have questions with to ground truth our data.
- Acquisition of countywide digital orthophotography. Existing 1992 orthoimagery was updated when 1998-2000 National Aerial Photography Program (NAPP) aerial imagery was rectified to produce new county-wide orthophotography for this county. In conjunction with this project, a new 10-meter Digital Elevation Model was created for Bayfield County to replace the 30-meter USGS DEM. The county has acquired 2005 color 1ft imagery to meet ASPRS Class 3 standards. Noteworthy to this project was remarkable cooperation in which Bayfield County was able to partner and cost-shared

with US Park Service, US Forest Service, WDOT, WDNR, Bayfield Electric Cooperative, and Chequamegon Telephone Company resulting in reduction of redundancy, and significant cost savings realized by a collective versus individual project. Bayfield County also has acquired imagery from a Pictometry Flight at Color 1ft and 6inch resolution orthophotography and oblique view but does not meet a standard. The State has also been flown at 1ft resolution for 2010. Bayfield County plans on partnering with state wide initiatives in the future if it's advantageous at 2015. We are also aware of software that will rectify our images at a much lower cost and we will investigate this further when the time comes time for an aerial flight.

- Creation, adoption, and implementation of a strategic plan providing evaluation and needs analysis of county information processing facilities and services has resulted in the establishment and staffing of a county Information Services Department. The result includes the establishment of comprehensive intranet and internet capabilities, a county web site, and full technical support.
- Bayfield County Forestry Department has developed and implemented a GIS to assist in the management of the county's 170,000-acre forest. The strategic plan and prototype GIS recommended several years ago has grown to a robust forest management tool. The Forestry Department has a great staff and leader willing to use GIS and continue the latest technology to increase their production using GPS and GIS. The Forestry Department is also looking at doing a flight in leaf on color infrared in the near future.
- Establishment in the Bayfield County Register of Deeds Office of an optical imaging system to digitally scan, record, and categorize all deeds and other recordable documents. Currently retroactive scanning of instruments/documents that were recorded in the past has begun.
- Parcel mapping is 100% complete. All unincorporated regions of the county are mapped, as well as the incorporated cities and village, and tribal lands. Now the arduous work of property ownership map maintenance and on-going mapping improvements begins. Maintenance on the digital parcels happen as new splits are entered into the tabular land records database. We are now investigating how we are going create the work flow to incorporate the Survey GPS work; this will make the parcel information positionally accurate. The goal of our positional accuracy is 4-5 ft. and now it can be 75-200ft off from the true ground location and/or aerial photo.
- In the past Bayfield County provided GIS and cartographic assistance to the Red Cliff Band of Lake Superior Chippewa. We supported the creation and delivery to tribal government of over 120 GIS data sets with accompanying documentation/metadata. Red Cliff has obtained the necessary hardware, software, and technical expertise to establish its own GIS. Bayfield County will continue to support this initiative and to share data and information.
- A benefit which directly flowed from our parcel mapping was the generation of data necessary to permit the publication of our own plat book. Now in its fifth edition, this 210 page plat book is current, accurate, and, uniquely, depicts all parcels in the unincorporated regions of Bayfield County. In addition to producing a better booklet. We enhanced the plat book in 2008 to have survey corners of record, aerial photography and contours. The 2011

book will also include the same enhancements but we have increased the size to 11x17 to make it easier to read.

- Establishment of a repository in the Land Records Department containing maps of survey, Public Land Survey System (PLSS) records, geodetic data, survey data, and cadastral information. This repository has now grown to approximately 3,000 maps of survey and 2,750 monument records. We have made this information available online in our Flex Viewer application and have continued to keep the “SurveyViewer” site as a backup.
- Procurement of assorted hardware (e.g. computers, plotter, scanner, printers, engineering copier, digital camera, Compact Disk Recorder (CD-R), Global Positioning System (GPS) receivers, DVD Recorder, Sonar, LIDAR etc.) and software (e.g. AutoCad Map 3D, Pathfinder Office, Environment Systems Research Institute’s (ESRI’s) ArcInfo and ArcView, WISCON, MicroSoft Office Suite, etc.) necessary to fulfill land records modernization missions.
- Internet access; subscription to Wisconsin Land Information Program (WLIP) Internet Land Information Clearinghouse and Technical List Server Service. Bayfield County has also purchased space on an ftp server to easily share GIS data.
- Bayfield County encourages participation in land records modernization training opportunities Statewide and Nationally. Attendance at WLIA regional and annual meetings is encouraged.
- As part of a multi County/City coastal management grant we were able to collect LIDAR along the entire South Shore in Wisconsin of Lake Superior. We have used it in our Zoning setbacks and preliminary engineering work. It has been used to calculate a two foot contour. This had great support from many levels of government and private entities.
- Cooperation, participation, and data sharing with local units of government. Particular involvement in town land use planning and county facilities management.

C. New Initiatives

Bayfield County will embark focusing on enhancing existing projects rather than starting entire new projects. We will look at the project and make sure it is related or can be related down the road to an existing initiative to modernize land records. Currently Bayfield County’s major concern is to be able to maintain the data it has. We are at capacity and have a greater demand on our services so each project will be reviewed and scrutinized.

Major proposals include:

- In an effort to move to a modern platform, to eliminate independent ‘data silos’, and to devised methods of data entry and retrieval that closely mimics established workflows, Bayfield County is comprehensively re-designing its Tax Assessment Database. This central database will contain more than traditional assessment data, (e.g. zoning districts or parcel centroid coordinates), and will, with proper safeguards, assign different parties custodial responsibility. It is anticipated that the functionality of this database will grow and mature over the duration of this plan.

- Public access to county-generated information grown under the auspices of our previous modernization plan. We intend to build on this momentum and strive to continue to provide meaningful and timely information through an array of means from traditional hardcopy reports and maps to public kiosks to distribution of digital information on media such as CDs or DVDs to interactive web mapping services via internet. A dynamic and distributed GIS employing image and/or feature web mapping tools should be implemented to support both access to our county datasets by others and to allow our ability to access data housed on servers maintained by others.
- Akin to public access is public outreach. We will continue to share and transfer technology through training sessions to county departments, other governmental agencies, educational institutions, civic and non-profit groups, businesses, utilities, and the general public.
- Initial parcel mapping has been completed for all real property in this county. Emphasis has shifted from compilation to maintenance, updates, and improvements. It is imperative we remain diligent in our commitment to maintain this significant investment and extremely important dataset. We intend, for the foreseeable future, to continue to parcel map in-house with contractual parcel maintenance as needed.
- As discussed elsewhere in this document, Bayfield County has participated in aerial orthophotography projects using 1992, 1998-2000, 2005 and 2009 imagery. Because of the immense value of this imagery to many applications and disciplines, we hope to institutionalize a policy of regularly capturing countywide orthophotography at a minimum interval of every five years. We will also look at software advances to reduce the cost of orthorectifying the imagery.
- On a related note, in fall of 2002, oblique aerial images were taken of Bayfield County's Lake Superior shoreline in an effort to establish a baseline and document both natural and manmade coastal land use activities. In 2007, and at five-year increments thereafter, we would like to replicate the 2002 project.
- Related to this, in the spring of 2009 Bayfield County acquired Pictometry which is oblique imagery capturing two to four different angles. This product has been used in the dispatch center, detectives, squad cars, Towns, assessors, zoning, emergency management and property description.
- Since the inception of the Land Records Department, Bayfield County has developed significant GIS capabilities. Coincidental to this activity has been our development of an extensive intranet, as well as a growing internet, presence. We intend to use this means of communication to 'grow' our GIS enterprise and to distribute this information. In time, our goal is to have GIS become more transparent and ubiquitous in every day applications and decision making. We also hope to incorporate online editing to volunteers and other county offices to help maintain and make us aware of mistakes. Also to continue to look at other online free applications to such as Google and Mapquest.
- Continue to provide the data at the cost of reproduction and continue to follow open records laws. Foremost, promote strategies that allow data sharing and accessibility to all stakeholders while, safeguarding privacy, and minimizing liability.

- In 2001, 2002, 2004, 2006 and 2008 Bayfield County published its own plat book. This has proven a challenging task, but has rewarded us with a plat book that is detailed, accurate, and current. A new edition is projected for spring, 2011.
- Finally, we need to ‘stay the course’ and continue to build on a well established foundation. We have enjoyed good support from our County Board and other stakeholders; this trend needs to be continued. We need to support our many ongoing programs like maintaining the PLSS, rural addressing, cadastral mapping, map repository, forestry GIS, and optical imaging; as well as launch the creation of new datasets, continue Wireless 911, support comprehensive planning, assist and facilitate the projects of other county departments, and upgrade needed equipment.

2. Assistance Requested

a. *Technical Assistance*

Bayfield County is currently connected to the WLIP Internet Land Information Clearinghouse and Technical Assistance List Server Service. Additional technical assistance has been acquired from user group work shops, software and hardware vendor training courses, and memberships in professional organizations. Bayfield County has started Northern Area GIS User group to help bring in training rather than traveling outside of the area but understand this is not possible for all trainings. The County has actively contracted with professional agencies or consultants such as GIS Inc. , Applied Data Consultants Professional Services, for example, prior to implementing projects and will continue to do so for new initiatives, upgrades, and enhancements.

b. *Local Financing.*

Bayfield County plans to use the \$6 retained fee program, the Wisconsin Land Information Board’s (WLIB) grant program, the \$2 land information public access fee and tax levied funds to finance projects and upgrades that modernize land records. The County will use available levied funds to continue to upgrade and maintain investments made with WLIP funding.

c. *Public Access.*

Besides the State of Wisconsin Open Records Laws, Bayfield County provides Public Access to information on the County’s websites or through a County land information portal. Bayfield County has an internet home page that is maintained by internal staff and contracts with outside help as needed. Through the county website, there are links to assessment/tax data, a GIS mapping portal, and each Department contains links to their information and data all which provide free access to county land information. Only the Register of Deeds Tapestry application requires a subscription. It is Bayfield County’s goal, objective, and mission to maintain an up to date public website.

- d. *Statewide GIS Repository.*
Bayfield County participated in the statewide Ramona Survey in 2008 and 2009. As the County expands or revises their GIS inventory, it can be annually edited into the online survey information.
- e. *Procurement Processes.*
The County has utilized several methods such as the bid process, Request for Proposals, and contracted services when it is appropriate to do so. The County has in the past and will in the future form consortiums with other Counties to keep costs down.

3. Problems Encountered

- a. *County Obstacles.*
The main limits to Bayfield County rapidly advancing in modernizing the land data it creates, maintains or creates are based on real conditions such as:
- The program is not fully funded to maintain the data once it is created.
 - Grants fund the creation of the data but fail to address the long term burden of maintaining the data perpetually. For example the Wireless E-911 and the Pictometry grant, it produces a great service but becomes a needed service which we can not maintain on a schedule.
 - Fiscal responsibility to the tax base
 - Other grants to leverage WLIP funding
 - The land area of Bayfield County creates a burden by making it more costly to purchase and create datasets for a rural county.
 - Competition for budget monies with higher priority services/agencies
 - Departments are understaffed to undertake several initiatives and maintenance simultaneously. It is important to communicate the benefits of a single, shared system and ease the concerns.
- b. *State Obstacles.*
The County remains concerned about the State budget situation and potential legislation that may have a negative impact on the County's goals and objectives in advancing and managing land information. Of negative impact was the lack of commitment and support to the County witnessed during a 2005, Joint Finance Committee Motion 442 to remove funds from the Land Information Program and convert the county aids appropriation from a continuing basis to an annual basis, causing the balance in the program to lapse every year; a 2007 Assembly Bill 496 that threatened Bayfield County's citizen access to electronic land information; and a 2009 Assembly Bill 349 where a legislative effort would have undermined the County's authority to offer online data as it sees fit. Assistance from the Department of Administration is imperative for the continuance of the WLIP and the County's ability and authority to manage land information.

III. D. Custodial Responsibilities

1-2. Current County Custodianship

Below are Bayfield County Departments who have land record custodial responsibilities. The authority for custodianship is noted.

- a. *County Clerk*
 - Tree cutting permits
 - Election Administration
 - Financial and budget information
 - Maintains voter registration
 - County Board Minutes
 - Sells & accounts for the Bayfield County Plat book
 - Open Meeting Law compliance
 - §59.20; §59.23; §19. 84 WI Statutes

- b. *County Treasurer*
 - Maintains tax information for all parcels
 - Maintain tax rates and special assessments information
 - Foreclosure of tax liens by action In Rem
 - Manatron Novus WI Tax Management System, Treasurer
 - §29.25; §70.09; §75.521 WI Statutes

- c. *Emergency Government*
 - Ambulance/EMT
 - Maintains plans for Emergency Government Services
 - EMT Training
 - FEMA Fire grants
 - Assign addresses & maintains the 911 property address system
 - Maintains Master Street Address Guide (MSAG)
 - CH 166; §59.54 WI Statutes

- d. *Forestry Department*
 - Maintains the County Forest of 170,000 acres for timber, game, nongame animals and recreation.
 - Maintains county roads & access trails in County Forest for snowmobile, ATV, bicycle, hiking and hunting walking trails, cross county skiing
 - Creates and maintains the County Forestry 15 year Plan
 - Maintains SCF reconnaissance database
 - Maintains Forestry GIS System
 - §23.09;§ 28.10;§ 28.11; §350.12; NR 64.13 WI Statutes

- e. *Highway Department*
 - Maintains county highway plans and WI Dept of Transportation construction plans

- Maintains plats and maps of right-of-ways
 - Maintains County and State highway system
 - Maintains the Pavement Surface Evaluation and Rating (PASER) database
 - Maintains culvert inventory (field work)
 - §84.095; §349.07 WI Statutes
- f. *Information Technology*
- Maintains County internet Web site
 - Maintains technology security for County electronic data
 - Provides technical infrastructure support
 - Plans for current & future IT requirements
- g. *Land and Water Conservation Department*
In conjunction with Federal, State, and County agencies:
- Maintains a tree planting program
 - Lake/shoreline information database
 - Administers the Wildlife Damage and Farmland Preservation Programs
 - §33.14; §33.16; §59.70; §92.06; §92.07; §92.10 WI Statutes
- h. *Land Records Department*
- Maintains database of legal property descriptions and ownership for all parcel in the County and assigns unique Parcel Identification Numbers to new parcels, Manatron Novus WI Real Estate Management System, Real Property Lister
 - Review Certified Survey maps
 - Roads & Address data layer
 - In Rem properties sale
 - Maintains the GIS Server, computers, and computer networks
 - Creates the County Outdoor's Map
 - Creates and publishes the Bayfield County road map
 - Creates the ATV map
 - Creates the Snowmobile map
 - Prepares deeds & other documents for the sale of County lands
 - Maintains all assessment and tax rate data
 - Maintains information on school district, special district codes and Mill Rates
 - Produces the Bayfield County Plat book
 - Maintains culvert inventory (database)
 - Maintains paper index and digital parcel maps
 - Maintains E911 mapping for Positron in Dispatch
 - Maintains aerial photos and digital orthophotography
 - Manages the county Geographic Information System and layers
 - Manatron Novus WI Real Estate Management System, Real Property Lister
 - Manages land information and graphic data to the ArcGIS server for internet access

- Maintains the County Land Records Modernization Plan
- Maintains data on the densification of the HARN geodetic network and perpetuation information on the control stations
- Maintains the tie sheets/monument record forms
- Maintains Plats of Surveys & Maps of Survey
- Maintains survey maps and records performed by Surveyors, past and present
- File & index field notes and other survey source documents
- Files copies of municipal Gas Tax Maps
- Maintains digital elevation data
- Prepare Certified Survey Maps for County land purchase or exchange
- Maintains a database of county survey data.
- Provide access survey records to public and private surveyors
- Maintains digital zone district maps
- Repository for digital copy DNR wetland inventory maps
- Maintains digital zoning district maps
- Maintains County wide Land Use Plan digital map data
- § 59.45; § 59.74; Ch 236; WI Statutes; AE 7 WI Administrative Code; Sawyer County Subdivision Ordinance
- §16.967; §20.505; §46.01; §59.01 thru §59.94; §70.09; §70.25; §74.09 WI Statutes;

i. Register of Deeds

- Maintains deeds, mortgages, subdivision and condominium plats, Certified Survey Maps and other associated records
- Maintains the computerized document imaging and tracking system which includes a digital real property tract index and grantor/grantee index
- §59.43; §236.34; Ch 703, WI Statutes

j. Sheriff's Department

- Manages and maintains 911 Emergency Response hardware, software and databases
- Maintains the Emergency Service Network (ESN)
- Maintains Incident Reporting database
- §146.70; WI Statutes;

l. Zoning Administration

- Maintains a shoreland property owners database & zone district database, Manatron Novus-WI Zoning Division
- Repository for hard copy FEMA FIRMS
- Repository for flood plain zoning RFE documents
- Repository for hard copy DNR wetland inventory maps
- Maintains database containing information on building permits, land use, conditional, special use, and sanitary permits, property inspection reports, public hearing actions on variances, conditional uses, changes in zone districts
- Maintains applications for Property Addresses

- Maintains Shoreland Protection & Restoration Plan
- Maintains database containing information on certified soil tests, POWTs installation
- Maintains Non-metallic Mining & Reclamation plans and permits
- Maintains County wide Land Use Plan
- §56.692; §59.69; §87.30; §92.10; §236.45; §145.20; §295.13 Bayfield County Zoning Ordinance; Bayfield County Subdivision Control Ordinance; Bayfield County Ordinance for Non-metallic Mining Reclamation; Bayfield County Private Sewage System Ordinance

3-4. Custodianship to Assume

Bayfield County has custodial responsibilities for land information, records, and data consistent with that charged to Wisconsin counties. Custodial authority of land records is enabled by county ordinance and policy; and by State Statute, Administrative Code, and policy. Resources will continue to be allocated to improve data accuracy, completeness, timeliness, and usability. At this juncture, primary emphasis is on improving the quality and accessibility of existing land record datasets developed by Bayfield County, rather than on assuming custodial responsibility for additional land information data created by other entities/agencies.

E. Framework Data, System Implementation and Statewide Standards

County land information planning is structured around specific criteria often referred to as Foundational Elements which incorporates Framework Data elements as well as areas of technology implementation and institutional cooperation. As deemed appropriate, historical electronic copies of foundational elements are stored in an Archival database. All data is backed up nightly.

1. Geographic Positioning Reference Frameworks

a. Geodetic Control and Control Networks

- Completed densification of the HARN
- Performed to WI DOT specifications of 1ppm, 2ppm and 4pp, stations
- NGS approved & installed in NGS database
- Coordinates meet FGCC Standard Third Order 1 Specifications
- Bayfield County’s geographical reference is the Wisconsin Bayfield County Coordinate System, which is mathematically relatable to the North American Datum (NAD) 83(91) and is able to be geographically referenced for use by others.
- The County Surveyor maintains custodial responsibility and includes a protocol for the continued maintenance of this information. Updates and corrections are part of the day to day standard operating procedures established to maintain dataset currency.

b. Public Land Survey System Remonumentation and Records Automation

- The County Surveyor maintains custodial responsibility and includes a protocol for the continued maintenance of this information. Updates

and corrections are part of the day to day standard operating procedures established to maintain dataset currency.

2. Orthophotography and Georeferenced Image Base Data

a. *Photogrammetric base maps*

- Road centerline base map
- Wireless E-911 and Land line property address base map
- Completed in 2005 by Williams Aerial
- Completed in 2000 by Aerometric
- Completed in 2009 by Pictometry (Accuracy does not meet positional accuracy standards for a base map updates)
- Land Records maintains custodial responsibility and will maintain the datasets
- Updates and corrections are part of the day to day standard operating procedures established to maintain dataset currency.

b. *Digital Orthophoto (DOP)*

- First completed in 2000 by Aerometric. The 2000 flight of 1 meter black and white film was used to move the road centerline.
- Second set of aerials completed in 2005 by Williams. The 2005 flight of 1 foot resolution color film was used to 911 road base and the base for other geographic layers.
- Third set of imagery that was acquired by Pictometry, Bayfield County was flown color 12” ground resolution county-wide and 6” ground resolution on 400 selected sections. These 400 sections were in areas of dense development where the 6” resolution provided a better tool for viewing. This imagery does not meet standards and has not been checked. In areas it has been “off” from previous imagery by 75ft.
- Map data compiled to meet 1”=400’ scale National Mapping Accuracy Standards for the 1ft resolution
- Land Records is the custodian of the Digital Orthophotography

c. *Digital Raster Graphics*

- Bayfield County Land Records has digital and hard copies of the Wisconsin 7.5 Minutes Quadrangle maps that cover Bayfield County.
- Custodian is the US Geological Survey

d. *Satellite Imagery*

- This viewing technology is available to the public from other sources. It does not meet the standards to adjust our data but can be used as a reference layer in our plat book.

e. *Oblique Aerial Imagery*

- Bayfield County has been flown by private and county partnerships mapping/engineering/gis service vendors to produce this type of

imagery. The Lake Superior shore line has been flown in 2005, 2007 and 2009.

f. Historical Aerial Imagery

- Older aerial photography such as those dated 1966 and 1979 should be scanned and geo referenced for archival addition to the GIS layer. The 1938-39 photos have been scanned and Geo-referenced. The historical data would then be retrievable and geographically referenced. Incorporating this data would be a huge asset useful for environmental assessment, reconnaissance, identification of abandoned road centerlines, and buildings or references points used in land descriptions, remonumentation and a public benefit.

3. Elevation Data Products and Topographic Base Data

a. Digital Elevation Models (DEM)

- A 5ft Digital Elevation Models was produced in 2009 by Laser Mapping Specialist on the Lake Superior shoreline
- A 10 meter re-sampled Digital Elevation Models was produced in 2000 by Bench Mark GIS.
- The Land Records Department is the custodian of and maintains the DEM

b. Digital Terrain Models

- Digital Terrain Models were produced from a 2009 LIDAR aerial flight and re-sampled DEM.
- Land Records is the custodian of the digital terrain models.
- Bayfield County does possess the technology to manipulate the DTM data and produce raster graphics.

c. Triangulated Irregular Networks (TIN)

- Bayfield County has a TIN model generated from the 10 meter DEM and 5 foot DEM.

d. Contours

- Bayfield County has generated a 10, 20, 50 and 100ft contour intervals from the 10 meter DEM. Bayfield County also has 2 ft contours for the Lake Superior shoreline one mile inland and buffered to include the Cities of Bayfield and Washburn.

e. LIDAR Data

- Bayfield County has a limited area of light detection ranging, (LIDAR) data at this time to produce a digital elevation model (DEM). If additional funding becomes available we would like to complete the entire county.

f. IFSAR Data

- There are no plans to acquire any sort of interferometric synthetic aperture radar (IFSDAR) data at this time to develop digital surface models (DSM), digital terrain models (DEM) or orthorectified radar images (ORI).

4. Parcel Mapping

There are 25 civil townships, 2 cities and one village in Bayfield County. As of this date, 100% of the County has been parcel mapped. The County needs to incorporate the parcel property maps with GPSed PLSS Locations. The digital parcel mapping project was contracted professional service until 2007 then went through a conversion to from CAD to a Geodatabase. Existing parcel data needs to be upgraded to the current GIS model and attributes need to be completed. Political Village boundaries need to be located in a way that all different boundary features lay in the same location so that it has good topology. Land Records maintains custodial responsibility and includes a protocol for the continued maintenance of this information. Updates and corrections are part of the day to day standard operating procedures established to maintain dataset currency. As deemed appropriate, historical electronic copies of parcel mapping are archived.

a. *Preparation of Parcel Property Maps With PLSS*

- Prepared using ArcGIS in SDE
- PLSS breakdown for each section
- Documented errors such as gaps, overlays, non-closure
- Prepared under FGDC's (Federal Geographic Data Committee's) Cadastral Standards for the National Spatial Data Infrastructure
- Displays and contains Parcel Identification Number in the parcel label point/polygon
- Adherence to WLIA's Digital Index Parcel Mapping Standard
- Maps do not display fence lines, pavements, buildings, or conclusive evidence of public and private easements & utilities

b. *Preparation of Parcel Property Maps Without PLSS*

- In sections wholly owned by government entities:
- Prepared using Original Government Survey data with any other survey measurements available
- Prepared using above criteria (E. 4. a.) as applicable

c. *Coordinate System Used*

- Bayfield County's geographical reference is the Wisconsin Bayfield County Coordinate System, which is mathematically relatable to the North American Datum (NAD) 83(91) and is able to be geographically referenced for use by others.

d. *Parcel ID*

- Displays and contains Parcel Identification Number in the parcel label point/polygon
- Legacy Parcel Identification Numbers meets the WLIA unique parcel identification numbering system
- The database has been converted to the 23 digit geo-Locator WLIA unique parcel identification numbering system
- Land Records assigns the parcel identification number and is the custodian of and maintains the parcel numbering system.

5. Parcel Administration and Assessment Information

Land Records converted over to and went online with the Novus-Wisconsin Land Management System in 2008. Novus Wisconsin by Manatron is a software suite that incorporates Real Property, Personal Property, Receipting, Reporting, Tax Management, Address & Road Management, parcel zoning designation, In Rem and Tax Deed management in one system. It utilizes one enterprise database built on Microsoft NET framework using SQL server for the database software. It also contains an online portal open to public access that provides internet access to the County's real estate assessment/tax listings. The information in the real estate management system can also be accessed through the GIS web mapping portal.

a. *Land Information System*

- The property and ownership records (assessment/taxation records) are accessed and identified by the Parcel Identification Number. The PIN is displayed on the digital parcel maps. A parcel number is displayed on the index parcel maps that references the PIN in the property and ownership records.
- A record can be searched by the Tax ID number, owner's name, Legacy Pin, Geo-locator PIN, Site Address number or graphically on the interactive mapping site.
- Land Records is the custodian of the ownership/assessment data and the County Treasurer is the custodian of the tax/receipting/In Rem data. A protocol for the continued maintenance of this information is established. Updates and corrections are part of the day to day standard operating procedures established to maintain dataset currency.
- The real estate management system exceeds the minimum requirements of Sections 59, 66, and 70 of the Wisconsin Statutes.

b. *Parcel Level Information*

- Parcel ID:
Displays and contains Parcel Identification Number in the parcel label point/polygon
Legacy Parcel Identification Numbers meets the WLIA unique parcel identification numbering system
The database has been converted to the 23 digit WLIA unique parcel identification numbering system. The parcel identification number is part of the ownership record

- Tax data. Tax information can be accessed through the PIN, owners name, address and Tax ID number
- Site Address. The property site address/911 property address/fire number can be accessed in either the land management system or the GIS mapping database. The site address is listed in the property ownership record; if the parcel has or had contained an improvement or facility.
- Owner Name and Address. The owner's name is listed as it appears on the document of title. The address listed is the mailing address of the owner. There is also a field for Billing Address where the tax statement is to be sent, in case it is different from the owner address.
- Description/Current Documents. The ownership record contains a brief legal description. If the property has a Certified Survey, the lot, certified survey map number, and the CSM recording information is listed under the brief legal description. This information is also linked in the GIS Mapping to the record.
- Document Imaging. The Register of Deeds started document imaging with a system designed by Fidlar Technologies, Inc. All Certified Survey Maps, condominium plats and subdivision plats are scanned with new recorded surveys and plats scanned in upon recording. The Register of Deeds is currently back scanning, indexing, and verifying documents. The recorded title document number is listed in the ownership record. The Register of Deeds's document imaging system can be searched by document number, grantor's name; grantee's name; or through the electronic tract index.
- Real Estate Transactions. The electronic transfer return lists the selling price of the real estate conveyed and is listed in the land records system except when the transfer fee is for more than one parcel.
- Easements and Restrictions. Notations are made if there are special restrictions, covenants, leases, conservation easements et cetera
- Tax Exempt Status. The listing would include one of the State's four classes of tax exemption; federal, state, county, other. All parcels are listed with PIN's such as DNR property, Scenic Riverways, State and National forest lands. State and US highways have PIN's.
- Zip Codes. Zip codes are listed for every ownership record. The system provides a four-character field for +4 zip codes.

- Assessment Class. Every parcel contains an assessment class field. Reports can be extracted by assessment class.
- Public Lands. All public lands are mapped, listed and assigned a PIN; DNR property, Scenic Riverways, State and National forest lands.
- Liens. Docketed judgment liens, tax liens, mortgages, Child support liens, Construction liens, Federal estate tax liens and Lis Pendens are not listed in the land information record. This information only encumbers the land information record and is best left for catalog in the Register of Deeds and Clerk of Circuit Court.
- Evidence of Title. The ownership records lists the current various deeds of ownership title. Also listed are: Land Contracts, Termination of Decedents Interest, Probate Judgments, and Life Estate reservations. The land information record does not list non current chain-of-title as that data is best cataloged by and obtainable from abstracts, Title Insurance, and the Register of Deeds.
- Zone District Designation. Each parcel can be identified with its zone district classification. The zoning codes will be conflated to the Land Records system in the up coming years.
- Shoreland designation. Each parcel is identified with the name of the waterbody on which it has frontage. This database within the real estate management system is maintained by the Zoning Administration through the Zoning Module.

6. Street/Road Centerlines, Address Ranges, and Address Points

A Centerline Road Range Addressing project was completed in January of 2000. Bayfield County has adopted and follows the Uniform US Postal Addressing and Abbreviations standards. Maintenance continues with the addition of new address points and new road centerlines. The existing information and map are constantly corrected when verified, increasing accuracy. This framework is managed through the Land Records Department with the dispatching aspects managed through the Sheriff's Department. Both Departments have a protocol for the continued maintenance of this information. Updates and corrections are part of the day to day standard operating procedures established to maintain dataset currency.

- a. *Transportation Network.* Bayfield County maps indicate the location of streets, roads, highways, and historic railroads.
- b. *Right of Ways.* Bayfield County maps will indicate right-of ways from the State or County Highway Department blue line of the construction/relocation plat or survey. The land information database will list the document information for recorded fee simple interests.

- c. *Centerlines.* The centerlines of State and County Highways, Town Roads and City Streets were digitized off of the digital orthophotos as they existed in 1998. Some roads and private accesses have been mapped using GPS for use on the road base maps and the MSAG. Centerlines are also obtained from Department of Transportation right-of-way maps and Certified Surveys for private access roads to give us a general location of the roads.
- d. *Address Ranges.* The GIS Specialist geocode new roads and accesses into the system. The existing information and map are constantly corrected when verified, increasing accuracy.
- e. *Site Address Database.* Both the 911 Emergency/property address database and the land information database have the site address listed. Maintenance to add new addresses, correct erroneous addresses, and obtain missed addresses in the field is a daily function.
- f. *Address Point, Structure and Driveway locations.* Since 2008, address points to the structure and driveway have been completed. The points are taken with from the centroid of the parcel mapping and then moved to the building structure using the aerial photo.
- g. *Road Names.* The Bayfield County Property Address System Ordinance outlines the procedure to name new roads and accesses and change the name of existing roads. New roads and accesses are entered into the 911 System by the Sheriff's Department, into the GIS road centerline dataset by the GIS Specialist, and then Emergency management director adds the street into the Bayfield County Master Road Index with their ranges.
- h. *Functional Class.* The class of a road, highway, street or access is color coded on the digital map. The Property Address Policy also explains that State and US Highways are numbered. County Trunk Highways are lettered. Town Roads and City Streets are named. Private accesses are also named. The gas tax maps available in the Land Records office assisted in determining Town Roads from private accesses.
- i. *Places and/or Landmarks.* Places or Landmarks are located in a layer called Points of interest. Some information such as, public boat landings, public lake accesses, theater, artesian wells, and recreational trails are created in one layer.
- j. *Integration With the County MSAG (Master Street Address Guide).* The road name/range dataset in the GIS and in the Road & Addresses module of the land information system is integrated with the emergency 911 database of the Sheriff's Department. An application procedure is in place for the naming of new town and private roads names in Land Records. The centerline segment ranges are geocoded in the GIS. The name and

high/low ranges are entered into the land information system. The new information is downloaded into the software of the Sheriff's dispatch system on an as needed basis.

- k. *Ability to Support Emergency Planning, Routing, Response and Mapping.* The road base map, the MSAG, centerline ranging is integrated with the dispatch's Positron software. The Sheriff's Dispatch Department, ties the emergency response system together with the telephone companies. The Emergency Service Network (ESN) is a separate layer in the GIS and is an integral part of the total Emergency 911 layer. The County sees a need to use existing database and collect additional information on the recreational trail network to input into the Dispatch Center.
- l. *Ability to Support Wireless 911.* Wireless 911 is housed in the Sheriff's Department. Land Records is a cooperating department. Bayfield County went live with Phase I and Phase II in 2008. These phases refer to the ability to accept 911 calls from cell phones over the actual 911 trunks rather than a 10 digit line. Phase I was the ability to accept the call and Phase II was the ability to plot the call. The dispatch center uses the County digital parcel mapping supplied by Land Records. Wireless 911 hardware, software and data is maintained by the 911 Emergency Office which has custodial responsibility.

7. Hydrography, Hydrology and Wetlands Mapping

- a. *Hydrology* Bayfield County obtained its water layer from the Department of Natural Resources. The DNR hydrology was prepared under standards adopted by the DNR and they are the custodian and manager of the data. Bayfield County has custodial responsibility of the digital orthophoto.
- b. *Watersheds.* Bayfield County Land Records has a copy of this data as provided by the Department of Natural Resources. Soil & Water Conservation has a hard copy of the data which is maintained by the Natural Resources Conservation Service. The watersheds were prepared under standards adopted by the DNR and any maintenance or updating is conducted through that Department.
- c. *Hydrogeology.* Bayfield County does not have a hydrogeology layer on the GIS as a digital copy. Bayfield County would be interested in obtaining a copy, if this type of information was available from the custodial agency.
- d. *Impacts on the Environment.* Bayfield County is unaware if environmental impacts such as groundwater contamination and storm water data have been created in a digital format. Agreements, covenants or orders issued through recorded documents would be listed in the tabular real estate management system.

- e. *Wetlands Mapping Activities.* The custodian and sole distributor of wetland data is the Wisconsin Department of Natural Resources, Bureau of Fisheries Management, and Habitat Restoration. These maps were prepared by the DNR under standards adopted by the State of Wisconsin. Land Records is the repository of the digital copy resides as a layer in GIS.

8. Soils Mapping, Land Cover and other Natural Resource Data

- a. *Soils Mapping Activities.* The mapping of Bayfield County Soils was completed by the Natural Resources Conservation Service. The maps were prepared by NRSC staff according to the National Cooperative Soil Survey Standards including the National Soils Handbook and Soil Survey Manual. Land and Water Conservation Department is a repository of a hard copy of the maps. Natural Resources Conservation Service (NRCS) will maintain the maps for updating and the digital maps will be available on their website. A digital copy resides as a layer on the GIS.
- b. *Land Cover.* The custodian and sole distributor of land cover data is the Wisconsin Department of Natural Resources. This data was prepared by the DNR under standards adopted by the State of Wisconsin. A digital copy resides as a layer on the GIS.
- c. *Forests.* County, State, and federal forests are mapped on the GIS and are identified in the real estate management system through land class codes, ownership records, and parcel identification numbers. This data is managed by recorded documents as property is purchased or sold by these entities. The Bayfield County Forestry Department is the custodian of and maintains forest cover and management in a GIS database.
- d. *Geology.* Bayfield County has a basic geology layer on the GIS as a digital copy.
- e. *Hydrogeology.* Bayfield County does not have a hydrogeology layer on the GIS as a digital copy. Bayfield County would be interested in obtaining a copy, if this type of information was available from the custodial agency.
- f. *Non-metallic mining.* The Planning and Zoning Department has developed tabular dataset containing information and characteristics of non-metallic mining operations in the County. The Planning and Zoning Department is the custodian of and maintains this dataset. This data has been created into a graphical representation for a GIS layer. Non-metallic mining is regulated by the authority of the Bayfield County Ordinance for Non-metallic Mining Reclamation.
- g. *Endangered Resources.* The endangered resources and refuge areas established by the Department of Natural Resource have been identified and mapped in a GIS layer.

- h. Impacts on the Environment.* The Department of Natural Resources and Natural Resources Conservation Service collects data on soil contamination and well contamination sites. Other federal agencies monitor environmental code violations such as air emissions. It is unknown if this information has been migrated to a graphical representation. Agreements, covenants or orders issued through recorded documents, are listed in the real estate management system.

9. Land Use Mapping

- a. Mapping of Existing Land Use.* The identification and mapping of existing land uses was completed by each local municipality through their comprehensive land use plan. Each municipality hired a mapping firm to prepare the data. In Bayfield County, the existing land use map was prepared by SEH Professional Services. The data was then combined in the Bayfield County Comprehensive Plan. The maps were developed in common framework elements that would be easily imported into the Bayfield County land information system.
- b. Mapping of Planned Land Use.* The identification and mapping of future land uses was completed by each local municipality through their comprehensive land use plan. Each municipality hired a mapping firm to prepare the data. In Bayfield County, the future land use map was prepared by SEH Professional Services. The data was then combined in the Bayfield County Comprehensive Plan. The maps were developed in common framework elements that would be easily imported into the Bayfield County land information system.

10. Zoning Mapping.

- a. Zoning District.* The hard copy zone district maps exist per Township. The Zoning Administration is the custodian of and revises these maps based on ratified rezone applications and other factors. The Town maps were created from the parcel polygons. A county-wide zone district map has been created and a digital copy resides as a layer on the GIS. The Planning and Zoning Department operates under the authority of the Bayfield County Zoning and Subdivision Control Ordinance.
- b. Shorelands.* The 300' and 1000' shoreland buffer zones exist as a layer on the GIS. It was developed by a GIS buffer function of the hydrology layer.
- c. Floodplains and Floodways.* The DNR regulates Floodplain Zoning in NR 115/117 as a statewide program on behalf of FEMA., the Federal Emergency Management Agency. The Zoning Administration is the repository for the hard copy FEMA Flood Insurance Rate Maps (FIRMS). The Zoning Administration regulates the program in the County in accordance with DNR regulations

and is the repository for flood plain zoning Regional Flood Elevation (RFE) documents. Bayfield County has a digital copy of the new preliminary 2010 FEMA FIRMS and DNR Regional Flood Elevations maps from the custodial agency.

- d. Environmental Corridors.* The Saint Croix National Scenic River way corridor in Bayfield County resides on a GIS layer and the property is identified in the real estate management system.
- e. Burial Sites.* Plats of the cemetery are housed in the Register of Deeds office.
- f. Archeological Sites.* At the present time, there are no archeological labeled sites in the GIS system. It is unknown if this type of information is cataloged for Bayfield County. Through coordination with the State and County Historical Society's, this information could be migrated to a graphical representation.
- g. Historical and Cultural Sites.* At the present time, there are no historical and cultural labeled sites in the GIS system. It is unknown if this type of information is cataloged for Bayfield County. Through coordination with the State and County Historical Society's, this information could be migrated to a graphical representation.

11. Election and Administrative Boundary System

- a. Election Boundaries.* Bayfield County has County Board Supervisor districts and voting wards mapped. As directed by the County Clerk, custodian of the data, the Geographic Information Specialist maintains any revision or changes to the map.
- b. Legislative Districts.* Bayfield County does not have State or Federal legislative Districts mapped or indicated as this information is readily available online through the Wisconsin State Government home page.
- c. Utility Districts.* Municipal water & sewer districts, natural gas, landline telephone service districts, cable television and electric company districts are not mapped or indicated in the database as this information exists in the private and public sector that is not available to the County because it is not in a translatable, retrievable or geographical referenced digital format. It may also fall under private company domain. Bayfield County contains thirteen Sanitary Districts. The majority is mapped; the code for it is listed in the land information database and can be easily created.
- d. School Districts.* Bayfield County contains six school districts. They are mapped, and each parcel in the real estate management system contains a field for its respective school district. The maps were provided to the

School Superintendents who verified their locations. This layer is available in the 2008 Plat Book. School district boundaries are determined by and under the jurisdiction of the Wisconsin Department of Public Instruction. Notification from the Wisconsin DPI of changes to the school districts is made to the Real Property Lister and then relayed to the Geographic Information Specialist for changes to the map.

- e. *Tax Incremental Financing Districts.* The TIF Districts are not mapped as a layer in the GIS, but they are identified by a field in the real estate management system; as of 2010 we have two. This information is maintained by and under the custodial jurisdiction of the local municipality.
- f. *Agency Administrative Districts and Zip Codes.* US Postal Service Regions in Bayfield County are mapped by parcel.

There are seventeen US Postal Service areas operating in Bayfield County. A zip code GIS layer that identifies the postal service area was developed with the cooperation of the seventeen Post Masters in the county. The real estate management system contains a zip code + 4 field. Our land information database allows a query and sort by Zip Code through the Road & Address dataset. The US Postal Service manages the zip codes. The County dataset and maps are revised upon notice from the USPS.

- g. *Census Geographic.* Bayfield County has a copy of the digital TIGER files from the US Census Bureau. Census geographies can be obtained by the public from the online Census Bureau's website. Bayfield County Land records have not received any requests for the information.
- h. *Civil Division Boundaries.* Bayfield County has the boundaries of County Towns, Villages, and Cities mapped with each polygon having its associated GIS attributes.
- i. *Public Administered Land.* Bayfield County contains County Forest lands, State Forest, State Wildlife Areas, and the Chequamegon National Forest. There are also Town, Village and City parks and recreation areas. These are mapped in the GIS layer that is also available through the web mapping site. The real estate management system also identifies these properties by land class code and ownership description. Any changes to public land boundaries are made through the deed transfers and subsequently the digital parcel maps and related layers.
- j. *Native American Lands.* Bayfield County contains the Red Cliff Band of Lake Superior Chippewa Indian reservation. The exterior boundary of the reservation was digitized from a 1993 reservation map prepared by the Bureau of Indian Affairs. Tribal, trust land, and USA held in trust lands are listed in the real estate management system by ownership and land class codes. Bayfield County maintains this information through deed

transfers. Any changes to the boundaries of the reservation would be made under the direction of the Bureau of Indian Affairs.

- k. County Boundary.* Bayfield County has the County boundary mapped based on PLSS. The GIS in Land Records is the custodian of the data.
- l. State Outline.* Bayfield County incorporated an existing coverage from other sources into our GIS system as a reference guide to where Bayfield County is located in Wisconsin. Bayfield County is on the State boundary.
- m. Lake Districts.* There are two Lake Districts in Bayfield County at this time.

12. Critical Infrastructure and Facilities Management

- a. Emergency Services Areas.* The 911 Emergency Service Network (ESN) map was developed by the Bayfield County Sheriff's Department. The boundaries of fire departments, ambulance service areas and law enforcement response areas were then digitally mapped over the County base map creating the 911 ESN layer. The Sheriff's Department is the custodian of the ESN data. The existing information and map are constantly corrected when verified, increasing accuracy. The ESN map is downloaded into the dispatch mapping software, Positron, when it is revised.
- b. 911 Call Center Service Areas and Center Locations.* Bayfield County contains only one 911 call center service area at the Sheriff's Department Dispatch center.
- c. Fire and Police Districts.* Fire Department response areas and law enforcement response areas are located in the ESN map. This data is developed by and is the custodial responsibility of the Sheriff's Department, Dispatch Center. Revisions as directed by the Dispatch Center are made to the ESN Map and then downloaded into the dispatch mapping software, Positron.
- d. Fire and Police Stations.* There are fifteen separate fire departments in Bayfield County. There are three separate police stations and one Sheriff Department. The area of jurisdiction is represented on the ESN map.
- e. Hospitals and Healthcare Facilities.* Bayfield County contains no hospitals.
- f. Government Facilities.* Municipal buildings, state government buildings, and US federal buildings do not have a point location in the GIS. Because the property is tax exempt, there is no correlation possible between the assessment dataset and the GIS mapping.

- g. *Utilities.* Water lines, natural gas lines, landline telephone, cable television, fiber optic, and electric lines are not mapped or indicated in the database as this information exists in the private or public sector that is not available to the County because it is not in a translatable, retrievable or geographical referenced digital format. Utilities create their own data sets under private company domain. A variety of County maps in either a paper or digital format are available to the utilities for their design and planning purposes. The Land Records office has a strict policy of open records and do not sign or require agreements for data. If we use it for our normal working business we can not withhold the data from the public. We would like some direction from the State on how to handle the issues with specific datasets because of the conflict of privacy, security and the right to open records to the public.
- h. *Parks and Recreational Trails.* Municipal parks are point plotted on the Places/Landmark GIS layer. Bayfield County contains a wealth of cross country ski trails, snowshoe trails, hiking trails, ATV trails, snowmobile trails, and biking trails. Recreational trails within State and National Forests have trail maps developed by the authority of jurisdiction. Sport clubs, associations, and area Chamber of Commerce’s publish their own trail maps. These trail maps are not in a translatable, retrievable or geographical referenced digital format for use by the County. The location of these trails, especially where they intersect public roads and accesses would be valuable for the emergency response teams of Bayfield County.
- i. *Transit Systems.* Bayfield County Public Transportation www.BartBus.com. A Transit Route Map has not been developed by Bayfield County. The route information map would be valuable to Bayfield County.
- j. *Bridges, Culverts, and Traffic Road Signs.* The County Highway Department, municipal Road Supervisors, and the Wisconsin Department of Transportation have bridge, culvert and traffic road sign data. Those jurisdictions are responsible for custodianship and maintenance of these datasets. Bayfield County has collected culvert information on the County roads and most of the culverts in Fish Creek watershed as part of a grant in the Conservation Department. Bridges and Road sign data does not have the data in geographically referenced format that is translatable, retrievable to use in the County information system.
- k. *Airports and Airfields.* The Bayfield County has three airports classified as a general aviation airport. There are no passenger flights available from within Bayfield County. The Bureau of Aeronautics has three public airport airfields registered within Bayfield County. There are a number of privately owned float planes that access their private lake property.

- l. *Harbors.* Bayfield County has many Lake Superior access points and would like to create a database so we can map them.
- m. *Boat Landings.* Public lake accesses and boat launches have not been fully mapped.
- n. *Hazardous Material Sites.* Hazardous material sites are not mapped directly onto the digital or index parcel maps. The Wisconsin Department of Natural Resources Bureau of Remediation and Redevelopment Tracking System (BRRTS) provides information about contaminated properties. Data about these sites can be obtained online at <http://www.dnr.state.wi.us/org/aw/rr/brrts/index.htm>. BRRTS is the custodian and maintenance agency of the dataset.
- o. *Landfills.* Landfills and waste disposal sites are not mapped on the digital or index parcel maps. The Wisconsin Department of Natural Resources regulates the waste management program. Online access to information on sites and facilities can be obtained through the DNR's Solid and Hazardous Waste Information Systems (SHWIMS) on the web (SOTW) at <http://sotw.dnr.state.wi.us/sotw/Welcome.do>. The DNR is the authority of jurisdiction and maintains the dataset.

13. Database Design and System Implementation

- a. *Design Evaluation.* Bayfield County initially had a mix of datasets in AutoCAD and Shape files in 2007. The Land Records Administrator took the datasets over time and imported them into a Geodatabase format in to a County wide SDE Geodatabase format. New datasets and data models to be created are designed to work within this framework. While this eliminates redundancy, it also allows each custodian to manage only the data that they are responsible for. The data can be exported shape files.
- b. *Project Approach.* We look at the maintenance procedure before we start any project, if we can not maintain the data we will not create it. Bayfield County will discuss and diagram workflow of a project then complete a small area. Once the pilot project is tested and revised, implementation, production usually follows. The authority of jurisdiction responsible for initiating the project would retain custodial rights but may pass to other departments depending how they grow. The framework and standards change and grow over time depending on advancing technology.
- c. *Timeline.* The time frame for the completion of the New Initiatives would be based on the funding cycle and availability of the consultant or design engineer to complete the project once awarded. Ongoing progress is based on staff time and budget.
- d. *Metadata Policies.* Metadata is created and managed for GIS data using ERSI Arc/Catalog and this in turn will be published using html.

technology to make these metadata documents available online. Land Records System documentation and database documentation will be the metadata standard for our tabular data.

- e. *Security and Privacy Policies.* The Information Services and Land Information Department manages security of electronic systems. Standard security features are incorporated to protect sensitive information and allow for read only access to appropriate land information. Bayfield County adheres to Wisconsin's Open Records Law ss. 19.31 to 19.39, Wisconsin Statutes.
- f. *Implementation and Maintenance Strategy.* Within the Design Evaluation of each project, implementation and maintenance is detailed. The plan for implementation is preceded by testing and debugging. The strategy is to automate operations and conversions whenever possible. The plan for maintenance is developed by the custodian of the data with a strategy to automate efforts, i.e., user friendly, uncomplicated, consuming less time, less steps, eliminate duplication, easily translatable and retrievable data.
- g. *Data Quality Management.* The Land Records Department maintains most of the GIS data with a Forestry Department creating their own data in the county forest. Each Department that creates or manages information is in charge of the actual quality of its data. Scheduled database queries are necessary to check for accuracy. Bayfield County has a survey grade GPS that we use to check the positional accuracy of the data sets such as the aerial imagery that is flown.
- h. *Needs Assessment.* Departments hear from customers through GIS user group meetings, county board and committee meetings, telephone calls, e-mail, postal services and personal contact for the type of information requested as well as the medium in which the public or governmental agency would wish it was retrievable. A needs assessment evaluation would determine if the data exists, is extractable from other sources, and if it is needed to develop local data. If determined that the dataset or technology will contribute to or enable local operations, further assessment would determine priority, hardware, software and professional consulting needs. As part of this plan we contacted each one of our user groups for input using SurveyMonkey.com.
- i. *Data Structure and Format.* ArcGIS is designed to interoperate with existing technology, applications and databases. Data is quality checked for accuracy, streamlined, adjusted and migrated to a modern format. The databases that Bayfield County is building are based upon the needs of the individual professionals that manage the data and reflect the capabilities and possibilities of the technology at hand. The County utilizes Access, Excel, SQL along with email and data conversion to a CD for the public or other government use.

- j. *GIS Data Model.* Bayfield County does not have a data model in hard copy format we talk about how we are going to do the work and review the progress as we accomplish our tasks. Models are developed with future compatibility in mind in that it is in a translatable, retrievable or geographical referenced digital format.
- k. *Data Dictionary.* The Land Records Administrator has written a data dictionary for culvert inventories and addressing to use in the GPS to quickly collect the feature in the field and move on to the next. It also has provided us with consistency in the information we are gathering in the field.
- l. *Coding Schema.* When Bayfield County collects GPS information in the field it will keep the same schema when we revisit the site for updates except for minor changes.
- m. *Transaction Management.* Archival and current data within the tabular assessment/tax data contains notations for date and time created, changed, or archived. Parcel and address data contain fields for date on changed or created data. Bayfield County also archives the parcel layer and hope to implement an archival system through SDE.
- n. *Organizational Information Flows.* Bayfield County does not have a graphical representation of our data models and would like to in the future.
- o. *Data Conversion.* The County converted AutoCad data to Geodatabase in 2007. For the tabular tax/assessment data Access, Excel, DB3 and Text formats available for transfer to a CD or emailed.
- p. *Ability to integrate with other databases and information systems both vertically and horizontally.* The County identifies key fields or data elements such as the Parcel Identification Number which is needed to support sharing of datasets and incorporates them in our GIS datasets whenever practical to promote integration.

F. Public Access

- a. *Use of Technology to Facilitate Efficient Access*
 - Bayfield County maintains a home page website. It is continually being updated and refined. It provides public access to County Departments, Elected Officials, meeting minutes, Committees, election information and links to State agencies and visitor information.
 - The public access portal of the real estate management system (Novus Wisconsin) contains several search capabilities. Assessment and tax information is available through public access. The information can be viewed or printed.
 - Departments have email, allowing communication with the public.

- Bayfield County has an intranet allowing electronic communication within County government.
 - Each County Department as custodian of its data determines the level and type of information it will allow for public access.
 - Custom extracts can be requested of the GIS information. Custom extracts can be requested of the tabular assessment data. The reports can be emailed or transferred onto CD, DVD, thumb drive or portable hard drive.
 - Bayfield County has a web mapping portal that is self hosted.
 - Bayfield County has a File Transfer Protocol (FTP) site to enable the transfers of large files.
 - The Register of Deeds uses a document imaging software by Fidlar Technologies Inc. The public can subscribe to Tapestry and Laredo. Internally, departments use i Doc.
- b. *Use of Third Party Technology for Access*
- Bayfield County does not have or use third party technology for access.
- c. *Data Sharing Policies*
- County produced or co-produced datasets are original works created by the county. They are copies for use, like hard copy document on the copier. A copy of land information that is printed or electronically reproduced is done in accordance with Wisconsin Open Records Law, and the Bayfield County Public Records Notice. The County does not have a data disclaimer and usage agreement we treat it like a copy on a copy machine. We do include a disclaimer on the paper maps.
 - Fees for information that are not set by Statute are established by the County Board for the reasonable cost of copying.
 - Bayfield County charges every government and non government agency the same for GIS Data for requesters but reserves the right for free data exchange.
 - Each County Department as custodian of its data determines the level and type of data sharing. Each Department can have sharing policies with its government contacts and professional clients.
 - Municipal and other governmental agencies are charged for data.
 - We do reserve the right not to charge if we have a trade for data.
- d. *Open Access to Data in Existing Format*
- Bayfield County has two public viewing stations in the Register Deeds, and one in Land Records.
 - Bayfield County has Access, Excel, DB3 and Text formats available for transfer to a CD or by email.
 - Public access to appropriate information is available from all departments in hard copy and increasingly in digital format both of which can be obtained for nominal reproduction costs.
 - Data can also be emailed from each Department as requested.
 - Bayfield County will continue to use commonly accepted software platforms that is readily translatable for use by others in an industry

standard format. Any new software proposed for use in the County systems is screened for compatibility with existing systems.

- Conditions, waivers and disclaimers are noted on the information relayed.
- e. Subscription based or public facing web services*
- The public access portal of the real estate management system (Novus Wisconsin) contains several search capabilities such as Tax Id; Legacy PIN; Geo PIN locator; Owner name; site address number; or road name. Assessment and tax information is available through public access. The information can be viewed or printed. There is no subscription fee or login required.
 - Bayfield County has a web mapping portal that is self hosted. This GIS mapping portal is open to public access. The information can be viewed or printed. There is no subscription fee or login required to access data.
 - The Register of Deeds uses a document imaging software by Fidlar Technologies Inc. The public can subscribe to Tapestry and Laredo.
- f. Optional production of Customized data on cost-recovery or other basis*
- The Real Property Lister in the Land Records Department will generate customized assessment reports from the Novus Wisconsin system.
 - The Land Records Department will generate customized maps from the GIS in the requested format.
 - Other Departments may offer customized extracts of the data for which they have custodian responsibilities.
 - Charges are based on the Wisconsin Open Records Law, and the Bayfield County Public Records Notice. Fees for customized data are based on a rate per hour or a standard rate for commonly requested datasets not available through the public access portals. The rates are established for time and materials only. Bayfield County does not have cost recovery rates for any data.
- g. Internet American Disability Accessibility*
- The Register of Deeds has one public access workstation which is handicap accessible.
 - Department staff personally assists those with disabilities in accessing terminals within their respective offices.
 - The County land information system is text based which would make it accessible to the handicapped from their home/office workstation.
- h. System Security*
- Standard security features are incorporated to protect sensitive information and allows for read only access to appropriate land information.
 - Bayfield County operates a comprehensive, intricate Internet and electronic data security system.
- i. Privacy Policies.* Bayfield County adheres to Wisconsin's Open Records Law ss. 19.31 to 19.39, Wisconsin Statutes.

- j. *Use of \$2 fee designated for land information and housing data ss 59.72 (5)(b)3*
 - The fee has been used to purchase ArcGIS and a server to be used for Internet publication of land information and housing data.
 - This has also been used to upgrade our current website. We plan a number of enhancements to make it easier to use for the novas.
 - We have prepared data so we can provide the information on the web in a digital form such as scanning in documents.

IV. G. Integration and Cooperation

Wisconsin Administrative Code, Chapter Adm 47, defines integration as the coordination of land record modernization to ensure that land information can be shared, distributed and used within and between government at all levels and between public agencies, and between public entities and private entities to share land information or collaboratively pursue land records modernization. These cooperative relationships may be formal or informal, a single instance of exchange or an ongoing association.

- a. *Formal Data Sharing Agreements.* We currently do not have an agreements for the data.
- b. *Formal or Informal Data Maintenance Agreements* We have informal data agreements to maintain data in Conservation, Planning and Zoning and the Sheriff Departments
- c. *Cooperative Arrangements.* Bayfield County is willing to work with anyone for betterment of the county.
- d. *Consortia.* (For example multi-county or regional) Bayfield County belongs to the Northwest Counties Computer Consortium aka Novus Wisconsin and Northwest Wisconsin Land Records Consortium. Bayfield County has sought successfully consortium arrangements for digital orthophotos and LIDAR projects in the past. The County will continue to seek consortiums for projects that benefit adjoining Counties or the region to reduce costs.
- e. *Collaborative Arrangements.* (for example, the sharing of: local/state staff and budgets, technical assistance, peer review, collegial plan preparation, common help desk, bartering and mentoring, et cetera) The departments within Bayfield County collaborate with each other in sharing appropriate data in order to create or develop datasets. The five County Novus Wisconsin collaborate together for common programmers.
- f. *Statutory Relationships between County and State Agencies.* The County provides the program at the local level that the State promulgates to it such as the Department of Revenue for the collection of assessment and tax data. All County Departments collaborate with the State agencies they operate under or work jointly with including but not limited to the Department of Natural Resources, Department of Agricultural, Trade and

Consumer Protection, and Natural Resources Conservation Service. Shall is mandatory and may is permissive.

1. Integrative/Cooperative Relationships
Bayfield County has a letter of agreement with WDNR and US Forest Service; and contribution agreements with NRCS, NWRPC, and Coastal Management. Typically, however, the county enters into less formal agreements to develop and exchange information and data. Bayfield County currently participates and partners with many agencies, public and private, and is committed to further integration and cooperation as the land records modernization effort matures.
2. Potential Partners and Mutual Projects Planned
Bayfield County does not have any plans in the near future but would love to continue its past relationships to collaborate on projects. We have in the past collected LIDAR along four counties and Cities along the Shoreline. We hope to continue to complete projects like this for the future.
3. Data Sharing and Use in Both of the Above
There is information such as the County road map, emergency responders and Property Address books that is available to be shared in developing other datasets. The digital orthophotos are shared as a base for many datasets. The digital parcel maps often times are the base from which other data is built. Any information developed together or with the assistance of other agencies would be available for sharing. Communication with other land information custodians is vital to determine the extent of data available and that can be exchanged or mutually developed.
4. Participation and Coordination of Land Information Funding Allocations
Projects are reviewed by the Land Records Council and funds are distributed that will benefit all departments. Much of the funding to date has been allocated to completing the Public Land Survey System. This is an important fundamental element not yet completed and on which all other datasets need to be tied. Every effort is made to keep the best interest of all departments in mind in the development of modernizing existing operations, creation of datasets, and online publication.
5. Land Information Benefits for Municipalities and Other Agencies
Decisions for land records modernization are made at the County level. The benefits of technology and compilation of data are offered to others as soon as practicable. The ideas and comments from others are solicited in order to further improve and meet their needs and working relationship with the County. The County provides a variety of electronic data and maps to assist the municipalities. The County provides internet downloads directly to the municipalities to

modernize their reporting capabilities. Assisting the local municipalities in electronic modernization is a priority.

H. Communication, Education, Training and Facilitated Technical Assistance

- a. Documentation of County Data, Models and Processes.*

Metadata has been prepared for most common layers and published on the Land Records website. Unfortunately the Metadata has not been updated in three years. We would like to maintain our Metadata on a regular basis.
- b. Resources Available.*

The County's conference and training rooms have internet access and equipment for power point presentations and other training aids. The County intranet network is a resource for internal communication about upcoming education and training. The Land Records Staff notify employees of upcoming training workshops and seminars. The software vendors and the County's programmers routinely hold training and workshop sessions. Bayfield County hosts training for the Northern Area GIS User Group in the training room.
- c. Identification of Customer Needs.*

The public is very vocal to Departments, Committee members, and County Supervisors as to what information they desire and in what format is convenient. A help document was prepared and posted online to assist users of the public access assessment/tax and Interactive mapping to search for and obtain information. The Land Records Department regularly solicits comments and input to improve information available or user friendly formats.
- d. Coordination of education/training with agencies, associations and educational institutions.*

Education and training is offered by and has been utilized from University of Wisconsin Superior, University of Duluth, Northern Area GIS User Group, Northland College, University of Wisconsin-Extension, WI Land Information Association (WLIA), WI Real Property Listers Association, Wisconsin Register of Deeds Association, Survey Institute sponsored by Wisconsin Society of Land Surveyors. Software providers such as Novus-Wisconsin by Manatron, Environmental System Research Institute, Inc. (ESRI), sponsors their own continuing education and training.
- e. Use of Technology to Facilitate Education and Training*
 - Online training classes have been utilized
 - ETN through the University of WI-Extension
- f. Clearinghouse and Technical Assistance List Server*
 - Bayfield County subscribes to the Department of Administration's WLIP Clearinghouse and Technical Assistance List Server

- g. *Use of Land Information Officer Education and Training Funds*
- These funds have been utilized by staff to attend training sessions and workshop seminars such as but limited to:
Wisconsin Indianhead Technical College (WITC), Adult Education classes, University of Wisconsin-Extension, WI Land Information Association (WLIA), WI Real Property Listers Association, Wisconsin Register of Deeds Association, Wisconsin Land Title Association (WLTA), Survey Institute sponsored by Wisconsin Society of Land Surveyors, Wisconsin Local Government IT Directors (GIPAW), Wisconsin Department of Commerce, Safety & Buildings Division sponsors continuing education for POWTS, POWTS components Manufactures' offer education seminars, Wisconsin County Code Administrators (WCCA). Software providers such as Novus-Wisconsin by Manatron, AutoDesk, Environmental System Research Institute, Inc. (ESRI).

I. Administrative Standards Not Associated With Foundational Elements

1. Bayfield County agrees to observe and follow the statutes relating to the Wisconsin Land Information Program and other relevant statutes.
2. Bayfield County agrees to permit the Department of Administration to access to books, records, and projects for inspection and audit including unannounced audits by the Board.
3. Bayfield County agrees to complete the Annual WLIP Survey.
4. Bayfield County agrees to update the plan every five years and in the interim if the plan should change.
5. Development and implementation of an acceptable Plan confers certain benefits on local government within a county, including continued eligibility for Program funding. A voluntary peer review process will be used to assess Plan acceptability by the land information community.