

**COLUMBIA COUNTY
LAND RECORDS MODERNIZATION PLAN
2010 – 2015**

Prepared by the Columbia County Land Information Officer

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EXECUTIVE SUMMARY

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B. Participants in the Planning Process

Land Information and Records Committee and Land Information Council:

Fred Teitgen (Chair)	Lisa Walker (Register of Deeds)	Pat Beghin (Emergency Management Director)
JoAnn Wingers (Vice Chair)	Deborah Raimer (County Treasurer)	Jim Grothman (County Surveyor)
Mary Cupery (Secretary)	Kristen Anderson (Real Property Lister designee and representative of the Land Information Department)	Greg Churchill (Realtor and member of the Realtors Association)
Richard Boockmeier		
Kirk Konkell		

County Departments:

Land Information	Land & Water Conservation	Planning & Zoning
Treasurer	Emergency Management	Management Information Systems
Register of Deeds	Highways & Transportation	County Clerk

C. Summary of the Plan

The Columbia County Board of Supervisors, with the establishment of the Land Information Office and the Land Information and Records Committee and Land Information Council, has recognized the importance of land records modernization in Columbia County to promote and facilitate timely access to accurate land records data. The county Land Information and Records Committee and Land Information Council meets regularly to determine the priorities for goals and objectives as outlined by the Land Information Officer, resource requirements to achieve objectives, and to establish task lists to accomplish objectives. The implementation timeline is dependent upon the continuation of WLIP grants, the amount of grant dollars available to Columbia County, the amount of retained fees collected, and any additional grant or tax levy funding available to for land records modernization activities.

Several elements are critical components of this plan. Among them, is Columbia County's commitment to the continued remonumentation of the PLSS and collection of GPS coordinates for facilitating on-going efforts to complete accurate parcel mapping countywide. Another central theme of this plan is to enhance the integrated LRS application by designing and implementing additional business area functions into the

enterprise application. Finally, further development and enhancement of existing and new GIS data sets and tools. GIS has emerged as an excellent framework for storing, identifying, searching, and analyzing massive volume of data, maps, documents, and other data information. GIS has proven to be a very powerful way of combining text and geographic searches to allow analysts and decision makers to use and understand relevant information in a more efficient and visible way. Columbia County will continue to develop GIS technologies as a vital component to our land records modernization plan. Our most important goal is to use information technology to facilitate the integration, maintenance and distribution of land information both horizontally and vertically. We are focusing not only on internal access but promoting communication with other governmental entities and the public. Increased participation by all county departments, including those not traditionally considered as land records consumers, will be encouraged in an effort to achieve a countywide solution, helping Columbia County advance its land records modernization goals. As the investigation and incorporation of new technologies will be necessary to achieve these goals, the plan anticipates that the acquisition and use of updated hardware, new software and on-going training will be essential.

Columbia County has benefited greatly from the WLIP; this plan lays out a strategy for the county to continue to maintain and enhance the projects implemented as a result of land records modernization activities. Over the next five years the emphasis for land records will be on cooperation, outreach, and partnering. As land records usage changes from data collection and design tasks into decision support application models, more county departments and citizens will be involved with land records in Columbia County.

D. County Land Information Website

Land Information Department:

www.co.columbia.wi.us/columbiacounty/landinformation

Treasurer:

www.co.columbia.wi.us/ColumbiaCounty/treasurer/TreasurerHomePage/tabid/653/Default.aspx

Register of Deeds:

www.co.columbia.wi.us/ColumbiaCounty/registerofdeeds/RegisterofDeedsHomePage/tabid/52/Default.aspx

Land Records:	Purchase & Downloads:	GIS & County Surveyor:
Tax Parcel Data Search	e-Store	Interactive Mapping
Plat & Condo Directory	Local Government Portal	Map Gallery
CSM Index	Delinquent Property Tax Report	USPLS GPS Monument Tie Sheets and Section Breakdown
Sales History Search		HARN GPS Monuments
Survey Search		WI SCO Control Finder
		WI SCO PLSS Finder

E. Municipality Land Information Website

Columbia County maintains public web access to all municipality GIS data, tax roll and assessment records, and published maps. Many municipalities link to county land records websites but do not republish information independently due to lack of technology or funding. Examples include:

City of Portage: <http://www.ci.portage.wi.us>

City of Columbus: <http://www.cityofcolumbuswi.com/>

I. LAND INFORMATION PLAN

A. Goals and Objectives

1. **State the goals and objectives of the county relating to the horizontal and vertical integration of land information and systems among users of land information in Wisconsin. Include a brief assessment of the internal and external customers' needs and priorities for land information and technology. Identify the time line for meeting goals and objectives and (where appropriate) your measurement methodology for achieving them by addressing the following questions:**

- a. **What data or information does the county need that it currently uses or can acquire from other state or local sources?**

Columbia County has acquired data from other state or local sources when necessary and appropriate. Examples of data acquired are airport locations from the PSC, Wisconsin Wetlands Inventory and WISCLAND land use data from the WiDNR, SURRGO certified soils data and tables from the US Department of Agriculture NRCS, property card assessment codes and values from local assessors. Many data elements from other sources have been acquired as part of a collaborative agreement with Columbia County. The county will continue to evaluate acquiring data from other state and local sources as necessary. All geographic data has been projected to the Columbia County Coordinate System for ease of use by county staff.

- b. **What data or information does the county need that it does not have and what problems are encountered acquiring it?**

Columbia County would like to acquire additional data as related to natural resource. In particular data related to endangered resources, and impacts on the environment (e.g. air emissions; groundwater contamination, storm water) would be valuable. In 2009-2010 the Land Information Department in conjunction with the Land & Water Conservation Department and UW Extension partnered with the WiGNHS to perform a ground water study that would result in the mapping and Columbia County geology, ground water resources, and development of a ground water flow model. Other data needs related to impervious surface mapping and other storm water management data elements would also be invaluable to supporting the mapping needs of new State and Federal storm water management requirements. Further, improving communication and workflow with municipal government with regards to address-related data and road construction notification would be beneficial in improving the level of data accuracy and reliability for use in dispatch. The primary obstacles to acquiring and/or developing these data elements are limited funding and staffing.

- c. **How is or will the county ensure that the land information it has is, or can be made available in a standard industry format for use by others?**

Columbia County's information technology makeup is conducive to meeting the goals and objectives as identified with this plan. The county's operating system and database management systems are industry standards. The county also makes use of the TCP/IP protocol for data transport, uses the ODBC standard for ensuring cross-platform database connectivity, and uses industry standard application software.

The database design for land records information conforms to state and national standards as known and applicable. All integrated land records are managed in relational databases Microsoft SQL Server databases. Columbia County has implemented ESRI's Geographic Information System to serve as the enterprise GIS solution for data and application development and exchange. ESRI is a member of the Open GIS Consortium and proposes to support all Open GIS data transfer and data sharing requirements. The county expects to have information available in these formats as the vendor provides. All spatial data are topologically structured. All GIS data sets are documented with FGDC-compliant metadata.

d. How is or will the county ensure that the land information it has is geographically referenced for use by others?

The county uses the Columbia County Coordinate System (as described in Wisconsin Coordinate Systems Second Edition, Wisconsin State Cartographer's Office, Madison WI, 2009), which is mathematically referenced to NAD 83(91). All data maintained and used by Columbia County is referenced to the Columbia County Coordinate System. All data provided to others by Columbia County is accompanied by documentation of the county's Coordinate Systems to make transformation to other systems possible.

e. How is or will the county ensure currency and continued maintenance of its digital land information?

The county will continue to take advantage of technology and database methods for ensuring that all data elements are maintained using strict controls to eliminate human error in data entry wherever possible. These controls will help to ensure data quality remains high and is reliable for use in analysis and will also help to eliminate data redundancies and improve efficiency in maintenance related activities. Columbia County will also continue to improve notification and workflow systems, such as was implemented in the county developed Land Records System for tax parcel listing and GIS maintenance, to ensure that data is maintained in a timely manner. Further, projects that identify new data elements requiring maintenance will not be accepted without identifying data custodians and developing a plan for maintaining data in a timely, accurate, and integrated manner.

The purpose of this section is to provide an outline of goals that Columbia County would like to pursue if appropriate and if dollars are available to do so. The goals and objectives listed below are in no way intended to set policy for Columbia County.

- Goal 1: Maintain Continued Education for all staff; ensure staff is adequately trained in the efficient use of land records tools and data and GIS, GPS and related technologies.
- Goal 2: Continued education of public, private sector about modernized Columbia County land information systems and GIS data availability
- Goal 3: Enhance the county's ability to distribute information to citizens and partners.
- Goal 4: Update and Maintain the Countywide Control Network and Reference System
- Goal 5: Implement Operation and Maintenance Plans for all Land Records Data
- Goal 6: Develop an Organizational Structure for Land Information data, records, and policies
- Goal 7: Project planning using the Land Information Modernization and Integration Plan
- Goal 8: Continued development of an Enterprise Land Records System and GIS integrated for business function and workflow rather than county organization structure
- Goal 9: Continue Data Automation and Enhancement of Core Data Elements
- Goal 10: Develop strategy, maintenance plan, and workflow for support of public safety GIS and land records datasets

2. Describe how the county's technology environment and database design standards and practices (including metadata and other elements listed below in the "Database Design" Foundational Element) supports the county's goals and objectives relating to land information and supports the county's information technology vision, mission, goals, strategies and Plan.

Columbia County's information technology makeup is conducive to meeting the goals and objectives as identified with this plan. The county's operating system is Microsoft Windows based which makes use of the TCP/IP protocol for data transport, uses the ODBC standard for ensuring cross-platform database connectivity, and uses industry standard application software.

The database design for land records information conforms to state and national standards as known and applicable. All integrated land records are managed in Microsoft SQL Server relational databases. Columbia County has implemented ESRI's Geographic Information System software to serve as the enterprise GIS solution for data and application development and exchange. ESRI is a member of the Open GIS Consortium and proposes to support all Open GIS data transfer and data share requirements. The county expects to have information available in these formats as the vendor provides them. All spatial data are topologically structured. All GIS data sets are documented with FGDC-compliant metadata.

B. Progress Report on Ongoing Activities

Please provide a description of the county's progress towards achieving the goals and objectives listed in the previous section ("Goals and Objectives"). Include a description of any significant changes in goals and objectives from those described in the county's previous Plan.

Columbia County's goals and objectives from its previous plan are ongoing and continue to be goals into the future. Specific activities that have moved the county towards realizing these goals are noted below. Ongoing activities have been completed however repeated occurrences, continuous improvements, upgrades, and enhancements of the stated goals continue to be moving targets thus making the project deadlines a moving target. The following list of accomplishments may relate to multiple goals and objectives as listed above and are not necessarily listed in the same order.

1. Update and Maintain the Countywide Control Network and Reference System.

Goal(s): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Section corner remonumentation of the original PLSS is and will be on going until such time that full remonumentation is complete. Columbia County will continue to update and improve the countywide geodetic control network and define accurate locations of survey monuments through the use of GPS technology. These PLSS corners will serve as the foundation upon which land descriptions will be based into the future. Survey crews are continuing to perform three (3) important functions: 1. Complete the physical remonumentation of all PLSS corners 2. Maintain existing monumentation as appropriate and 3. Determine GPS coordinates for these corners. Yearly maintenance of section corners as required once remonumentation complete. Columbia County will have completed GPS records and updated tie sheets by 2012.

Densification of the HARN in Columbia County has been completed; 124 points or 62 pairs have been established. Subsequently 3 additional points were established in the City of Portage. Maintenance of the Columbia County HARN is ongoing. Over time several of these densified monuments have been lost or disturbed and replaced. Additional new points will need to be added in the future to as a replacement. The Wisconsin Height Modernization Program points are also available.

All county records are available on-line freely to the public either on the Columbia County web site or the WiSCO website. Including all tie sheets and section breakdown maps have been scanned and indexed.

2. Completion of tax parcel index for all towns and village areas.

Goal(s): 1, 2, 3, 5, 6, 7, 8, 9, 10

Tax parcel index maps were completed for all town and village areas in Columbia County in 2009. Maintenance in these areas is on-going as required using coordinate geometry from certified survey

maps, plats of survey, highway plans, subdivision and condominiums plats, deeds and other sources of public record. Tax parcel maintenance is normally completed within 10 working days of document recording. Quality control in cities areas is currently on-going and is expected to be completed over the next several years. As new data has become available thru the remonumentation work and the collection of GPS coordinates on PLSS corner, an upgrade of the tax parcel map to a higher accuracy level is currently on-going in some areas as required. Once quality control in city areas is completed, a countywide review and upgrade to higher accuracy control data will be performed.

3. GIS/LRS tax parcel integrations, tax parcel data model and map development improvements.

Goal(s): 1, 2, 3, 5, 6, 7, 8, 9, 10

The development of the Columbia County LRS has allowed for management of tax parcel mapping efforts to be greatly improved. GIS specialists have an 'in-box' that provides a notification of all geometry changes that need to be performed. Access to the Real Property Lister notes and Register of Deeds images is also provided. In addition the tax parcel GIS database model has been greatly simplified and has been integrated with the LRS to allow for significant improvements in efficiency and accuracy. Further, tax parcel map production improved to allow for automated map production using ESRI's PLTS extension. Automated map books are produced with minimal effort each year saving significant time. These map books are shared on-line and are currently being used as a base map for other thematic map products.

4. Document management, image indexing and scanning, and tract index of real estate documents in the Register of Deeds. Integration of Register of Deeds data and images with county land records system applications and web sites.

Goal(s): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

The Columbia County Register of Deeds installed Fidlar systems in 2005 for managing the counties real estate documents. Data and images were migrated from an AS400 based system that had no connections to other county databases or GIS systems other than thru data exports. Data and images both were difficult to share and integration was non-existent. Fidlar systems not only modernized records management in the Register of Deeds but allowed Columbia County to establish a tract index for the 1st time in county history. In addition, Fidlar provided the Register of Deeds with the ability to allow users to search document indexes and purchase images on-line. Columbia County opted to migrate images from the AS400 solution to the county enterprise imaging system, which allowed images to be share with the newly implemented LRS system. The LRS system took advantage of live read only connections to Register of Deeds databases and images allowing several in-box systems to be implemented greatly reducing the redundancies in the Land Information Department. The Land Information Department shares rather than duplicates document images and data related to real estate transactions and surveys. The Register of Deeds and Land Information Department has worked together over the last 5 years to develop several web applications to better serve internal and public requests for data and images. These web sites serve as a compliment to the Fidlar products.

In 2010, as a result of Wisconsin Act 314 and county policy changes, Register of Deeds and Land Information Department images were migrated out of the dissolved county enterprise imaging system. The Register of Deeds migrated images to the Fidlar imaging solution in order to take advantage of redaction technologies. The Land Information Department migrated document images and other documents to a file share system. LRS applications were updated to account for a dual imaging system solution to continue to allow for sharing of resources with no duplication.

5. Scanning and indexing of all survey records in Register of Deeds and County Surveyor's Office (Land Information Department).

Goal(s): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

The Register of Deeds and the Land Information Department have completed scanning and indexing of all survey records in Columbia County. Included are all certified survey maps, subdivision plats, condominium plats, cemetery plats, and transportations plans recorded in the Register of Deeds and all

other survey's recorded in the Surveyor's Office (Land Information Department). In addition to being indexed, all documents are attached to current tax parcels thru the LRS in the Land Information Department. All documents are available to county users and the public thru Fidar web access and/or land records websites.

6. 2007 and 2010 Orthophotography acquisition.

Goal(s): 1, 2, 7, 8, 9

Columbia County acquired high resolution digital orthophotography (one foot pixel) in both 2007 and 2010 with participation in the WROC project (delivery expected June/July 2011). Orthophotography has been a valuable component for on-going parcel mapping efforts and for the development of other key datasets including, centerline, structure, driveway location, woodlands, and hydrology. Data has also been a key element for emergency management response to recent flood and damaging storm events, crime analysis and courtroom display, and tactical planning. Columbia County orthophotography is one of the most heavily used datasets in Columbia County.

7. Development of geocoded road centerline data and address structure locations database.

Goal(s): 1, 2, 3, 5, 6, 7, 8, 9, 10

In 2006, supporting the Wireless 911 implementation in the County Dispatch Center, all addressed structures in Columbia County were located and addressed using a combination of onsite GPS data collection, 2002 orthophotography, and driveway locations collected and addressed as part of a WiDNR wildland /urban fire grant as a base. Address data has been verified and integrated with the MSAG database maintained by Columbia County Dispatch and also with LRS address and GIS road name databases. Where possible a photograph of the structure was taken and is available for use in the 911 system and to other county staff where appropriate. In addition, road centerline have been fully geocoded and like structure locations has been verified and integrated with the MSAG, LRS, and GIS address and road name database. Maintenance of these databases are on-going using data collected address issuing agencies (county Planning & Zoning Department and local units of government) and public record including highway plans and survey records in additions to other sources of public record. GPS verification is done regularly to collect site location information and photography. These datasets are key components to the mapping systems implemented in the Columbia County Dispatch Center (2006 MicroData migrating to GeoComm in 2011).

8. Enhancement of existing and development of new web sites.

Goal(s): 1, 2, 3, 8

The Land Information Department developed its 1st mapping and land records related websites in 2004 and in 2005 with the available of Register of Deeds document becoming available thru Fidar systems. Since then many enhancements and new sites have been developed increasing the availability of data and resources. It has been a goal of the land records program in Columbia County to provide easy access to land records data that is integrated not only on-line for public consumption but is integrated in how the data is maintained improving the quality of data that is released. Following is summary of new web sites and functionality that has been made available over the last 5 years:

- [Tax Parcel Data Search](#) Enhancements
 - Parcel History Tab
 - Parcel Map Tab
 - Survey History Tab
 - Links to Municipal Assessor Data websites by parcels
 - Sales History Tab
 - Zoning Map Tab
 - Addition of County Supervisor Districts by parcel
 - Document Images Available
 - County Surveyor Records, Real Property Lister Documents, Subdivision/Condo plats freely available
 - Links to Fidar systems by document for purchase for public consumers

- Read only image viewer for internal county workstations
- New Website Development
 - [Fidlar software](#): Tapestry & Laredo
 - [Plat & Condo Directory](#)
 - [CSM Index](#)
 - [Survey Search](#)
 - [Sales History Search](#)
- GIS Websites
 - Full integration with Tax Parcel Data Search
 - Full integration with LRS internal maintenance application
 - Additional data layers and tools available
 - PLSS and HARN data posted thru State Cartographer's web mapping sites
- Other web developments
 - RSS feeds of live LRS data
 - Access to live LRS reports, generated per request in PDF format (ex. Treasurer's [Delinquent Property Tax Report](#))
 - [E-Store](#), land records and GIS data sales
 - [Municipal Government Logon](#), free login access to live land records and GIS data reports and downloads
 - [Map Gallery](#), posting additional maps (ex. [Tax Parcel Map books](#))

9. Document management and imaging in Real Property Listing.

Goal(s): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

With the implementation of LRS the Land Information Department developed a document management and imaging system to manage Real Property Listing related documents. All County Surveyor records, documents associated with splits and combinations forms, address issuance (from the Planning & Zoning Department or local government) are scanned and attached to appropriate tax parcels. These documents are available in LRS as well as available freely on-line where appropriate. In addition, other documents related to tax parcels such as letters to attorneys, title consultants, and land owners can be attached as MS Word or other document types to tax parcels as attachments. These attachments can have security set to all the documents to be available to all or a select group of users. This ensures that all appropriate staff now and in the future have access to all communications related to tax parcels.

10. Geology, Hydrogeology, and Groundwater flow model.

Goal(s): 1, 2, 3, 5, 6, 7, 8, 9, 10

In 2009 Columbia County partnered with the WGNHS to complete a ground water mapping project in 3 phases over several years. Phase 1 is the Compilation and analysis of baseline groundwater information and will result in the development of water table and aquifer susceptibility maps. These datasets and mapping products are scheduled for completion in 2011. Phase 2 of the project is mapping of the bedrock geologic for Columbia County. This work effort will include extensive data compilation and a bedrock-drilling program. The WGNHS will undertake this project phase using federal and state funding sources, with no funding required from Columbia County. Final deliverable will include a bedrock geology map of Columbia County. Expected completion is 2012. Finally phase 3 will be the hydrogeologic investigation and development of groundwater flow model. Using geologic and hydrogeologic data produced in Phases 1 and 2, Phase 3 will determine the extent, thickness, elevation, and hydraulic properties of significant groundwater aquifers and aquitards. Phase 3 also includes development and use of a computer groundwater flow model. When refined on a site-specific basis, the model can be used to quantify the effects of groundwater stresses (for example, increased pumping or drought conditions) on water levels and to delineate recharge areas for specific water supply wells. Deliverable products from the hydrogeologic investigation and model development include preparation of a draft report including the conceptual model, documentation of the study methods and the computer model. Phase 3 is schedule for completion in 2012.

11. Land Records System development for integrating and managing Columbia County Land Records.

Goal(s): 1, 2, 3, 5, 6, 7, 8, 9, 10

The Columbia County LRS project was partially implemented in 2004 with full implementation in 2006. The LRS was developed to modernize all land records related data, systems and workflow in the Register of Deeds, the Land Information Department and the County Treasurer and to incorporate business goals of additional departments in the future. The LRS project provided an opportunity to improve the quality of our data and records. In addition to migrating to a modern LRS system that is better able to manage the complexity of the data, the LRS gave the departments an opportunity to examine and improve workflow internally and between departments. The LRS system is designed on business workflow, rather than the traditional departmentalized view of business functions.

The LRS system is a fully integrated and relational single shared enterprise database designed to improve work flow and efficiency in managing Columbia County land records data sets. The LRS has built in checks and balances, eliminates data redundancies, and has data integrity rules applied where appropriate. Data and workflow between the Register of Deeds, Land Information, and the County Treasurer are currently managed with the LRS with the flexibility to add additional departments in the future. In its present form data from the following business areas are managed using the LRS database and end-user data management tools: real property listing, management of assessment values, tax roll and tax billing, lottery credit management, tax delinquency, and County Surveyor survey record management. Additional data from the Register of Deeds real estate recordings (including electronic records) system is also shared eliminating redundancy between the Register of Deeds and the Land Information Department. Further enterprise geographic information system data is fully integrated allowing our "mapping" maintenance efforts can be managed more efficiently and accurately.

The LRS system was built in-house using contracted programmers based on specifications provided by the Land Information Department, the County Treasurer and the Register of Deeds. The database is in Microsoft SQL and front-end development being done using Microsoft .NET technologies. Third party software for the Register of Deeds was selected as it provides all the necessary tools for manage department data yet allows for data sharing with the LRS.

The results of this project include an in-house client for data management in the County Treasurer and Land Information Department, Fidlar software in the Register of Deeds, and several public web sites for access to data and reports and integrated GIS mapping.

Although developed only for meeting internal needs, Columbia County LRS has attracted much attention from the larger land records management user community. The county has been approached by several vendors over the last several years who desire to migrate the Columbia County LRS to a solution that can be implemented in other Wisconsin Counties. In 2009, Columbia County negotiated a license agreement with Transcendent Technologies. Since then Transcendent Technologies has installed LRS in 3 other counties.

12. Implementation of enterprise GIS.

Goal(s): 1, 2, 3, 6, 7, 8, 10

Columbia County has successfully migrated all file based GIS data to an enterprise wide Microsoft SQL ESRI ArcSDE geodatabase solution in early 2008. ArcSDE is a server software product used to access large multi-user geographic databases stored in relational database management systems (Columbia County Standard –Microsoft SQL). It is an integrated part of ArcGIS and a core element of any enterprise GIS solution. Its primary role is to act as the GIS gateway to spatial data stored in SQL. ArcSDE allows spatial data to be served to all county professional and desktop GIS users and to Internet clients through the Columbia County Interactive Mapping web application.

C. New Initiatives

This section contains critical information. It is the basis upon which local units of government can proactively establish prospective arrangements for cooperation, collaboration and confederation of efforts to save money, time, and effort, and avoid duplication of land information. It also defines the obstacles to such efforts so that they can be identified and removed.

1. Proposed Projects

Highlight specific activities that the county proposes to initiate to enable land information to be readily translatable, retrievable, and geographically referenced for use by any level of governmental unit and the public. Identify specific budget information, timeframes, staffing and other pertinent data associated with these initiatives.

The purpose of this section is to provide an outline of proposed projects that Columbia County would like to pursue if appropriate and if dollars are available to do so. The projects listed below are in no way intended to set policy for Columbia County.

- Proposed Project 1: Complete countywide parcel mapping quality control for city areas
- Proposed Project 2: Address workflow improvements, including between county departments and local municipalities. Re-evaluate current address management in Columbia County with the intent on improving current workflows and data models. This will include address issuance and address verification and use in key systems such as in the dispatch center. In addition, address related products will be proposed to provide ease of use by non-technical users.
- Proposed Project 3: Continue countywide land records modernization and GIS data integration as Land Records System project
- Proposed Project 4: Deploy GIS and land records data and technology to a broadening community of users
- Proposed Project 5: Develop GIS repository and land records data warehouse, using live data as a source, simplifying ease of use for internal users. Data warehouse would be the central point of access.
- Proposed Project 6: Continue active corner remonumentation
- Proposed Project 7: Incorporate GPS Remonumentation Points into digital tax parcel mapping creating a more accurate parcel map
- Proposed Project 8: Develop plan and budget goals for obtaining updated orthophotography in 2015, a 5 year update from 2010.
- Proposed Project 9: Continue maintenance of existing data sets
- Proposed Project 10: Scan, index, and redact real estate documents recorded in the Register of Deeds thru 1955. Funding will be collected from recorded real estate documents as allowed under Wisconsin Act 314.
- Proposed Project 11: The Planning & Zoning Department has several proposed projects they would like to complete, including additional use of land records system data in recently completed department data maintenance applications, sharing of department data with GIS resources, publication of data and shared data thru existing land records and mapping websites, development of maintenance plans for zoning mapping and automated zoning map books using parcel map books as a base, conversion of department GIS data to modern storage formats.
- Proposed Project 12: The Land & Water Conservation Department has several proposed projects they would like to completed, including additional use and integration of land records

data and resources into NR15 data management, improvement management of farmland preservation data and mapping, conversion of department GIS data to modern storage formats.

Proposed Project 13: Redesign of county interactive mapping applications to updated data web services. Improve access to data and build additional tool sets for ease of use. New tools integrating together typical GIS searches with typical land records database searches will be deployed in an effort to continue to make the use of GIS and land records data more seamless.

Proposed Project 14: Explore the possibility of receiving additional data elements from local assessors. Columbia County currently receives detailed property card data on all assessment codes from the local assessor. This data is used for analysis and sharing back with the local municipality. The Land Information Department will explore receiving addition housing related data from local assessors with the intent of publishing on county land records web sites. The intent of collecting and providing this data would be to provide transparency in government.

2. Assistance Requested

Describe any initiatives the county would like the Land Information Board to assist with (such as adoption of policies, standards, coordination, integration efforts, user needs assessments, technical assistance, education, funding). The following questions must be addressed:

- a. What is your county's strategy to secure the technical assistance needed to carry out your Land Information plan, including utilization of the land info technical assistance e-mail listserv (doa-landinfo@lists.wi.gov), training opportunities and contractual assistance?**

Columbia County has actively sought input from other counties, agencies and vendors prior to implementing projects and will continue to do so for our new initiatives. The county has Internet connectivity and utilizes the technical assistance List Server as appropriate. Columbia County is also a member of the LIO Network. It is our goal to enhance in-house technical expertise, and we will obtain technical assistance as needed from the private sector. In addition, technical assistance is obtained in several other ways that include affiliation with numerous professional associations, State, Federal and University contacts and private consultants.

- b. What is your county's plan to finance the costs to continue previous investments in land records modernization/integration made in whole or in part with Land Information Program funding?**

The WLIP document recording fees retained by the Columbia County and WLIP grants will continue to be a significant source of funding for land records modernization projects. The county has provided personnel and added tax levy funds when the revenue stream from the WLIP was not enough to move projects forward a timely manner. The county will use some WLIP funds for GIS and imaging system software and hardware maintenance expenses. The county personnel costs related to the land records system and data maintenance will continue to be funded by tax levy funds. Other funding partnerships or mechanisms will be investigated, as they become available

- c. What is your county's strategy for ensuring access to county land information, including publishing through a county website, FTP site, specialized online applications?**

Columbia County continues to ensure access to county land information by improving existing land records and mapping websites and by developing new ones. Integration between traditional land records and GIS applications continues to grow and mature. Columbia County has devoted significant resources to ensure that data integration is managed as a part of data custodial responsibilities and not simply

'pushed' together for distribution and public consumption. Columbia County continues to utilize public and staff comments on existing applications to improve access to data via the internet. In addition, input from the Land Information and Records Committee and the Land Information Council and special ad hoc working groups is actively sought. Access to all land records and mapping applications are available freely to the public. County surveyor images and other survey's are available at no cost, certified survey maps and other real estate documents are available for purchase. FTP is currently used primarily for data sharing of land records and GIS data.

d. What is your county's plan to participate in a statewide GIS repository when one is made available?

When a statewide GIS repository becomes available Columbia County will likely contribute all data as appropriate. At this time Columbia County would like to see data currency, format and exchange standards developed that are easily translatable to from Columbia County formats. In addition, Columbia County would like to see funding attached to implementing these data standards for submission to a statewide GIS repository.

e. How does the county plan to maximize resources by utilizing competitive procurement processes (bid, RFP and justified sole-source) consistent with State of Wisconsin and local procurement rules?

The county will continue to follow State statutes and county ordinances for the procurement of services and products related to this Plan.

3. Problems Encountered

Describe any projects or activities your county would like to undertake that has not been stated above. Please describe obstacles that have prevented your county from proceeding, such as staff, funding, coordination problems etc. Please be specific.

We have successfully dealt with unanticipated problems as they have occurred, especially in the area of hardware and shared files. If policies are adopted that would limit the use of WLIP funds for our planned activities, Columbia County would experience significant negative impacts. Limitations on the use of funds for maintenance, forcing County Boards to match grant dollars, or not allowing the use of retained fee dollars as matching funds would be detrimental to the county's land records modernization efforts. At this time, the only foreseeable problems would come for a lack of staff and funds to move ahead with all aspects of this plan. The Land Information Department has become increasingly aware of this problem in the last year as there are increased expectations of the Land Information Department and a decrease in available resources.

D. Custodial Responsibilities

1. Briefly identify the land information and data themes for which your county has custodial responsibility. (Ensure that these data are accurately recorded in your GIS inventory profile.)

Columbia County has the same custodial responsibilities for data as other counties in Wisconsin. These responsibilities have been established by Wisconsin statute and by county ordinance; Columbia County does not differ from other counties in this.

A listing of individual departmental responsibilities is presented below along with appropriate custodial authority in parentheses.

Register of Deeds

- Record deeds, mortgages, plat maps, certified survey maps, and other related documents (59.43)
- Scan aforementioned documents into county imaging system as received and files (59.43)
- Maintain tract index of real property (59.43)

County Treasurer

- Maintain tax financial information for all tax parcels (59.25)
- Drainage district payment records (88.18)

Land Information Department

- Maintain information on PLSS section corners including tie and section summary sheets (59.45)
- Maintain information on Columbia County Wisconsin HARN densification (59.45)
- Maintain files of private survey maps (59.45)
- Maintain files on field notes and other survey source documents (59.45)
- Create and maintain digital survey-accurate tax parcel maps (70.09 and Columbia County Internal Policy)
- Maintain description and ownership information of all real property parcels (70.09)
- Assign parcel numbers to track parcel activity (70.09)
- Maintain information on school and other special district codes (70.09)
- Maintain tax rates and special assessments (70.09)
- Enterprise GIS data (including: tax parcels, orthophotography, contours, terrain models, emergency medical services zones, road centerlines, hydrology, school districts, NRCS soils data, Wisconsin Wetlands data, FEMA flood boundaries, etc...) (Columbia County Internal Policy)

Land Conservation

- Create and maintain Farmland Preservation (a.k.a. Conservation Plans) plans (Columbia County Internal Policy)
- Monitor soil erosion control plans and water quality
- Farm preservation conservation plans (91)
- Land and water management plans (27)
- Notice of discharge plans and engineering NR243 (92)
- Transect survey data (Columbia County Internal Policy)
- Soils and water conservation data (92)
- Non-metallic mines (295.13)

Planning and Zoning

- Maintain zoning maps for unincorporated areas or areas under county jurisdiction (59.69)
- Maintain private sanitary sewer site plans (59.69)
- Non-metallic mines (295.13)
- Maintain permit database (Columbia County Internal Policy)
- File wetlands and FEMA maps (Columbia County Internal Policy)
- Maintain rural address maps (Columbia County Internal Policy)

Highway & Transportation

- File right-of-way plats and construction plans (Columbia County Internal Policy)
- Right of way plats and construction plans, pavement maintenance records, signage, traffic code, driveway permits, utility easements, tile casing permits (83)

Emergency Management:

- Offsite hazardous materials emergency response plans, special facilities database and map (166.12)
- Flood mitigation acquisition records (44cfr 78.5)

Sheriff's Department:

- Master address street guide (MSAG), dispatch records, accident records, crime records, complaint records, traffic citations (59.27)

2. Identify the source of your custodial authority: i.e. Wisconsin Statutes, Administrative Rule, Land Information Board Policy, Inter-governmental Agreement, internal policy, etc.

Wisconsin statute and county ordinance are the source of custodial authority. Sources of custodial authority are listed as part of previous section.

3. Identify the land information, and data for which your county would like to assume custodial responsibility.

No additional responsibilities are sought at this time.

4. Identify the land information and data for which your county will assume custodial responsibility if requested.

The county will consider any request for custodial responsibility and will evaluate each request based on available and required resources, ability for integration with other data sets, and conformance with the Columbia County Land Records Modernization Plan.

E. Framework Data, System Implementation and State-Wide 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. For some land information data, state, local or de-facto standards exist and may be in use. For each of the following sections:

- Please discuss key progress or initiatives for each framework data or system element listed.
- Please confirm your adherence to related standards or discuss your plan to maintain or achieve compliance with the standards corresponding to each element.
- Please discuss your plan to assume or maintain custodial responsibility (as applicable).
- Please discuss your long-range plan to maintain dataset currency over time as well as archive historical copies of datasets as appropriate.

Columbia County has made every effort to conform to all standards provided by the WLIB. The county has followed all state statutes and county ordinances.

Columbia County will make every effort to achieve, through the successful implementation of various processes, the goals and objectives of this modernization plan. These processes may include such tasks as completing the study of an issue, developing and instituting countywide standards, developing procedures and funding methods for ongoing maintenance, and forging new partnerships with public and private data developers and users.

Each required process will be presented in this section as a key feature of Foundational Elements, which are specific subsets of land information activities, which have been defined by the WLIB as vital to the development of a land information system. Unless otherwise noted, it is assumed that each key feature will be completed within the 5 year planning horizon of this Plan Update. It is envisioned that the activities of the listed key features will be funded by supplemental recording fees collected by the Register of Deeds Office as authorized under Wisconsin Statute 59.43(2) and by funds received through the Wisconsin Land Information Board grant-in-aid program, and that these revenues will be used to fund direct procurement, county staff and contractors as required to complete the plan activities. In some cases, additional revenues from user fees, local contributions, and direct county tax levy support may be required. These sources will be only used when authorized by the Columbia County Board through the normal cost-justification procedures within the budgeting process. Columbia County may choose to financially participate in projects proposed by local units of Government if the Columbia County Land Information and

Records Committee and Land Information Council and/or the Columbia County Board deem them to be in the best interest of the county.

1. Geographic Positioning Reference Frameworks

Confirm your adherence to standards where applicable.

- **Standards for Public Land Survey System Corners Corner Remonumentation. See Sec. 59.74 & 60.84 Wisc. Stats. and Wis. Admin. Code AE 7.08.**
- **PLSS Database Definitions <http://www.wlia.org/resources/standard7.pdf>**
- **National Standard for Spatial Data Accuracy, FGDC-STD-007.3-1998, <http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3>**

a) **Geodetic Control Networks**

In 1995, Columbia County completed geodetic densification from stations within the Wisconsin HARN. The network consists of 65 stations: 3 1 ppm, 13 2 ppm, 46 4 ppm, and 3 10 ppm - which were established using the WLIB Specifications and Guidelines to Support Densification of the Wisconsin HARN using GPS technology - June 1995. There is adequate horizontal geodetic control strategically placed throughout the county to meet county and other user needs. Coordinate values are available in Columbia County, State Plane and Latitude and Longitude. The county assumes the custodial responsibility for the densified control stations.

Columbia County will use the existing National Geodetic Survey (NGS) and US Geologic Survey (USGS) vertical network for vertical control. Any new stations set by the county would adhere to Third order standards.

In the collection and maintenance of this data, Columbia County has adhered to the following standards:

- FGDC standards and specifications [Chapter 236.18 Wisc. Stats]
- WLIB Specifications and Guidelines to Support Densification of the Wisconsin HARN using GPS technology- June 1995.
- Corner Remonumentation [Sec. 59.63(1); Sec. 60.84 (3)(c) Wisc. Stats]
- Remonumentation Records [Sec. 59.63 (1) Wisc. Stats and Wisc. Admin. Code AE 7.08 (2)]
- Coordinate Values [FGDC Third Order Class I]

b) **Public Land Survey System remonumentation and records automation**

Columbia County has an active corner remonumentation program that complies with the requirements of Wisc. Admin. Code AE 7.08 and/or state statute and we plan to continue the program countywide. The coordinates on the PLS corners use a combination of conventional survey and GPS technology meeting or exceeding the FGDC Third order, class I accuracy standard. Coordinates are maintained in the Columbia County Coordinate System, which is mathematically relatable to the North American Datum (NAD) 83(91). The county maintains custodial responsibility for the PLSS. All PLS corners tie sheets are scanned, indexed and available over the internet to the public at no cost thru Columbia County websites and the Wisconsin State Cartographer websites.

In the collection and maintenance of this data, Columbia County has adhered to the following standards:

- Corner Remonumentation [Sec. 59.63(1); Sec. 60.84 (3)(c) Wisc. Stats]
- Remonumentation Records [Sec. 59.63 (1) Wisc. Stats and Wisc. Admin. Code AE 7.08 (2)]
- Coordinate Values [FGDC Third Order Class I]

2. Orthoimagery and Georeferenced Image Base Data

a) **Photogrammetric base maps**

Columbia County has developed several countywide photogrammetric base maps derived from the 1995, 2002, 2007, and 2010 orthophotography projects. Data features include: road centerlines, railroad centerlines, hydrology arcs and polygons, 4-ft contours, driveway points, structure locations. In addition

several communities in Columbia County have developed planimetric base maps using the digital orthophotography as a base. All photogrammetric base maps developed by Columbia County meet either the National Map Accuracy Standards for 1" = 400' or 1" = 200' scale mapping.

b) Digital orthophotography (DOP)

Columbia County acquired digital orthophotography in 1995 with 23.60-inch pixel resolution as part of the SW Wisconsin Consortium. Countywide digital orthophotography projects in 2002, 2007 and 2010 were based on a 12-inch pixel resolution. Budget restraints will likely prevent Columbia County from updating orthophotography again until 2015. Several other years of orthophotography at 1 and 2 meter pixel resolutions from the National Agriculture Imagery Program has also been acquired.

c) Digital raster graphics

Columbia County has acquired scanned quadrangle images of USGS 24K topographic quadrangles from the Wisconsin Department of Natural Resources. All image files are .tiff format and referenced to the Columbia County Coordinate System.

d) Satellite imagery

Columbia County currently has no satellite imagery. If future applications require, the Land Information Office will take the necessary steps to acquire such data as is necessary.

e) Oblique aerial imagery

Columbia County currently has no oblique imagery. If future applications require, the Land Information Office will take the necessary steps to acquire such data as is necessary.

f) Historical aerial imagery

Columbia County Land & Water Conservation Department has numerous years of imagery available dating to 1940. Imagery is available in digital format, but is not geo-referenced.

3. Elevation Data Products and Topographic Base Data

a) Digital elevation models (DEM)

A DEM was prepared for the entire Columbia County area using photogrammetric stereo compilation procedures and methodology from the 2002 digital orthophotography. The DEM will support digital orthophotography production to National Map Accuracy Standards for 1" = 200' scale mapping.

b) Digital terrain models

A DTM was prepared for the entire Columbia County area using photogrammetric stereo compilation procedures and methodology from the 2002 digital orthophotography. The DTM will support digital orthophotography production to National Map Accuracy Standards for 1" = 200' scale mapping.

c) Triangulated irregular networks (TIN)

Columbia County used the 2002 DTM to produce a TIN for the entire county area.

d) Contours

Columbia County created 4-foot contour interval topographic data set generated from the break lines and mass vertical points using the TIN surface model created as part of the 2002 orthophotography project.

e) LIDAR data

Columbia County currently has no LIDAR data. If future applications require, the Land Information Office will take the necessary steps to acquire such data as is necessary. Additional funding sources and grant opportunities will be sought to offset the cost of this dataset.

f) IFSAR data

Columbia County currently has no IFSAR data. If future applications require, the Land Information Office will take the necessary steps to acquire such data as is necessary. Additional funding sources and grant opportunities will be sought to offset the cost of this dataset.

4. Parcel Mapping

Confirm your adherence to standards where applicable.

- FGDC's Cadastral Standards
<http://www.nationalcad.org/showdoclist.asp?doctype=1&navsrc=Standards>
- The WLIA's Parcel Geo-locator Standard <http://www.wlia.org/resources/geoparcel.pdf>
- Local Government standards compliance.
- The WLIA's Digital Parcel Mapping Standard <http://www.wlia.org/resources/standard6.pdf>

a) The preparation of parcel property maps that refer boundaries to the public land survey system and are suitable for use by local governmental units for accurate land title boundary line or land survey line information.

The digital parcel maps are referenced to the PLSS and are suitable for assisting with land title boundary or survey line determination. However, the parcel maps are not a substitute for a legal land survey or a guarantee of title. The digital parcel maps were developed using coordinate geometry methodologies to input surveys and subdivisions plats to construct the parcel boundaries. The digital parcel maps are completed and in maintenance for the 10 incorporated villages, 21 townships, and portions of 1 or 4 cities. Of the 4 remaining cities, 1 is currently partially completed and 3 are in queue for quality control. It is expected that by the end of 2015 all municipalities will be completed and in full maintenance. Tax parcels are maintained using GIS technologies and are updated daily by GIS Staff, with support from the Real Property Lister, in the Land Information Department. Tax parcel maps are compliant with standards established by Columbia County.

b) The preparation of property maps that do not refer boundaries to the public land survey system that are suitable for use by local governmental units for planning purposes.

Columbia County's parcel maps are tied to the PLSS and are suitable to support property taxes and for use by local governmental units for planning purposes and decision-making. The parcel maps are not a substitute for a legal land survey or a guarantee of title. Included in the tax parcel database will be information that directs users to the original source document or recorded instrument. Tax parcel maps are compliant with standards established by Columbia County.

c) Coordinate system used

Parcel maps in Columbia County are geodetically referenced the Columbia County Coordinate System which is mathematically relatable to the North American Datum (NAD) 83(91).

d) Parcel ID

The Columbia County parcel identification number was developed prior to the WLIA standard and does not fully conform to the WLIA Parcel Identification Numbering System. The parcel-mapping database is

designed so that the identification number can be generated to comply with the WLIA requirement and can be populated as the parcel mapping and database development proceeds.

5. Parcel Administration and Assessment Information

Confirm your adherence to standards where applicable.

- FGDC's Cadastral Standards
<http://www.nationalcad.org/showdoclist.asp?doctype=1&navsrc=Standards>
- The WLIA's Parcel Geo-locator Standard <http://www.wlia.org/resources/geoparcel.pdf>
- Local Government standards compliance.
 - a) **The design, development and implementation of a land information system that contains and integrates, at a minimum, property and ownership records with boundary information, including a parcel identifier referenced to the U.S. public land survey.**

The Columbia County integrated LRS for tax collection, real property listing, document registering and imaging system, and survey maintenance fully supports the integration of digital parcel maps with property and ownership information by linking data through key fields. By supporting the development of an integrated, technologically sound countywide LRS Columbia County continues to support modernization activities that represent horizontal integration of land information and systems within Columbia County and also vertical integration of land information and systems by town, city and village officials, state agencies, and other private entities.

The on-going development and completion on of a modernized land information system in 2006 in Columbia County will provide staff and residents of Columbia County and other interested users access to accurate, efficient, comprehensive, and usable databases containing land records information that is easily linked to the spatial tax parcel database. The LRS database was developed in Microsoft SQL and is thus easily integrated with GIS Microsoft SQL spatial datasets, including tax parcels, address points, and road centerlines, data that was redundantly maintained in both traditional and spatial databases in Columbia County is now maintained using only one source of data that is shared between the LRS and the GIS system working together as one integrated Land Information System.

As a result of the development of the LRS Columbia County established a Tract Index in the Register of Deeds for the first time in 2005. Tract Index data as with all other Land Records System data will be available for use in GIS by linking through key fields. The Columbia County grantor/grantee and Tract Index and Tax Files will be able to be integrated with the digital parcel maps. This integration will allow the retrieval of all land record documents and tax information based on digital map display and query.

- b) **Activities associated with modernizing the use of parcel level information once created from and in support of parcel maps, for example:**

Parcel ID

The Columbia County parcel identification number was developed prior to the WLIA standard and does not fully conform to the WLIA Parcel Identification Numbering System. The parcel-mapping database is designed so that the identification number can be generated to comply with the WLIA requirement and can be populated as the parcel mapping and database development proceeds.

Tax data

The tax database is designed so information can be accessed by community, parcel identification number, owner name, legal or tax parcel description, site address, or other data contained in the LRS. All tax data, current and historical, can be linked to spatial data sets using key fields.

Site Address

The Land Information Department has over the last 10 years been working to gather site addresses and attach to parcel site addresses countywide for the first time. We believe that at present about 99% of all county site addresses are accounted for and are being maintained in LRS and GIS and linked to the spatial tax parcel through key fields.

In addition to linking by tax parcel number, a spatial address point database was derived from orthophotography and GPS field collection to allow address locations to be located on structure locations. An integrate work flow between the Planning & Zoning and the Land Information Department was developed in late 2004 and continues to improve to integrate the address maintenance process for the first time in Columbia County. Although much refinement to this process is planned as a future Land Records Modernization task, addresses in Columbia County are being managed more efficiently than ever before. This work has formed the backbone of the traditional "Rural Address/Fire Number Maps" as maintained by the Planning & Zoning Department (responsible for issuing address permits), as well as being used in the wireless 911 applications in Emergency Management, crime-monitoring activities in the Sheriff's Department and the District Attorney, Environmental Health monitoring, and other applications.

Owner Name & Address

Owner name and address is managed as a shared resource in the integrated LRS and can be linked to spatial data using key fields.

The LRS has been designed to allow for staff to manage site address, owners address and tax bill mailing address. Owner name is a shared resource between the Register of Deeds grantor/grantee index and the Land Information Department Real Property Lister functions, and is keyed only one time in the Register of Deeds. As a single tax parcel may have several owners, often more than are than space allows for on a tax bill mailing label, an abbreviated owner list will also be available for report generation, mailing labels, tax billing, etc....

Description/current document pertaining to parcel

Tax parcel description is managed by the Land Information Department but is also a shared resource with the Register of Deeds where appropriate from the tract index. This applies to certified survey lots and subdivision and condo lots and blocks. This data is keyed by the Register of Deeds and shared by the Land Information Department Real Property Lister functions. Meets and bounds descriptions are keyed by the Real Property Lister. Data is linked to spatial tax parcel databases using key fields.

Documents pertaining to the tax parcel are maintained for both current documents and historical. Tax parcels history is also maintained thru links to parent tax parcels and child tax parcels created as the result of document records. As a result of the LRS integration with Land Information Department and Register of Deeds integration, all document references share data from both departments and images from the Register of Deeds image repository.

Document imaging

Columbia County has gone thru several upgrades and changes to document imaging since 2005 when images resided on the AS/400 system and were accessible only in the Register of Deeds. At present Columbia County has document imaging in the Register of Deeds using Fidar software solutions. These images are available on-line, to LRS, and to GIS with no duplication. Document imaging and indexing projects on-going in the Register of Deeds, resulting from Wisconsin Act 314 and county policy changes, will allow for documents from 1955 to be available in digital form by 2015. The Land Information Department document images and files are stored on a file share system. All images are available to internal users and the staff and the public on-line freely, using Fidar software, or the staff using an read only image viewer.

Real estate transactions

Real estate transactions can be searched using Fidar software and/or the LRS and thru several on-line resources. Real estate transactions data can be searched by grantor/grantee index, tract index, tax parcel history, legal or tax parcel description, or document history. Data can be tied to spatial databases using key fields.

Easements and restrictions, including conservation easements

Searches can be made using Fidar software or the LRS which allows for searches to be made by grantor/grantee index, tax parcel number (current or historical), document type, document date, tract index, legal or tax parcel description. Easements and restrictions, including conservation easements data can be tied to spatial databases using key fields.

Future land records modernization tasks will include mapping of easements and restrictions, including conservation easements. At present these data are only included when available as searching for documents of this type are limited.

Tax-exempt status

Tax-exempt status is a field that is managed by the LRS. The fields are carried as a code in the tax and assessment database and can easily be linked to the GIS parcel coverage using key fields.

Zip codes (including +4)

Zip codes are managed as part of the owner mailing address field, it is a shared resource in the integrated LRS and can be linked to spatial data using key fields. Zip codes are also attached to road names by municipality using USPS GIS data as a source.

Assessment class

Assessment class is a field that is managed by the LRS. The fields are carried as a code in the tax and assessment database and can easily be linked to the GIS parcel coverage using key fields.

Columbia County Land Information has dramatically improved the management of the assessment process with the development of the LRS. The LRS management current assessments and maintains historical data attached to current parcels using a relational data model. Both current and historical assessments can be linked to spatial data using key fields. Further enhancements to the assessment process include the requirement of digital assessment submission, as the county no longer accepting the responsibility of assessment data entry. Assessment data and is imported/exported to local governments using email or the county's FTP site. The assessment process in Columbia County is currently completed (importing/exporting, error checking, report building, and historical archiving) in a matter of minutes rather than several weeks.

Additionally Columbia County is requiring assessment codes to be submitted, as they are field collected on Property Cards. This method is beneficial to the local assessor in that the export of data at the start of each assessment year can be imported directly into commercially available assessment software and matches what is maintained on the Property Card. In addition local government or county departments can use the data for detailed analysis, land use planning, or for future land use mapping. The Land Information Department, as determined with the Assessor's Work Group, will only provide the collapsed State of Wisconsin Department of Revenue Assessment codes for public distribution.

Public lands

Public land descriptions are currently maintained only as a GIS database developed using the tax parcel data as a basis for information.

Liens

Searches can be made using Fidlar software or the LRS which allows for searches to be made using the grantor/grantee index, tract index, tax parcel number (current or historical), document type, document date, tract index, and legal or tax parcel description. If necessary liens could be linked to GIS data layers using key fields.

Evidence of Title

Searches can be made using Fidlar software or the LRS which allows for searches to be made by using the Register of Deeds grantor/grantee or searching by document number, tax parcel number (current or historical), document type, document date, tract index, and legal or tax parcel description.

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

Confirm your adherence to standards where applicable.

- **Local government compliant.**
- **US Postal Addressing Standards Publication 28**

a) Transportation network (streets, roads highways, railroads)

The transportation network dataset was created to represent highways, roads, bridges, and other features associated with transportation in Columbia County. The transportation features were derived from orthophotography and a vehicle mounted GPS unit, and other legal documents (Certified Surveys, Plats of Survey, etc.). County staff maintains data as required; updates are often made daily. Data maintained includes road location, functional class, name (primary, MSAG, alias, etc...), address ranges, ESA, and sources of last update document as well as additional data elements.

This file is used for a variety of purposes by many county departments for applications such as address location, pavement rating, emergency government, sign inventory, dispatch, accident location, planning activities, highway design, routing and database queries.

A collaborative agreement exists between the Land Information Department and local governments for management of data maintenance efforts. In particular official road name and length as reported to the WiDOT as part of the "Gas Tax Maps".

b) Rights of way

Highway right-of-ways are being developed and maintained as a layer within the GIS system and the Land Records System using the data maintained or gathered as part of parcel mapping maintenance process for current right-of-ways documents. Development of this layer is dependent on progress of parcel mapping and availability of right-of-way documents. All new right-of-way are being managed as a part of the parcel-mapping project; historical documents are entered as when and where they are used for parcel mapping efforts.

Integration of other historical right-of-way information will be completed as information, funding, hardware/software, and staff become available into the GIS data layer when and where appropriate. At this time, no specific target dates have been established.

c) Centerlines

The transportation network dataset was created to represent highways, roads, bridges, and other features associated with transportation in Columbia County. The transportation features were derived from orthophotography and a vehicle mounted GPS unit, and other legal documents (Certified Surveys, Plats of Survey, etc.). County staff maintains data as required; updates are often made daily. Data maintained includes road location, functional class, name (primary, MSAG, alias, etc...), address ranges, ESA, and sources of last update document as well as additional data elements.

This file is used for a variety of purposes by many county departments for applications such as address location, pavement rating, emergency government, sign inventory, dispatch, accident location, planning activities, highway design, routing and database queries.

A collaborative agreement exists between the Land Information Department and local governments for management of data maintenance efforts. In particular official road name and length as reported to the WiDOT as part of the "Gas Tax Maps".

Centerline files contain basic routing information, however, this data is very generic. Columbia County would greatly benefit from creating a more accurate dataset allowing for better directions and timely routes to be developed. Future work in this area will be explored over the next 5 years.

d) Address ranges

Address ranges on centerlines were developed 2006 to support wireless 911 activities in the Sheriff's Department and Emergency Management using the centerline files as base. Funding for this project was from the *Grant from the Wireless 911 Fund*. Data is maintained as new centerlines are added from field collection of new address locations, existing address points, and/or theoretical address grid.

e) Site address data base

The Land Information Department has over the last 10 years been working to gather site addresses and attach to parcel site addresses countywide for the first time. We believe that at present about 99% of all county site addresses are accounted for and are being maintained in LRS and GIS and linked to the spatial tax parcel through key fields.

In addition to linking by tax parcel number, a spatial address point database was derived from orthophotography and GPS field collection to allow address locations to be located on structure locations. An integrate work flow between the Planning & Zoning and the Land Information Department was developed in late 2004 and continues to improve to integrate the address maintenance process for the first time in Columbia County. Although much refinement to this process is planned as a future Land Records Modernization task, addresses in Columbia County are being managed more efficiently than ever before. This work has formed the backbone of the traditional "Rural Address/Fire Number Maps" as maintained by the Planning & Zoning Department (responsible for issuing address permits), as well as being used in the wireless 911 applications in Emergency Management, crime-monitoring activities in the Sheriff's Department and the District Attorney, Environmental Health monitoring, and other applications.

f) Address point, structure and/or driveway

Address point GIS databases were built on structure locations in 2006 from orthophotography and/or GPS field collections. Data is maintained from addresses issued from the Planning & Zoning Department or local municipalities and then GPS field verified. Addresses are maintained in LRS and GIS and verified with the MSAG as maintained by Columbia County Dispatch. Driveway locations, stored as vector features in the GIS were derived from orthophotography or GPS field visits for shared driveways or for structures not visible from the main road.

g) Road names

Road names are managed from a variety of sources of public record including the WiDOT "Gas Tax Maps", and other sources, including plats, parcels, and information from the local municipalities. In addition to primary road names, secondary, tertiary, and quaternary road names are also maintained if applicable. A collaborative agreement exists between the Land Information Department and local governments for management of data maintenance efforts. In particular official road name and length as reported to the WiDOT as part of the "Gas Tax Maps".

Road name maintenance is presently managed as part of the LRS and share with GIS spatial databases (road centerlines and address points). Verification with MSAG databases is also performed. Although

data is stored in a central shared location, additions work to develop more efficient workflow would greatly improve data management. This will require a significant amount of cooperation between departments and other agencies.

h) Functional class

Functional classification codes are based on the WiDOT "Gas Tax Maps". Functional classes distinguish between rural and transportation and defined urban transportation areas. Therefore, proper assignment of this attribute requires that road arcs be split at the rural/urban boundaries.

All efforts are being made to maintain correct any Functional Class Codes in the road centerline GIS data layer. Information from the WiDOT "Gas Tax Maps" or other sources, including plats, parcels, and information from the local municipalities are being incorporated into this dataset and being thoroughly checked.

i) Places/Landmarks

Place/Landmarks GIS features were developed in 2006 resulting from work done in support of the Wireless 911 implementation. The Land Information Department will work Emergency Management, Dispatch, and other departments to develop a maintenance plan. No specific target dates have been set.

j) Integration with the County's/City Master Street Address Guide (MSAG)

MSAG data is currently fully integrated with road centerline and site address databases. This work was completed in 2006 with GIS data becoming an integrated key component to Dispatch Center operations. The Land Information Department has recently been working with the Dispatch Center to gain a better understanding of how MSAG data is maintained in an effort to improve workflow between county datasets and MSAG datasets. Future plans will likely include an automated update process to be developed. As information, funding, hardware/software, and staff becomes available, these maintenance practices will be developed, implemented and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

k) Ability to support emergency planning, response and mapping

The Land Information Department is currently able to support emergency planning, response and mapping efforts requiring GIS and LRS data sets. The department has demonstrated this by participating in the preparation several emergency plans, and in several emergency response events related to flood events. Support has been given in the form of data, reports, analysis, on-line and hard copy mapping.

l) Ability to support Wireless 911

The Land Information Department, with the support of other county departments, has the both the knowledge and technical ability to support wireless 911 in Columbia County.

7. Hydrography, Hydrology and Wetlands Mapping

Confirm your adherence to standards where applicable.

- **Wisc. DNR Wetlands Map (Wisc. Stat. 23.32 Wisc. Stats.)**

a) Hydrography

Columbia County has developed a GIS data layer of surface water features layer that include rivers, lakes, streams and drainage ditches and other hydrographic phenomena. This data was derived from the 1995 and 2002 orthophotography project. Primary feature name were added as part of the hydrography database in 2009.

b) Watersheds

Columbia County has obtained and integrated watersheds into its enterprise GIS. This data set represents watersheds as delineated by the WiDNR. The data are compiled from 1:24,000-scale topographic maps. WiDNR watershed delineations generally indicate areas that drain into a common river system or lake, but may also be based on WiDNR basin management criteria. The custodian of this data set is the WiDNR.

As part of the 2002 orthophotography project, Columbia County created 4-foot contour interval topographic mapping, a TIN surface model, and a DEM. These data sets will be used to generate a more accurate watershed and sub watershed data layer in Columbia County. Sub watershed basins will be created as required; no timeline is set for delineating countywide sub basins

c) Hydrogeology

In 2009 Columbia County partnered with the WGNHS to complete a ground water mapping project in 3 phases over several years. Phase 1 is the Compilation and analysis of baseline groundwater information and will result in the development of water table and aquifer susceptibility maps. These datasets and mapping products are scheduled for completion in 2011. Phase 2 of the project is mapping of the bedrock geologic for Columbia County. This work effort will include extensive data compilation and a bedrock-drilling program. The WGNHS will undertake this project phase using federal and state funding sources, with no funding required from Columbia County. Final deliverable will include a bedrock geology map of Columbia County. Expected completion is 2012. Finally phase 3 will be the hydrogeologic investigation and development of groundwater flow model. Using geologic and hydrogeologic data produced in Phases 1 and 2, Phase 3 will determine the extent, thickness, elevation, and hydraulic properties of significant groundwater aquifers and aquitards. Phase 3 also includes development and use of a computer groundwater flow model. When refined on a site-specific basis, the model can be used to quantify the effects of groundwater stresses (for example, increased pumping or drought conditions) on water levels and to delineate recharge areas for specific water supply wells. Deliverable products from the hydrogeologic investigation and model development include preparation of a draft report including the conceptual model, documentation of the study methods and the computer model. Phase 3 is schedule for completion in 2012.

d) Impacts on the environment (e.g. groundwater contamination, storm water)

WiDNR digital data holdings include data developed in the late 1980s for a Groundwater Contamination Susceptibility Model (GCSM), but they are derived from small-scale sources (1:250,000 or 1:500,000) with very limited attribution, and would be inappropriate for site-specific analysis and the county or local level. This data set can be acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

Extensive research done in 2000 with further inquiries in 2004 suggests other data relevant data sets available from WiDNR are from various scattered programs with regulatory authority regarding environmental impacts or pollution management. These programs are responsible for managing data on toxic chemical releases, water quality, fish consumption advisories, etc. They provide access to their data by a variety of means. This data set can be acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

When completed the ground water mapping project, scheduled for completion in 2012, will allow for modeling of ground water management issues specific to Columbia County. The groundwater flow model provides science-based information about groundwater resources. Model results are used to manage these resources, and to ensure continued availability of high quality drinking water and preservation of local surface-water features. The flow model simulates water levels and the rates and directions of groundwater flow and provides accurate estimates of changes in groundwater levels resulting from changes to the groundwater system, such as additional wells or changes in rainfall. Local government officials, citizens, and businesses make use of model results to assist with numerous types of natural resource, land use, and economic decisions.

e) Wetlands mapping activities

Columbia County utilizes the Wisconsin Wetland Inventory (finalized 1983). The county obtained digitized wetland areas based on hardcopy maps from by the WiDNR, Bureau of Water Regulation and Zoning. They have been projected to Columbia County Coordinates.

8. Soils Mapping

a) Soils mapping activities

Columbia County partnered with the NRCS to convert the hardcopy soils survey maps to a digital format in 2001. Attribute information has been maintained in cooperation with NRCS. The digital soils map has been certified by NRCS to be compliant to their national standard.

Soils databases are available on the GIS file server to internal users and can be provided to outside users that require it. A limited subset of soils data is available to the public on the county's internet Interactive Mapping Site, also available are data layers derived from soils database tables.

In addition the NRCS Soils data viewer and the "GIS Tables" are available for technical users in Columbia County. The Wisconsin NRCS office provided the "GIS Tables". They were created using soil tabular data, and have been processed to facilitate use in GIS software.

b) Land cover

Columbia County has obtained and integrated the "WISCLAND" is the Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data (WiDNR Classification of Land Cover from satellite imagery) into its GIS although it is generally not applicable for local government work. In addition, Columbia County has also obtained and integrated the several years of Cropland Data Layer into its GIS from the USDA –National Agriculture Statistics Service. The Cropland Data Layer is categorized land cover data layer produced using satellite imagery from the Thematic Mapper (TM) instrument on Landsat 5 and the Enhanced Thematic Mapper (ETM+) on Landsat 7. Although the data layer provides crop specific information, it is generally not applicable for local government work. No specific target dates have been set; data development will require additional staff time and/or funding.

c) Forests

Columbia County has obtained and integrated the WiDNR Original Vegetation Cover data set into its GIS although it is generally not applicable for local government work. This data set was derived from 1:500,000-scale sources showing the original, pre-settlement vegetation cover in Wisconsin. The original vegetation cover data was digitized from a 1976 map created from land survey notes written in the mid-1800s when Wisconsin was first surveyed. Lakes and other hydrographic areas from the 1:250,000-scale Land Use and Land Cover (LULC) data layer and the 1:100,000-scale state boundaries were subsequently merged with the original vegetation cover data set to more closely match the source map.

Data layers for Managed Forest Law and Forest Crop Law are recently available from the WiDNR Bureau of Forestry. The Land Information Department will acquire and integrate this data set into the Columbia County GIS system when and where appropriate. Managed Forest Law and Forest Crop Law are maintained in the Land Records System. The fields are carried as a code in the tax and assessment database and can easily be linked to the GIS parcel coverage using key fields as required. Managed Forest Law and Forest Crop Law data layers, using tax parcels as a basis for work, were created for 2003 and 2004 assessment years. No specific target dates have been set to complete additional work.

Columbia County begun to derive woodland GIS data in 2008 using the 2007 orthophotography as a base. Data is general areas only with no attributes on cover type being added. As additional funding and staff

time become available, this work will be completed. It is anticipated a countywide woodlands dataset will be available by 2015.

d) Geology

WiDNR digital data holdings include bedrock type, bedrock depth and water table depth developed in the late 1980s for a Groundwater Contamination Susceptibility Model (GCSM), but they are derived from small-scale sources (1:250,000 or 1:500,000) with very limited attribution, and would be inappropriate for site specific analysis and the county or local level. This data set can be acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

In 2009 Columbia County partnered with the WGNHS to complete a ground water mapping project in 3 phases over several years. Phase 1 is the Compilation and analysis of baseline groundwater information and will result in the development of water table and aquifer susceptibility maps. These datasets and mapping products are scheduled for completion in 2011. Phase 2 of the project is mapping of the bedrock geologic for Columbia County. This work effort will include extensive data compilation and a bedrock-drilling program. The WGNHS will undertake this project phase using federal and state funding sources, with no funding required from Columbia County. Final deliverable will include a bedrock geology map of Columbia County. Expected completion is 2012.

e) Non-metallic mining

Extensive research done in 2000 with further inquiries in 2004 suggests that no non-metallic data layer is available for Columbia County from the WiDNR or WGNHS or other source. If data becomes available in the future it can be acquired and integrated into the Columbia County GIS system when and where appropriate.

The Columbia County Planning & Zoning Department developed a GIS data set in 2008 to support department needs. The Planning & Zoning Department is responsible for all updates as new permits are issued.

f) Hydrogeology

In 2009 Columbia County partnered with the WGNHS to complete a ground water mapping project in 3 phases over several years. Phase 1 is the Compilation and analysis of baseline groundwater information and will result in the development of water table and aquifer susceptibility maps. These datasets and mapping products are scheduled for completion in 2011. Phase 2 of the project is mapping of the bedrock geologic for Columbia County. This work effort will include extensive data compilation and a bedrock-drilling program. The WGNHS will undertake this project phase using federal and state funding sources, with no funding required from Columbia County. Final deliverable will include a bedrock geology map of Columbia County. Expected completion is 2012. Finally phase 3 will be the hydrogeologic investigation and development of groundwater flow model. Using geologic and hydrogeologic data produced in Phases 1 and 2, Phase 3 will determine the extent, thickness, elevation, and hydraulic properties of significant groundwater aquifers and aquitards. Phase 3 also includes development and use of a computer groundwater flow model. Phase 3 is schedule for completion in 2012.

g) Impacts on the environment (e.g. groundwater contamination, storm water)

WiDNR digital data holdings include data developed in the late 1980s for a Groundwater Contamination Susceptibility Model (GCSM), but they are derived from small-scale sources (1:250,000 or 1:500,000) with very limited attribution, and would be inappropriate for site-specific analysis and the county or local level. This data set can be acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

Extensive research done in 2000 with further inquiries in 2004 suggests other data relevant data sets available from WiDNR are from various scattered programs with regulatory authority regarding environmental impacts or pollution management. These programs are responsible for managing data on

toxic chemical releases, water quality, fish consumption advisories, etc. They provide access to their data by a variety of means. This data set can be acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

When completed the ground water mapping project, scheduled for completion in 2012, will allow for modeling of ground water management issues specific to Columbia County. The groundwater flow model provides science-based information about groundwater resources. Model results are used to manage these resources, and to ensure continued availability of high quality drinking water and preservation of local surface-water features. The flow model simulates water levels and the rates and directions of groundwater flow and provides accurate estimates of changes in groundwater levels resulting from changes to the groundwater system, such as additional wells or changes in rainfall. Local government officials, citizens, and businesses make use of model results to assist with numerous types of natural resource, land use, and economic decisions.

h) Endangered resources

The data can be acquired from WIDNR Bureau of Endangered Resources , however location information may be generalized to provide more protection of rare species. This data set can be acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

9. Land Use Mapping

Confirm your adherence to standards where applicable.

- **Local government compliant.**

a) Mapping of existing land use

Columbia County Planning & Zoning Department has developed a land use inventory of existing land use for all of townships using the orthophotography as a base for all work in 2002. Other sources of base information included the digital parcel maps (where available), hydrology, and public lands GIS data layers. In addition, county staff and local government officials completed field verification. Columbia County staff developed the land use classification system used: it is based on universally accepted codes for land use classification that are widely accepted in the professional planning field. This data layer although meeting local government requirements is does not use the Department of Revenue Land Use Classification System. At present, no plan for data maintenance or use of the Department of Revenue Land Use Classification System has been established. This data set will updated with a revision of the Columbia County Land Use Plan, no specific dates have been set for this work. The most recent version of the County Land Use Plan was adopted in 2007.

b) Mapping of planned land use

Using the existing land use GIS dataset as a base, the Columbia County Planning & Zoning Department has developed a future land use GIS data set to support planning activities for Columbia County and for local townships. This dataset is maintained by the Planning & Zoning Department using plan amendments requests as the primary source.

10. Zoning Mapping

Confirm your adherence to standards where applicable.

- **Zoning Mapping Standards (Local Gov't. Compliant)**
- **DNR Floodplain Zoning NR 115/117**

a) Zoning Districts

Digital zoning maps have been developed by the Planning & Zoning Department using the digital parcel maps as a base for the 19 Towns in Columbia County under county zoning. Zoning maps are maintained independently of digital tax parcels by Planning & Zoning Department staff. Zoning amendments made by the Columbia County Board are incorporated into the digital zoning maps on a regular basis. The Columbia County Zoning Map meets all zoning classifications identified in the County Zoning Ordinance used for towns.

b) Shorelands

A digital shorelands zoning data set does currently exist, but can be generated by creating a 1000 ft. buffer from lakes and 300 ft. from lakes.

c) Floodplains and floodways

Columbia County is using the FEMA DFIRM for floodplain and floodway determinations. DFIRM data has been incorporated into the GIS system in both image and polygon formats. DFIRM mapping became available in 2008 for Columbia County.

d) Environmental corridors

Columbia County Planning & Zoning Department created a countywide data set to support planning activities.

e) Burial sites

Some sites have been incorporated into the enterprise GIS using local historians as a source; data is not available for public distribution. There are no other plans at this time to integrate this data into the county GIS. Further evaluation of security and preservation issues is required.

f) Archeological sites

Some sites have been incorporated into the enterprise GIS using local historians as a source; data is not available for public distribution. There are no other plans at this time to integrate this data into the county GIS. Further evaluation of security and preservation issues is required.

g) Historic/cultural sites

Some sites have been incorporated into the enterprise GIS using local historians and the State of Wisconsin Historical Society as a source; data is not available for public distribution. There are no other plans at this time to integrate this data into the county GIS. Further evaluation of security and preservation issues is required.

11. Election and Administrative Boundary System

Confirm your adherence to standards where applicable.

- **Local government compliant.**

a) Election (voting district) boundaries, precincts, wards, supervisory, voting places etc)

Columbia County has developed voting ward, aldermanic and supervisory district boundary GIS layers as part of the 2000 Census redistricting process. Areas from the 1990 and 2000 census were delineated as GIS data sets. District boundaries are continually being updated as annexations or other requirements dictate. A collaborative agreement exists between the Land Information Department, the County Clerk's Office and local government for data maintenance efforts. Data is available in both map format as well as

on a parcel by parcel basis and is available to staff and the public using existing mapping and land records websites.

b) Legislative districts

Columbia County has not incorporated or developed this data set into our GIS systems or other county databases. The Land Information Department can easily build data layers related to Congressional districts, State Assembly Districts, and State Senate Districts using local voting districts as a base for information. No specific target dates have been set for development of these datasets.

c) Utility districts (.e.g. water, sanitary, electric, etc.)

Columbia County Land Information Department has developed sanitary districts using the tax and assessment database as a source for information. As information, funding, hardware/software, and staff becomes available, these boundary files will be enhanced from other sources of public record that include a bounding description and integrated into the Columbia County enterprise GIS system. No specific target dates have been set for development of other utility district datasets.

In 2009, drainage district boundaries were mapped using the data provided by the Columbia County Drainage District engineer as the primary sources. These districts are integrated with county GIS systems and LRS databases. Data is regularly shared with the district engineer for updating both county and district datasets.

d) School districts

A GIS based school district boundary layer has been developed using digital tax parcel maps as a basis where available. LRS tax and assessment databases were used as a primary source and continue to be used to verify boundaries as necessary.

e) Tax incremental financing districts

As information, funding, hardware/software, and staff becomes available, these boundary files will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set for development of these datasets.

The fields are carried as a code in the tax and assessment database and can easily be linked to the GIS parcel coverage using key fields.

f) Agency administrative districts and Zip Codes

As information, funding, hardware/software, and staff becomes available, these boundary files will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

Zip Codes boundary files have been acquired from the US Census Bureau; data should be verified with local US Postal officials. No specific target dates have been set to complete this work.

g) Census geographies

Blocks, Block groups, Tracts have been incorporated into the county's enterprise GIS. Population and other statistical tables are also available for use.

Designated places, Urban areas, Traffic analysis zone data sets have not been incorporated into the county's enterprise GIS. No specific target dates have been set for incorporation of these datasets. As need arises these data sets will be acquired from the US Census Bureau.

h) Civil division boundaries (Towns, City, Villages etc)

The civil and municipal boundaries within Columbia County have been constructed using GPS based or other public land survey data and information made available from individual municipalities. This information will be updated as more accurate data is developed from the county's parcel mapping efforts.

i) Public Administered Lands, ie parks, forests etc

Public lands are currently maintained only as a GIS database developed using the tax parcel data as a basis for information. Information on name, managing agency, size, and recreational activity is stored as part of the data set. All Federal, State, and county publicly administered lands are included. Data is maintained using tax parcel information or other sources of data such as the WiDNR as appropriate.

As information, funding, and staff become available locally managed public lands will also be integrated into the GIS data layer when and where appropriate. Although some work has been completed, no specific target dates have been established for completed remaining municipalities.

j) Native American lands

As information, funding, hardware/software, and staff becomes available, these boundary files will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

k) County boundaries

The county has developed these data in our GIS system and will be updated as more accurate county sources such as tax parcel maps and GPS based public land survey data become available.

l) State outline

The county has developed these data in our GIS system and will be updated as more accurate county sources such as tax parcel maps and GPS based public land survey data become available.

m) Lake districts

Columbia County Land Information Department has developed lake districts using the tax and assessment database as a source for information. As information, funding, hardware/software, and staff becomes available, these boundary files will be enhanced from other sources of public record that include a bounding description and integrated into the Columbia County enterprise GIS system. No specific target dates have been set for development of these datasets. Some work has already been completed as required. A collaborative agreement exists between the Land Information Department, the local government or Lake District management for data maintenance efforts. No specific target dates have been set for development of the remaining district areas.

The fields are carried as a code in the tax and assessment database and can easily be linked to the GIS parcel coverage using key fields.

12. Infrastructure and Facility Management

a) Emergency Service Districts

A GIS based layer containing Fire, EMS, law enforcement, and response service districts has been developed. This dataset is critical for Columbia County Dispatch and Emergency Management. A collaborative agreement exists between the Land Information Department and Emergency Government for data maintenance efforts.

b) 911 call center service areas & center locations

A GIS based layer containing service center locations has been developed. This dataset is critical for Columbia County Dispatch and Emergency Management. A collaborative agreement exists between the Land Information Department and Emergency Government for data maintenance efforts.

c) Fire/Police Districts

A GIS based layer containing Fire and Police districts has been developed. This dataset is critical for Columbia County Dispatch and Emergency Management. A collaborative agreement exists between the Land Information Department and Emergency Government for data maintenance efforts.

d) Fire/Police Stations

A GIS based layer containing Fire and Police stations has been developed. This dataset is critical for Columbia County Dispatch and Emergency Management. A collaborative agreement exists between the Land Information Department and Emergency Government for data maintenance efforts.

e) Hospitals and healthcare facilities

A GIS dataset was developed in 2006 resulting from work done in support of the Wireless 911 implementation. At present no maintenance strategy for this dataset is in place. The Land Information Department will work Emergency Management, Dispatch, and other departments to develop a maintenance plan.

f) Government facilities

A GIS based layer containing government facilities, county and local, has been developed. This data was developed in 2006 resulting from work done in support of the Wireless 911 implementation. At present no maintenance strategy for this dataset is in place. The Land Information Department will work Emergency Management, Dispatch, and other departments to develop a maintenance plan. In addition, the Land Information Department has contracted for a certified survey map of all county properties to be created.

g) Utilities - not districts (e.g. gas, electric, sanitary, water, phone, telecommunications etc.)

Utilities are responsible for their own infrastructure mapping although use of the County base map will be encouraged. As information, funding, hardware/software, and staff becomes available, data will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set. Some utility datasets have been acquired for use in the county planning process from outside sources such as the Wisconsin Public Service Commission.

h) Parks & Recreational Trails

Public lands are currently maintained only as a GIS database developed using the tax parcel data as a basis for information. Information on name, managing agency, size, and recreational activity is stored as part of the data set. All Federal, State, and county publicly administered lands are included. Data is maintained using tax parcel information or other sources of data as appropriate. The Land Information Department has created and maintains GIS data layers for the Ice Age trail, State and County Snowmobile trails, and rural roads. As Columbia County has no Parks and Recreation Department, the Land Information Department must rely on other departments or outside agencies support in maintaining recreational trails data. Collaborative agreements with the Association of Columbia County Snowmobile Clubs have been established to help support data maintenance of snowmobile trails. Columbia County does not maintain any other public trail systems.

As information, funding, and staff become available locally managed public lands and trail systems will also be integrated into the GIS data layer when and where appropriate. Although some work has been completed, no specific target dates have been established for completed remaining municipalities.

i) Transit systems

At present the only transit system in Columbia County is AMTRAK. A GIS database of AMTRAK stations has been developed. Railroad centerlines are maintained as part of the county's transportation network.

j) Bridges, culverts, traffic road signs

Locations of bridges have been identified as part of the 1995 and 2002 orthophotography project although no attributes have been attached to the spatial database. As information, funding, hardware/software, and staff becomes available, data will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

The Columbia County Highways & Transportation Department keeps a database of federal, state and county road sign locations and conditions. This dataset is used primarily for sign maintenance and is not spatially enabled. No plans to create GIS databases for road signs currently exist. As information, funding, hardware/software, and staff becomes available, data will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate.

k) Airports and airfields

Columbia County has acquired a point based GIS data file from the Wisconsin Public Service Commission locating all airports of any size in Columbia County. This data has been projected into Columbia County Coordinates and is integrated into the GIS system. Data will be maintained by acquiring new data from the Wisconsin PSC or other sources as appropriate.

l) Harbors

Not applicable for Columbia County.

m) Boat landings

The location of boat launches has been determined for all state and county and some local launch areas. Sources of data include WiDNR, the County Highway & Transportation Department, and local government publications. Some locations were located using a hand held GPS device; others were located from the orthophotography. Where available attribute data managed includes the name of the launch, water body name, launch type, parking or other facilities available and managing agency. As information, funding, hardware/software, and staff becomes available, data will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

n) Hazardous materials sites; LUST (Leaking Underground Storage Tank) etc.

Some information and GIS datasets have been collected from other agencies to support county planning efforts. As information, funding, hardware/software, and staff becomes available, data will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

o) Landfills

Some information and GIS datasets have been collected from other agencies to support county planning efforts. As information, funding, hardware/software, and staff becomes available, data will be developed and/or acquired and integrated into the Columbia County GIS system when and where appropriate. No specific target dates have been set.

13. Data Base Design

Confirm your adherence to standards where applicable.

- GIS Data Exchange Between Wisconsin Public Agencies, WLIA, 1996
<http://www.wlia.org/resources/standard5.pdf>

a) Design Evaluation

Columbia County follows industry-accepted standards for database design and system engineering. The standards are evaluated on an ongoing basis. County staff and/or GIS or other database development consultants closely review designs of existing and new databases. Pilot projects are often undertaken to determine functionality and refine the final design.

b) Project Approach

Columbia County defines a project as a unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or team to meet specific objectives within defined time, cost and performance parameters. It should have the following characteristics: a finite and defined lifespan, defined and measurable business products (that is, deliverables and/or outcomes to meet specific business objectives), a corresponding set of activities to achieve the business products, a defined amount of resources, an organization structure, with defined responsibilities, to manage the project.

Columbia County uses basic Project Management standards in its approach project development and maintenance. Issues such as the type of solution: design from scratch (internally resourced, contracted out), operational environment - standards to apply to final outcome, resource requirements (internal/external), and the reasons for the approach (organizational standards, availability of skills and equipment) are addressed with the project life cycle.

c) Timeline

The timeline for development and implementation is based on priorities and issues related to funding and staff levels. As major funding for these projects rely on retained fees and County Board approval, much is driven by the current economic situation.

d) Metadata policies

Columbia County has developed FGDC compliant metadata for all GIS data sets and will continue to update metadata as appropriate. Metadata will be posted to the Wisconsin Land Information Clearinghouse.

e) Security/Privacy policies

The Columbia County Management Information Systems Department maintains the security and back-up systems for all GIS and land records servers. Outside access to the county computer network is shielded from outside intrusion by a firewall.

Columbia County adheres to the Wisconsin Open Records Law and complies with State statutes for access to restricted records. The county continues to monitor the industry and public concerns related to privacy and distribution of data.

f) Implementation and Maintenance Strategy

Columbia County develops an implementation and maintenance strategy for each application or database individually as appropriate. The user department often performs testing once the application has been implemented as staffing, financial, and technical restraints often require. As the user performs testing implementation is often a done in a multi-phased approach; as a logical section of an application is completed by programmers it is installed immediately for user testing prior to the final application being complete. Using this approach, data objects, models, work flow, business needs, and user interface can

be adjusted prior to having other factors attached to them that require a stable data model. County staff in the user department, Management Information Systems Department, or contracted services outside of county staff performs application and database maintenance.

g) Data quality management

The Land Records System developed in Columbia County has built in automated error checking where appropriate. In addition, standardized domain tables in the LRS and GIS databases have been developed to limit user input to acceptable values where appropriate. Tables and data are shared between the GIS and LRS in an effort to develop standardized databases for all users. By using standard tables not only are values consistent across all database applications but also changes can be globally in one area rather than in many separate data tables. Where automated error checking is not possible, manual error checking and redundant data entry is used. In addition, reports that aid county staff or local officials in finding errors are produced using LRS and GIS integrated data.

In an effort to maintain data of the highest quality the Land Information Department has established informal data sharing arrangements with other county departments, towns & cities, consultants working for towns or the county, and State agencies. In exchange for receiving GIS data free of charge, errors found in the data are reported to the Land Information Department to be verified and/or corrected.

h) Needs assessment

Columbia County's Land Information and Records Committee and Land Information Council, which is made up of elected and appointed officials, discusses and prioritizes needs. The LIO remains in contact with land records customers on a daily basis to establish or refine user needs. Land records customers include all departments in Columbia County that deal with land records and some that are not traditionally thought of as land records related, state and local government, and the public.

In addition to meeting with internal customers the LIO remains in contact with land records customers within local municipalities and other agencies regularly. The Land Information Department has established topical work groups as needed, in an effort to ensure local land records needs are met and accounted for.

Discussion of user needs more often than not involves many departments in an effort to develop an integrated system in Columbia County. Documentation of user needs will often leads to the development of a project management plan that outlines not only user needs but opportunities and methodology for data integration, outlining project scope, defining goals, and identifying funding sources.

i) Data structure and format (e.g. topology)

All GIS data sets either produced by Columbia County or integrated into the enterprise GIS are topologically structured for arcs, areas, or points as are required by the data theme. Topology is used to ensure data quality and to allow you're the GIS database to more realistically represent geographic features which enables you to more accurately model the world and maintain referential integrity between objects in the database. All databases are developed at relational databases.

j) GIS Data Model

The data format used for GIS maintenance tasks in Columbia County is ESRI's enterprise SQL server geodatabase format. This format is used for most other mapping or analysis task including data sharing between county department and other users in local government or other agencies.

The Land Information Department will be working with county departments to develop a strategy for migration of shapefile to a geodatabase model for department managed data that will be managed outside the county enterprise. Migration is necessary as the support for shapefiles diminishes and to take full advantages of new technologies and data management and analysis tools available now in current software releases.

k) Data Dictionary

Columbia County produces data dictionaries as a method of describing objects or items in a database or data model for the benefit of programmers and others who need reference. After each data object or item is given a descriptive name, its relationship is described (or it becomes part of some structure that implicitly describes relationship), the type of data (such as text or image or binary value) is described, possible predefined values are listed, and a brief textual description is provided. For all traditional databases and data models, data dictionaries are completed and maintained as changes to data objects or relationships require.

Columbia County produces FGDC compliant metadata for all GIS data sets and will continue to update metadata as appropriate. Data dictionaries are produced as an alternative to FGDC metadata for GIS data set until time allows for FGDC to be produced.

l) Coding schema

The use of standardized coding schemes is utilized whenever practical and applicable. The coding schema's that are used by Columbia County allow for effective searches in hierarchical structures, at one level or recursively, and do not impose a significant complication to existing storage and retrieval systems (databases, directories...)

m) Transaction management

Tax parcel transactions are managed through the use of a data fields in the LRS tax and assessment databases. The LRS data model is designed to manage a parent/child relationship between tax parcels as they are created, retired, and re-shaped. All transactions impacting tax parcels will be managed and available for use and analysis in the LRS. As part the LRS project work a tract index was implemented in the Register of Deeds Office for the first time in Columbia County. The tract index also allows for transaction management of documents related to tax parcel history.

Tax parcel geometry changes are also maintained in GIS databases. This is especially true to tax parcels that make up the tax and assessment roll annually. Tax parcel geometry changes throughout the year are saved but are not integrated into the historical or current tax parcel GIS dataset. The Land Information Department would like to improve data management practices related to tax parcel transactions but is limited by staff availability and funding.

n) Organizational information flows

The Columbia County LRS application was developed to modernize all Land Records related data, systems and workflow in the Register of Deeds, the Land Information Department and the County Treasurer's Office and to incorporate business goals of additional departments in the future. The LRS project provided an opportunity to improve the quality of our data and records. In addition to migrating to a modern LRS system that is better able to manage the complexity of the data, the LRS gave the departments an opportunity to examine and improve workflow internally and between departments. Work on the first phase of the LRS is was completed in 2006 completing the integration of the Land Information Department, County Treasurer's Office, and the Register of Deeds. Columbia County would greatly benefit from work on phase II, integrating the Planning & Zoning Department and the Land & Water Conservation Department. Initial project planning discussions have begun with the Land & Water Conservation Department; it is likely that integration and modernization work with the department will continue thru the life of this plan.

GIS data, images, and related attribute tables are shared to all county departments using a secure shared network data drive managed by the Columbia County Management Information Systems Department. Work is on-going in assessing and improving workflows between departments.

o) Data Conversion

Columbia County follows industry-accepted standards for database development and is able to offer digital tabular data to customers using industry accepted formats that is easily translatable to many systems within and outside county government.

Columbia County has established ESRI data formats as its GIS standard in order to easily conform to data received and shared with other county departments and with the State of Wisconsin who use ESRI as a standard GIS format making horizontal integration possible with almost no effort. County data sets can easily be imported or exported to other software vendors used on the local level to facilitate vertical integration GIS information by town, city and village officials, state agencies, and other private entities.

p) Ability to integrate with other databases and information systems (vertical and horizontal)

Columbia County follows industry-accepted standards for database design and system engineering. The standards are evaluated on an ongoing basis. County staff and/or GIS or other database development consultants closely review designs of existing and new databases to verify that integration needs are met. New databases will be designed for ease of incorporation into the existing system and to facilitate data sharing among county departments. The use of standardized coding schemes is utilized whenever practical and applicable. Key fields or data elements necessary for the sharing and exchange of data sets are identified and incorporated into our databases whenever practical.

By supporting the development of an integrated and technologically sound countywide LRS, Columbia County continues to support modernization activities that represent horizontal integration of land information and systems within Columbia County and also vertical integration of land information and systems by town, city and village officials, state agencies, and other private entities.

Columbia County has established ESRI data formats as its GIS standard in order to easily conform to data received and shared with other county departments and with the State of Wisconsin who use ESRI as a standard GIS format making horizontal integration possible with almost no effort. County data sets can easily be imported or exported to other software vendors used on the local level to facilitate vertical integration GIS information by town, city and village officials, state agencies, and other private entities.

F. Public Access

Confirm your adherence to standards where applicable.

- **GIS Data Exchange Between Wisconsin Public Agencies, WLIA, 1996**
<http://www.wlia.org/resources/standard5.pdf>
- **State Open Records Law and federal Freedom of Information Act**

a) Use of technology to facilitate efficient access (e.g. Internet, query systems, DVD/CD)

The county has several on-site public access terminals in multiple department available to the public for searching property information and viewing other GIS data in the Land Information, Treasurer and Register of Deeds Departments. In addition, the county maintains an Internet site for remote searching of property records by owner, parcel identification number or address. GIS data can also be accessed remotely using the county's Interactive Mapping Application.

Access to land records and GIS data for other department staff is provided as is required. If required all appropriate software will be installed on user machines. County staff can also access information thru the county's Intranet or Internet site, using raw data files, or using the LRS or Fidar software.

Columbia County also offers digital spatial and tabular data or hardcopy maps and reports in industry-accepted formats for a free on-line or for fee as published in Columbia County Ordinances.

In the next few years, the county anticipates adding additional mapping and query functionality to the internal and public web site.

b) Use of 3rd party technology for access

Columbia County uses Fidlar software for providing fee access to Register of Deeds index and images such as deeds, certified survey's, mortgages and other information. PLSS corner coordinates and HARN points are shared with the State Cartographers Office for publication on the PLSSFinder and ControlFinder application. The Land Information Department has also used Google Maps by posting KMZ files for road closures. Using Google Maps for this type of use allows the county to posted data very quickly and easily and allows the user to interact with the familiar Google interface and routing/directions capability. Columbia County also uses Google Maps as a base for providing the public information on county building locations for the same reasons.

c) Data sharing policies (copyright, licensing, fees etc)

Columbia County has developed an informal data sharing agreement with all communities in Columbia County whereby the Land Information Department will provide digital data, both GIS and tabular, at no cost. In addition, some printed copy maps are provided at no cost. Examples include the annual updates of the tax parcel map. We encourage others to use our digital data by providing it at no cost and encourage cost-free exchanges of information that will enhance our system.

A fee structure for Land Information Department data has been established and is outlined in Columbia County Ordinance No. 6903 Title 9 (Fee Schedule – Land Information). Further detail on products and pricing is available at the Land Information Department e-Store on the county's website.

The Land Information Department has established standard license agreement. Any order for licensed data sets must be accompanied by an original, signed license agreement. The Columbia County Land Information Department will not process digital data orders until receipt of the signed license agreement.

The Land Information Department will be updating its data sharing policy, fee structure and access point policy over the next 1-2 years to reflect modern technologies and additional data elements and reports that are now available.

d) Open access to data in existing format

Columbia County adheres to the Wisconsin Open Records Law for access to land records. As defined by the Wisconsin Open Records Law, the public has the right to view and obtain copies of property and tax data, mapping products, and existing digital orthophotography in hardcopy or, as available, in digital format. Data is made available in its existing format unless negotiated under a separate agreement to adequately compensate county staff for these customized orders.

e) Subscription-based or public-facing web services

Columbia County maintains public web access to all municipality GIS data, tax roll and assessment records, and published maps. Columbia County continues to ensure access to county land information by improving existing land records and mapping websites and by developing new ones. Integration between traditional land records and GIS applications continues to grow and mature. Columbia County has devoted significant resources to ensure that data integration is managed as a part of data custodial responsibilities and not simply 'pushed' together for distribution and public consumption. Access to all land records and mapping applications are available freely to the public. County surveyor images and other survey's are available at no cost, certified survey maps and other real estate documents are available for purchase from Fidlar software systems.

f) Optional production of customized data on cost-recovery or other basis

Columbia County offers customized digital spatial and tabular data or hardcopy maps and reports on a per hour fee basis in industry accepted formats.

g) Internet accessibility (ADA compliance, security)

Columbia County continues to work towards providing user friendly internet access with accessibility to as many individuals as possible, and continues to work towards full ADA compliance. An internet policy has been developed by the Management Information Systems Department and approved by the Management Information Committee of the Columbia County Board of Supervisors.

h) System security

The Columbia County Management Information Systems Department maintains the security and back-up systems for all GIS and land records servers. Outside access to the county computer network is shielded from outside intrusion by a firewall.

i) Privacy policies

Columbia County adheres to the Wisconsin Open Records Law and complies with State statutes for access to restricted records. The county continues to monitor the industry and public concerns related to privacy and distribution of data.

j) Use of \$1 fee designated for land information and housing data Sec. 59.72 (5)(b)3

Columbia County is using these funds to support the development of LRS and Fidlar software enhancement project in Columbia County Land Information Department and Register of Deeds Office. Activities include:

- Purchase of a Register of Deeds Document Management System (software application, hardware and professional services) including migration of documents to an updated imaging system.
- Development and enhancement of LRS software to generate and maintain tax parcel, centerline, structure and other mapping data elements related to parcels to be made available on the county's Internet web site. Data elements will include limited housing data as available in tax and assessment roll databases as well as fair market value.
- Development and enhancement of web applications that provide free access to housing related data such tax parcel assessment, recorded documents, links to local assessor web sites when available, and sales history.

In an attempt to make additional housing data available, Columbia County is currently exploring partnerships with local governments that will allow for web access to more detailed assessor property card data related to housing. It is hopeful that progress in this area will lead to future partnerships in other communities.

G. Integration and Cooperation

Wisconsin Administrative Code, Chapter Adm. 47 defines integration as the coordination of land records modernization to ensure that land information can be shared, distributed and used within and between government at all levels, the private sector and citizens. Cooperation is defined as the explicit relationships within 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 (Memorandums of Understanding etc.)

Columbia County currently has no formal data sharing agreements; the county will evaluate opportunities as a formal data-sharing partner as they arise.

b) Formal or informal data maintenance agreements between departments/agencies.

Columbia County has data sharing arrangements with other county departments, local municipalities, consultants working for local municipalities or the county, and State agencies. The county will continue these arrangements and pursue others as opportunities arise. We encourage others to use our digital data by providing it at no cost and encourage cost-free exchanges of information that will enhance our system. These arrangements are informal data sharing arrangements; the county will continue these and seek more formal arrangements as needs require.

c) Cooperative arrangements (e.g. agencies; libraries; schools; RPCs; utilities; privates).

The county has participated in a number of cooperative projects and plans on pursuing others as opportunities arise. The county has entered into formal agreements with the NRCS and WiDNR to provide datasets relevant to Columbia County.

d) Consortia (e.g. inter-county, regional).

Columbia County is a participant in an informal five county consortia established for the discussion of common issues (Inter-county Coordinating Committee). Columbia County currently has no formal ties to established regional planning commissions. The county will evaluate opportunities to participate in consortia as they arise.

e) Collaborative arrangements (e.g. sharing of: local/state staff and budgets; technical assistance; peer review; collegial plan preparation; common help desk; bartering and mentoring etc.)

Informal collaborative agreements exist between land records user departments in Columbia County to share technical assistance and professional support as necessary. The county actively participates in collaborative arrangements for data creation particularly with other county departments. We plan to continue our participation in the WLIA, WLIP Technical Assistance List Server and others as opportunities arise.

f) Statutory relationships among county's and state agencies.

The county will continue to comply with statutory requirements.

1. What integrative/cooperative relationships would your county like to develop?

Columbia County has actively encouraged and supported integration and cooperation activities related to land records modernization as cited elsewhere in this plan and as indicated in past grant applications. The county plans to continue these relationships as appropriate. The county has a particular goal to further the relationship with the cities, villages and towns within the county, as well as with stakeholders in other public agencies, utilities, private firms, and educational institutions. The development of more widely distributed metadata is a component of the data sharing strategies.

2. What potential partners and mutual projects does your county plan to pursue?

Cities, villages and towns within the county and any neighboring county's that undertake similar activities, as well as other public agencies, utilities, private firms, and educational institutions that have comparable data needs.

3. What data would be shared and used in both of the above?

Columbia County has data sharing policy that is in accordance to the Wisconsin Open Records Law. The county would like to develop data sharing partnerships that would be mutually beneficial to facilitate data access, exchange and distribution. Any digital data created or acquired by the county would be made available for sharing and exchange with any group listed above, express or implied. The horizontal ground network, Public Lands Survey coordinate data, base map information, imagery, any data set that would enhance registration of data layers, and tax listing database would be made available as part of the cooperative relationship.

4. How does your county allow for participation and coordinate funding allocations so that all departments benefit from the land information program?

Columbia County's Land Information and Records Committee and Land Information Council, which is made up of elected and appointed officials, discusses and prioritizes needs. The LIO remains in contact with land records customers on a daily basis to establish or refine user needs. Land records customers include all departments in Columbia County that deal with land records and some that are not traditionally thought of as land records related, state and local government, and the public. Once project scope is defined, all potential financing sources are determined including those from the general tax levy, grants, and from the Land Information Program retained fees. If a potential project meets the goals and objectives as stated in the Land Records Modernization Plan, as many dollars as appropriate or available will be used from the WLIP retained fees.

In addition to making dollars available for all land records modernization needs, Columbia County has demonstrated a strong commitment to acquiring, providing and assisting with necessary training and education as appropriate and when within budget.

5. How does your county allow for participation so that municipalities and other agencies in the region benefit from the land information program?

The LIO remains in contact with land records customers within local municipalities and other agencies regularly to establish or refine user needs and acquiring, providing and assisting with necessary training and education as appropriate and when within budget. In addition to involving local governments and other agencies in the Land Records Modernization planning and review process, the Land Information Department has established topical work groups, such as the Assessors Work Group established in 2004, in an effort to ensure local land records needs are met and accounted for in the Columbia County Land Records Modernization Plan. In addition, the LIO will coordinate or participate in writing grants to secure dollars that support the development of a modern land records system or GIS data development and sharing.

H. Communication, Education, Training and Facilitated Technical Assistance

Confirm your adherence to standards where applicable.

- **No standards have been adopted; however, county membership in the land info technical assistance email listserv (DOA-Landinfo@lists.wi.gov) is required in order to participate in the WLIP.**

a) Documentation of county data, models, and processes

Columbia County produces data dictionaries as a method of describing objects or items in a database or data model for the benefit of programmers and others who need reference. After each data object or item is given a descriptive name, its relationship is described (or it becomes part of some structure that implicitly describes relationship), the type of data (such as text or image or binary value) is described, possible predefined values are listed, and a brief textual description is provided. For all traditional databases and data models, data dictionaries are completed and maintained as changes to data objects or relationships require.

Columbia County produces FGDC compliant metadata for all GIS data sets and will continue to update metadata as appropriate. Data dictionaries are produced as an alternative to FGDC metadata for GIS data set until time allows for FGDC to be produced. Metadata will be posted to the Wisconsin Land Information Clearinghouse.

b) Resources available

Columbia County receives training and education at the University of Wisconsin-Madison Land Information & Computer Graphic Facility, Wisconsin Land Information Board sponsored programs, Wisconsin Land Information Association and other state and national professional associations, and from various vendors. County personnel attend land information seminars and workshops on a regular basis. Several of the county staff are members of the Wisconsin Land Information Association and other professional associations.

Columbia County supports the use of and has provided for funding of outside technical expertise as the need arises. Columbia County will continue to follow all approved procurement methodologies as prescribed by county ordinances.

c) Identification of customer needs

Columbia County's Land Information and Records Committee and Land Information Council, which is made up of elected and appointed officials, discusses and prioritizes needs. The LIO remains in contact with land records customers on a daily basis to establish or refine user needs. Land records customers include all departments in Columbia County that deal with land records and some that are not traditionally thought of as land records related, state and local government, and the public.

d) Coordination of education/training with agencies, associations and educational institutions

Columbia County has demonstrated a strong commitment to acquiring, providing and assisting with necessary training and education as appropriate and when within budget. This commitment will continue in conjunction with efforts to keep hardware and software upgraded to the highest technical levels possible and practical.

e) Use of technology to facilitate education and training

Columbia County will continue to use technology as a tool to ensure its staff and customers are adequately prepared to successfully make use of land information data and land information technology. On-line and virtual campus offerings for training and education utilized when appropriate and available as a means of extending training dollars. The county also utilizes live meeting technologies and other educational and training opportunities when Possible. Columbia County has access to the internet, VCR, and the UW Extension ETN and satellite down link systems.

f) Use of, or plan to participate in, clearinghouse/repository and land information technical assistance listserv.

Columbia County has Internet access, which allows for use of the clearinghouse and technical assistance list server. Columbia County is a member of and regularly participates in the land information technical

assistance email listserv (DOA-Landinfo@lists.wi.gov).

g) Use of Land Information Officer education and training funds

Columbia County will continue to use the LIO training and education grants as provided in s. Adm 47.03 (5), for the training for the design, development and implementation of land information systems and systems modifications. The availability of these funds are necessary in helping to financially support the LIO's ability to attend Wisconsin Land Information Association seminars and workshops on a regular basis.

I. Administrative Standards Not Associated With Foundational Elements

Plans represent an agreement between the county and the Wisconsin Department of Administration (DOA). This agreement is intended to effectuate the objectives of the Program as embodied in the enabling legislation. In order for a plan to be acceptable to the DOA, the DOA and the county agree and consent as follows below. If applicable, discuss any plans, problems, issues, or concerns relative to these agreements.

- 1. The county agrees to observe and follow the statutes relating to the Wisconsin Land Information Program and other relevant statutes.**

Columbia County agrees with the standard as stated.

- 2. The county agrees to permit the Wisconsin Department of Administration access to books, records and projects for inspection and audit.**

Columbia County agrees with the standard as stated.

- 3. The county agrees to complete the GIS Inventory Survey (survey required annually by WLIP).**

Columbia County agrees with the standard as stated.

- 4. The county agrees to update the plan every 5 years and in the interim if the plan should change.**

Columbia County agrees with the standard as stated.

- 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.**

Columbia County agrees with the standard as stated.

Wisconsin Land Information Board Peer Review	Mailing Address	Phone Number/Email
Dane County Land Information Department	210 Martin Luther King Jr. Blvd City-County Building, Room 339 Madison, WI 53703	lio.web.mail@co.dane.wi.us

Wisconsin Land Information Board Peer Review	Mailing Address	Phone Number/Email
Dodge County Land Information Department	127 E. Oak Street Juneau, WI 53039-1329	920-386-3960

II. APPENDIX

A. Abbreviations

Abbreviation	Definition
DEM	Digital Elevation Model
DFIRM	Digital Flood Insurance Rate Maps
DOP	Digital Orthophotography
DTM	Digital Terrain Model
ESA	Emergency Service Area
FEMA	Federal Emergency Management Agency
FGDC	Federal Geographic Data Committee
FTP	File Transfer Protocol
GIS	Geographic Information System
GPS	Global Positioning System
HARN	High Accuracy Reference Network
IFSAR	Interferometric synthetic aperture radar
LIO	Land Information Officer
LIDAR	Light Detection And Ranging
LRS	Land Records System
MSAG	Master Street Address Guide
NAD	North American Datum
NGS	National Geodetic Survey
NRCS	Natural Resource Conservation Service
ODBC	Open Data Base Connection
PSC	Public Service Commission
PLSS	Public Land Survey System
TIN	Triangulated Irregular Network
USGS	US Geologic Survey
WiDNR	Wisconsin Department of Natural Resources
WiDOT	Wisconsin Department of Transportation
WiGNHS	Wisconsin Geologic and Natural History Survey
WLIA	Wisconsin Land Information Association
WLIB	Wisconsin Land Information Board
WLIP	Wisconsin Land Information Program
WROC	Wisconsin Regional Orthophotography Consortium

B. Columbia County Communities

