



# *Land Information Plan*

*2010 Update*

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## **I. EXECUTIVE SUMMARY**

### **A. Identification and Contact Information**

County: **Washington County**

Plan Contact: **Eric Damkot, GISP**  
**GIS Manager/Land Information Officer**  
**333 E Washington St. Suite 2300**  
**PO BOX 2003**  
**West Bend, WI 53095-2003**  
**V: (262)335-4445**  
**F: (262)335-6868**  
[eric.damkot@co.washington.wi.us](mailto:eric.damkot@co.washington.wi.us)

### **B. Participants in the Planning Process**

#### **Washington County Land Information Advisory Commission**

Gerald J. Schulz, Chairperson	County Board Supervisor
Brian W. Braithwaite, Vice-Chair	Real Property Lister
Eric Damkot	GIS Manager/LIO
Jon Edgren	Highway Commissioner
Jill Hapner	County Conservationist
Sharon Martin	Register of Deeds
Peter Miller	City of West Bend GIS Coordinator
Carl Rowlands	Private Sector Representative
Dale Schmidt	Sheriff
Scott Schmidt	County Surveyor/Engineer
Debora Sielski	Deputy Administrator, Planning and Parks Dept.

#### **Washington County Planning Conservation and Parks Committee**

John W. Stern, Chairperson	County Board Supervisor
Michael R. Miller, Vice-Chairperson	County Board Supervisor
Raymond W. Heidtke, Secretary	County Board Supervisor
Michael C. Bassill	County Board Supervisor
Melvin K. Ewert	County Board Supervisor
Gerald J. Schulz	County Board Supervisor
Peter I. Sorce	County Board Supervisor

#### **Others Contributing to the Plan**

Phil Gaudet	Land Resources Manager
Rob Schmid	Emergency Management Coordinator
Martin Schulteis	Administrative Lieutenant, Washington County Sheriff Department

**Reviewed and Approved by the Following**

5/28/2010 Washington County Land Information Advisory Commission  
9/8/2010 Planning, Conservation and Parks Committee

**C. Summary of the Plan**

This plan is the fourth update to the original Washington County Land Information Modernization Plan completed in 1992. The original plan and its 1998, 2003 and 2005 updates documented previous GIS/LIS goals and objectives and established a framework for initial and future program development. The current plan was prepared in accordance to the “Uniform Instructions for Preparing County Land Information Plans” dated December 2009.

Wisconsin State Statute 16.967(1)(b) defines land information the following way:

*“Land information” means any physical, legal, economic, or environmental information or characteristics concerning land, water, groundwater, subsurface resources, or air in this state. “Land information” includes information relating to topography, soil, soil erosion, geology, minerals, vegetation, land cover, wildlife, associated natural resources, land ownership, land use, land use controls and restrictions, jurisdictional boundaries, tax assessment, land value, land survey records and references, geodetic control networks, aerial photographs, maps, planimetric data, remote sensing data, historic and prehistoric sites, and economic projections.*

The “Uniform Instructions for preparing County Land Information Plans” expands on this definition by including:

*The use of the term “any” is expansive and is not limited by the words that follow. The word “characteristics” is emphasized to highlight the notion that land information is any information that can be geographically referenced to areas, lines and points on the earth. Non-traditional examples of “geo-referenced” data include social, economic, public safety, health or other statistical information organized by or referenced to location, such as parcels, census blocks, zip codes, addresses, minor civil divisions, the Public Land Survey System, counties, service regions, natural zones, or regions*

As the definition implies, nearly every aspect of county government involves land information in one way or another. The activities and projects identified in this plan are a reflection of this expansive definition. The current plan includes sections where projects completed and those that are in progress or on-going are documented. The plan also includes sections to describe Washington County’s adherence to state and local standards. The main focus of the plan, however, is to document how Washington County will further land information modernization. This is achieved by defining the major goals driving program decisions as well as new initiatives that will be considered to achieve these goals.

The major focus of this plan is the continued expansion of land records modernization to new areas of the county in order to promote efficiency, collaboration, and more informed

decision making. At the same time, this plan works to maintain Washington County's existing investment in land information data and applications.

This plan is a living document and will be modified as needed to reflect changes in funding, data/application priorities, and technology. This plan does not include a defined end date. Instead, this plan will be updated as soon as it no longer meets the needs of the Departments with land information and their oversight committees.

#### **D. County Land Information Websites**

**<http://maps.co.washington.wi.us/>** - General purpose GIS mapping website.

Included data are PLSS, parcels, historic and current aerial photography, road network, county supervisor districts and wards, shoreland/floodplain/wetland zoning, and more. Includes links to parcel tax reports.

**<http://records.co.washington.wi.us/>** - Text only option for accessing tax roll data including tax bill images. Application also includes a delinquent tax calculator.

**<http://landshark.co.washington.wi.us/>** - Application to search and view real estate documents recorded by the Register of Deeds. The application includes a searchable grantor/grantee index as well as all documents from 1945 to the present. A searchable tract index exists for documents newer than March 16, 1998.

**<http://www.co.washington.wi.us/surveys>** - Index of all filed plats of survey in Washington County. Includes scanned images of those surveys.

**<http://maps.getmovingwashingtoncounty.org/>** – Get Moving Washington County mapping site focusing on parks and other outdoor activities to develop a culture of healthy and active lifestyles for all ages and abilities.

**<http://www.co.washington.wi.us/uploads/docs/HighwayPlans.pdf>** – Listing of all digital plans available in the Highway Department archives. For County Highways this list is believed to be complete. The listing includes links to the scanned plans.

**<http://www.co.washington.wi.us/departments.ims?Detail=140>** – Site describing the data layers maintained by the Washington County GIS Division with ordering instructions for those needing to obtain a copy.

**<http://maps.sewrpc.org/regionallandinfo/survey.shtm>** - *Map and text only index of PLSS corner dossiers and control survey summary diagrams. Scanned images of dossiers and control survey summary diagrams are included. This website is hosted and sponsored by the Southeastern Wisconsin Regional Planning Commission. Washington County contributes corner information for inclusion on this site.*

#### **E. Municipal Land Information Websites**

<http://rmgis.ruekert-mielke.com/Germantown/>  
Under Development

<http://kewaskum.ims.ruekert-mielke.com/>

[http://www.ci.west-bend.wi.us/index.php?option=com\\_content&view=article&id=88&Itemid=106](http://www.ci.west-bend.wi.us/index.php?option=com_content&view=article&id=88&Itemid=106)

Village of Germantown

City of Hartford

Village of Kewaskum

City of West Bend

## II. LAND INFORMATION PLAN

### A. Goals and Objectives

The original Land Information System Plan for Washington County, completed in March 1992, identified two basic goals. Those goals are still relevant today and are included below as goals 1 and 2. These two principles led to the completion of many of the framework layers for Washington County. As framework layers were completed, additional goals were developed (items 3-6 below). The new goals were identified in plan updates completed in 1999, 2003 and most recently 2005. The added goals focus less on data creation and more on the vertical and horizontal integration of land information among users of land information.

Washington County has a maturing land information system and goals 7 and 8 are included in this plan as a reflection of this progression. Goal 7 recognizes the significant progress made in the area of data development and the necessity of keeping that data current and accurate. Goal 8, planning and decision making support, is in recognition of how the data collected and systems developed are now usable for analysis and more informed decision making.

Washington County has always strived to make land information accessible to a wide audience. The inclusion of goal 9 does not mark a shift in priority. Goal 9 is included to affirm Washington County's existing philosophy and is a direct response to 2009 Wisconsin Act 314.

Although the content of the goals and objectives is consistent with previous plans, the organization of how that information is presented has changed. In the previous plan, overarching goals were included with specific new initiatives listed as objectives. Additional goals were included that were specific to a single department or project. In the current plan the goals are reserved for the overarching principles that guide the development of the land information program in Washington County. Some of the department specific goals of past plans were combined to create general goals applicable to the County as a whole. The new initiatives that were formerly included as objectives are now listed in the 'New Initiatives' section of this plan.

#### 1. Statement of Goals and Objectives

The Washington County Land Information Advisory Commission meets regularly to discuss the current opportunities and needs relating to each goal. The opportunities and needs are weighed against available funding and staff resources to determine the specific projects that will be completed in each year. The progress already made in meeting these goals is substantial and outlined in future sections of this plan.

**Goal 1:** To Implement in Washington County, over time, a multipurpose, multi-user, parcel-based, automated mapping and land information system consisting of the following five basic elements:

- a) Geodetic reference framework.
- b) Large-scale planimetric and topographic base maps.
- c) Overlays, including cadastral boundaries and boundaries of various cultural and natural resources.
- d) Identifiers, including parcel numbers and codes associated with various cultural and natural areas.
- e) Non-spatial land information files, including cadastral parcel records and various cultural and natural resource data.

**Goal 2:** To reach agreement among Washington County, the local units of government in Washington County, and the various public and private utilities operating in Washington County on the design of a common automated mapping and land information systems so as to ensure economy of efficiency in the development and use of that system and so as to ensure the ready entry, retrieval, and exchange of data by and between the various users of the system.

**Goal 3:** Expand and develop land information datasets as needed to integrate GIS and Land Records Modernization into the daily activities of all departments that use spatial data.

By promoting land information modernization and integration, the Washington County Land Information Advisory Commission intends to facilitate

- Improved data accuracy
- Lowering costs and increasing the efficiency of county government
- A reduction in duplication of effort between departments
- Improved access to information for users

**Goal 4:** Implement new advances in hardware and software and where required, develop custom applications to support land records modernization and integration.

**Goal 5:** Encourage internal and external GIS program coordination and cooperation and provide access to data as guided by the requirements and restrictions of statutes and county policy.

**Goal 6:** Provide for short term and longer term planning, training, technical support, and funding for the GIS Program. Seek various funding sources for Land Records Modernization and Integration Projects.

**Goal 7:** Protect Washington County's investment in Land Information modernization by dedicating the necessary resources to the maintenance of existing data and systems.

**Goal 8:** Support Washington County planning initiatives including, but not limited to, the Washington Comprehensive plan. Provide elected and appointed officials the analysis and resources to make informed decisions.

**Goal 9:** To provide access to public land records on the Internet.

**Measurement criteria for achieving the above goals.**

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

The data most often used in the day to day operations of county government were created and are maintained by the County. A few notable exceptions exist:

- Washington County relies on the Southeastern Wisconsin Regional Planning Commission for land-use, environmental corridor, and other datasets frequently used in planning applications.
- City of West Bend has an established GIS program and maintains highly accurate cadastral, road centerline, situs address points, and topographic data. Washington County does not duplicate this information and is able to merge city and county data to create countywide coverage when needed.
- Data used for e911 dispatch and other emergency government applications frequently need to extend beyond the county line. Washington County has been able to acquire and integrate data from surrounding counties for these applications.

To a lesser extent, Washington County has acquired data from federal agencies as well as state and other local governments.

Whenever practical, Washington County tries to acquire and incorporate existing data before developing new datasets. The goal is to have no duplication of data or effort. In some cases similar data does exist, but was not captured at a sufficient scale or level of detail to accommodate county needs.

**b. Problems acquiring data from state or local sources**

Generally speaking Washington County has not experienced problems acquiring data from state or local sources. There have been isolated incidences where acquiring data that would have facilitated plan implementation has not been possible or has been more onerous than perhaps necessary.

Title 13 guarantees the confidentiality of census information. This prevents counties from acquiring and using census address information, including GPS coordinates, in e911 and other applications. Consequently, Washington County completed an independent project acquiring countywide situs address points. Washington County would not advocate a change in policy for the



individual demographic data the census bureau collects, only the list of addresses and their coordinates.

Washington County has been unable to acquire detailed, parcel-level assessment data for some communities. In some cases the data has not been modernized, in other cases the data is available, but is not provided (without expense) in a format that makes spatial analysis practical.

Data distribution policies vary greatly across the state. Data licenses, acceptable use statements, and fees are different for each agency/county/municipality. Requiring signed license or data sharing agreements or charging fees to other units of government can slow the exchange of data. To date this has not caused problems, but could in an emergency situation if a temporary waiver was not granted.

Each municipality is at a different level of modernization. As a result, some data that would be useful are not accessible because it has not been created or modernized.

#### c. Information Transfer

The county has selected Environmental System Research Institute, Inc. (ESRI) as its GIS software vendor. ESRI products, including ArcGIS, are the predominant GIS software used in Wisconsin. Therefore, providing data in one of the native ESRI formats is enough to satisfy most information requests. Washington County regularly converts data to MicroStation .dgn format for those requesting the data in a computer aided drafting (CAD) format. Between the ESRI and .dgn formats, most can use the data they obtain with little or no conversion. Washington County has the ability to convert to other commonly used CAD or GIS formats, most frequently AutoCAD, if requested.

Washington County creates data models and metadata to facilitate use of the information transferred. Data is also made available in web viewers making the data available to those without GIS or CAD software.

#### d. Geographical Referencing

Nearly all Washington County maintained data is in the State Plane Coordinate System (North American Datum of 1927) – Wisconsin South Zone and the National Geodetic Vertical Datum of 1929 (NGVD29). These systems can be transformed by commonly used GIS software packages, including those used by Washington County. The Southeastern Wisconsin Regional Planning Commission has committed to develop bidirectional conversions between the NAD27 and NAD83 horizontal datums and the NGVD29 and NAVD88 vertical datums to improve accuracy of the translation.

e. **Maintenance of digital land information.**

This plan includes a goal (#7 listed above) to “protect Washington County’s investment in Land Information modernization by dedicating the necessary resources to the maintenance of existing data and systems.” Washington County’s history of providing budget support for the staff, hardware, software, and training required to maintain digital land information is proof of this commitment. Additionally, long term maintenance is considered prior to the initiation of any new data creation or land information modernization project.

**2. Technology Environment and Database Design**

Washington County has selected Environmental System Research Institute, Inc. (ESRI) as its GIS software vendor. Data is viewed, edited, and analyzed using ArcGIS Desktop. Analytical capabilities are expanded through the use of ArcGIS Desktop extensions. Washington County has selected Bentley as its primary CAD/Civil software vendor and uses Microstation and InRoads for engineering related applications. Internal policies and procedures are in place to easily share data between ESRI and Bentley software. Washington County has a long established Microsoft Windows Network with Windows XP being the standard desktop operating system.

The core GIS datasets are maintained in a Microsoft SQL Server database with ESRI’s Spatial Data Engine (SDE) technology. SDE provides a robust, multi-user environment to store, update and retrieve data to all levels of GIS access in Washington County. AS400/DB2 is also used extensively with libraries for tax information and Register of Deeds document indexes.

Currently Washington County has a dedicated server running ESRI’s ArcIMS that is used to publish interactive mapping applications on the Internet. In the near future, the County intends to retire ArcIMS and migrate this functionality to a new application built on ArcGIS Server. Providing access to land information in a web application is critical to expanding the benefit of land information modernization to the public and nontechnical county staff.

In some cases the standard software does not meet all the needs of a specific application. In these cases a department may purchase add-on or stand alone software to meet the need. An example would be the asset management software used by the Washington County Highway Department to inventory and manage signs. Care is taken when selecting these applications to ensure they are compatible with the enterprise GIS.

The database design of the GIS features includes the necessary primary keys to ensure integration with related tabular data. National and State standards are considered whenever databases are designed. Washington County has a policy of creating data model diagrams, data dictionaries, and FGDC compliant metadata for all core data.

The technology Washington County has chosen, sound database design, and a commitment to documentation allow the GIS Division, and more generally the GIS program, to meet its mission. That mission is to *Create and maintain a countywide framework of shared geographic information that conforms to standards enabling data sharing and collaborative decision making.*

## **B. Progress Report on Ongoing Activities**

Progress made in the county under the previous versions of this plan in achieving the goals and objectives previous listed. The status of each activity is identified.

**Goal 1:** To Implement in Washington County, over time, a multipurpose, multi-user, parcel-based, automated mapping and land information system...

- Washington County is 100% remonumented with horizontal and vertical control established on each monument. A maintenance program is in place whereby all monuments in one United States Public Land Survey Township are inspected each year and found deficiencies brought to current standards. [COMPLETE – ONGOING MAINTENANCE]
- Perpetuated the centerline of railroad tracks prior to the tracks being removed. This railroad centerline and other landmarks are important in the description of parcels near those landmarks. [COMPLETE – ADDITIONAL PROJECTS MAY BE NECESSARY]
- Large-scale topographic mapping, with varied currency, for all areas in Washington County is complete. A project in 2010 will update approximately 61 mi<sup>2</sup> where the currently available data is the oldest [COMPLETE – ONGOING - FUTURE UPDATE REQUIRED]
- Digital parcel mapping for all areas in Washington County is complete. The City of West Bend maintains their parcels. Washington County is responsible for the remainder of the County. [COMPLETE - ONGOING MAINTENANCE]
- Each parcel in the digital parcel fabric has a parcel number enabling the integration of related tabular data in the GIS. [COMPLETE]

**Goal 2:** To reach agreement among Washington County, the local units of government in Washington County, and the various public and private utilities operating in Washington County on the design of a common automated mapping and land information systems...

- Washington County and the City of West Bend worked cooperatively to create common data models for cadastral and road centerlines. The County and the City also have an informal agreement to identify areas of mapping of responsibility. [COMPLETE]

**Goal 3:** Expand and develop land information datasets as needed to integrate GIS and Land Records Modernization into the daily activities of all departments that use spatial data.

- Digital orthophotography is complete for 1995, 2000, and 2005. Updated orthophotography will be completed in 2010. [COMPLETE – ONGOING – FUTURE UPDATES EXPECTED]

- Scanned, mosaicked, and georeferenced aerial photography is available countywide for 1941, 1950, 1963, 1970, 1980, and 1990. [COMPLETE – FUTURE ADDITIONS POSSIBLE]
- Surface water and shoreland/floodplain/wetland zoning features including wetlands and floodplains. [COMPLETE – ONGOING MAINTENANCE]
- Systematically improve the accuracy of floodplain mapping through engineering analysis. [IN PROGRESS]
- Countywide road centerlines and situs address points. Maintained jointly with the City of West Bend. [COMPLETE – ONGOING MAINTENANCE]
- Database containing the location, condition, and characteristics of Highway signs [COMPLETE – ONGOING MAINTENANCE – FUTURE ENHANCEMENTS POSSIBLE]
- Inventory of land conversation practices and best management practices installed in the County [COMPLETE – ONGOING MAINTENANCE]
- Inventory of storm water management practices to better manage maintenance and inspections. [COMPLETE – ONGOING MAINTENANCE]
- Inventory of critical infrastructure. [COMPLETE – ONGOING MAINTENANCE]
- Inventory of all outdoor public recreation facilities [IN PROGRESS]
- Inventory of private on-site wastewater treatment systems installed in Washington County after 1980. [COMPLETE – ONGOING MAINTENANCE - INTEGRATION PROJECT IN PROGRESS]
- Identify, inventory and integrate private on-site wastewater treatment systems installed in Washington County before 1980 [IN PROGRESS]
- Washington County has an enterprise document imaging system. This system is already being used to store deeds, tax bills, surveys, and highway plans. A project to scan historic deeds is in progress. Land use files, tied to specific parcels, are also in progress. [COMPLETE – ONGOING MAINTENANCE - IN PROGRESS ]

**Goal 4:** Implement new advances in hardware and software and where required, develop custom applications to support land records modernization and integration.

- Maintain support on all GIS and related software for continued access to fixes, service packs, new releases, and technical support. [ONGOING]
- Acquire additional hardware and software to better create, maintain, and administer programs containing land information. [ONGOING]
- Upgrade or replace desktops and servers needed to create, maintain, analyze and distribute land information on an established schedule. [ONGOING]
- The Register of Deeds has acquired the necessary hardware and software to accept electronic documents. [COMPLETE]
- File based storage of core datasets migrated to a relational database. [COMPLETE]
- Software and hardware needed to support wireless and landline 911 mapping [COMPLETE]
- Implemented software in the Sheriff and Highway Departments to track the land information maintained in those departments [COMPLETE]

- Upgrade land use application (zoning, permits, POWTS) allowing tighter integration with parcel maps and tax roll data. Application will also enabled better spatial analysis, electronic submittal of maintenance reports, and improved access to records [IN PROGRESS]
- Purchase and maintain hardware required to provide hard-copy versions of land information. [ONGOING]
- Have acquired a hand-help GPS received to field collect a variety of Land Information. [COMPLETE – FUTURE UPGRADE POSSIBLE]

**Goal 5:** Encourage internal and external GIS program coordination and cooperation and provide access to data as guided by the requirements and restrictions of statutes and county policy.

- Washington County data are stored and maintained on network servers promoting the sharing of data throughout the County [COMPLETE]
- Washington County has imaged many paper files making them more accessible to internal and external users [COMPLETE – IN PROGRESS – ONGOING MAINTENANCE]
- Membership of the Washington County Land Information Advisory Commission includes the major stakeholders in the land information program. Membership also includes representatives from outside of county government [COMPLETE]
- Washington County has a policy in place for digital land information distribution. The policy charges cost of reproduction and will waive that fee for requests from other units of government. [COMPLETE]
- Washington County provides data to many State agencies and local units of government. In some cases the data is reformatted on export to enhance usability. [ONGOING]
- Internal data standards and documentation have been developed and implemented. This includes FGDC compliant metadata for all GIS data sets developed and maintained by the County. [ONGOING MAINTENANCE]
- GIS data is available to all county employees through an Intranet mapping application. [ONGOING MAINTENANCE]

**Goal 6:** Provide for short term and longer term planning, training, technical support, and funding for the GIS Program. Seek various funding sources for Land Records Modernization and Integration Projects.

- Develop, and amend as needed, the Washington County Land Information plan to identify the major goals driving program decisions as well as new initiatives that will be considered to achieve these goals [ONGOING]
- Maintain an active Land Information Advisory Commission to provide direction and policy to the land information program as well as coordinate land information projects within the County [ONGOING]
- Continue to send lead technical staff to conferences and training to stay current with continually advancing technology. [ONGOING]
- Washington County has an established ‘GIS Users’ group where the lead technical staff can provide training and support to others in Washington County using land information technology [ONGOING]

- Pursue grants and partnerships in addition to retained fees and levy support to fund land information initiatives. [ONGOING]

**Goal 7: Protect Washington County’s investment in Land Information modernization by dedicating the necessary resources to the maintenance of existing data and systems.**

- Maintenance of existing data is part of the daily workflows at Washington County. Keep hardware, software, and training current to complete these tasks. [ONGOING]
- Retain the appropriate staff to maintain the data [ONGOING]
- Continue the established public land survey system monument maintenance program. [ONGOING]
- Enter or scan new records into previously modernized systems. [ONGOING]
- Consider the long-term maintenance implications before initiating any data acquisition or modernization project. [ONGOING]

**Goal 8: Support Washington County planning initiatives including, but not limited to, the Washington Comprehensive plan. Provide elected and appointed officials the analysis and resources to make informed decisions.**

- Washington County Comprehensive Plan [COMPLETE – UPDATES AS NEEDED]
- Park and Open Space Plan Update [IN PROGRESS]
- Farmland Preservation Plan Update [IN PROGRESS]
- Land and Water Resources Management Plan – 2<sup>nd</sup> Revision [IN PROGRESS]

**Goal 9: To provide access to public land records on the Internet.**

- Balancing open records and a right to privacy, Washington County has made on-line access to land information a priority. [ONGOING MAINTENANCE – FUTURE APPLICATIONS EXPECTED]
- Creation of a general purpose land information interactive mapping website [COMPLETE – ONGOING MAINTENANCE – UPDATE REQUIRED]
- Creation of a website promoting active recreational opportunities in the county [IN PROGRESS].
- Text-only tax reports with links to tax bill images and a delinquent tax calculator. [COMPLETE – ONGOING MAINTENANCE]
- Application to search and view real estate documents (1945-present) by the Register of Deeds. [COMPLETE – ONGOING MAINTENANCE]
- Add all documents recorded by the Register of Deeds prior to 1945. [IN PROGRESS]
- Access to all surveys filed with the County Surveyor [COMPLETE – ONGOING MAINTENANCE].
- Access to scanned county highway plans [COMPLETE – ONGOING MAINTENANCE]
- Access to private on-site wastewater treatment systems including scanned permits. Ability to submit maintenance reports electronically. [IN PROGRESS]

- Maintain the appropriate hardware, software, training and staff needed to continue current on-line resources and develop/promote new applications. [ONGOING]

### **C. New Initiatives**

- 1. Proposed Projects** – In addition to the items listed as ongoing or in progress in the ‘Progress Report on Ongoing Activities’ section of this plan, the Washington County Land Information Advisory Commission intends to research and/or complete the following new initiatives. These initiatives are consistent with the stated goals and will further develop the land information program in Washington County. The prioritization and scheduling of these projects will be determined by the Planning, Conservation and Parks Committee together with the Land Information Advisory Commission. The ability and timeline to complete these projects is further dependant on the availability of grants, retained fees, budget allocations, additional funding opportunities, and staff workload.

In addition to the specific initiatives identified below, other new initiatives may be completed under this plan. Those initiatives would be consistent with the goals of this plan and/or the framework data elements, system implementation and statewide standards.

#### **Administration and Facilities**

- Support the 2011 redistricting effort in Washington County.
- Provide mapping and analysis support in the Washington County Emergency Operations Center. Work with emergency response professionals to ensure the capabilities of GIS are known and realized in the event of an emergency.
- Develop a complete inventory of all county land holdings including easements.

#### **Public Safety**

- Further enhance spatial reporting and analysis of e911 calls and incidents (accidents, crime, etc...).
- Promote the efficient deployment of resources and decrease response times of public safety personnel by implementing GIS and related technology.

#### **Transportation**

- Link construction plans to road centerlines mapped in the GIS.
- Develop a traffic code layer in the GIS to better support routing applications and pavement marking.
- Develop spatial culvert database to better support Highway and floodplain mapping initiatives.
- Develop county right of way width mapping.

### **Health and Human Services**

- Work to map and report communicable disease and other environmental or social economic factors affecting public health.
- Map and report data related to health inspections.

### **Conservation and Planning**

- Improve county shoreland/wetland/floodplain zoning data. This will include the integration of the updated Wisconsin Wetland Inventory and when available, the Federal Emergency Management Agency Digital Flood Insurance Rate Map data.
- Acquire the necessary software to geographically track and administer shoreland, wetland and floodplain zoning permits.
- Improve the quality of floodplain mapping by studying additional subwatersheds.
- Establish guidelines and promote digital delivery of preliminary land division surveys.
- Acquire updated digital orthophotography. This includes updated orthophotography to be flown in the Spring of 2010. The 2010 project will be accomplished through a regional cooperative administered by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) and continues past practice of updating orthophotography on a 5-year cycle.
- Acquire ‘interim’ orthophotography data if needed.
- Explore the availability and feasibility of scanning/georeferencing historic aerial photography in addition to those datasets already converted. Acquire additional historic aerial photography if required. Images from 1985 are of particular interest.
- Consider acquiring color infrared aerial imagery that may be available from county, state, or federal orthophotography projects.
- Consider acquiring oblique aerial imagery.
- Complete a project to scan and index all real estate documents recorded in Washington County before 1945. With the completion of this project, all real estate documents will be scanned and accessible through the Register of Deeds on-line Landshark portal.
- Create legal description tract indexes for real estate documents recorded between 1830’s and 1998
- Integrate the GIS and document Imaging system. This project will provide a direct link from the graphics (parcels, road segments, flood plain boundaries, etc...) in the GIS to images (deeds, highway plans, surveys, etc.) in the document imaging system.
- Develop a comprehensive geographic planning, tracking and reporting application for all land and water conservation practices which integrate existing tabular data and various program requirements into a single user-friendly application.
- Scan storm water management plans to better perform inspection and maintenance tasks.



- Provide mapping and analysis in support of the Park and Open Space and Farmland Preservation Plan updates.
- Evaluate the amount of change between available topographic data and current conditions. Create and implement a schedule to update topographic data. Acquire an updated 3D surface and contour mapping as needed.
- Complete an inventory of park and trail amenities in the County and natural resources in the county parks system. Use this inventory in maps, on the web, in the creation of a Natural Resources Management Plan, and other venues to support parks and active recreation opportunities in Washington County.
- Inventory current and future bike and pedestrian routes to support the development of a detailed bike and pedestrian plan.
- Create and maintain base farm tracts needed for farmland preservation planning and other planning and conservation activities.
- Convert the functionality of existing web based applications built on ArcIMS to ArcGIS Server applications.
- Continue to expand the availability of maps and other land information on the Internet.
- Assist as required, the Southeastern Wisconsin Regional Planning Commission's initiative for bidirectional transformations between NAD 27/NGVD 29 (older datums) and NAD 83 (2007)/NAVD 88 (newer datums). Convert existing Washington County data to the newer datums if necessary.

### **Culture and Education**

- Inventory and map landmarks and other others places of historic or cultural significance.

## **2. Assistance requested**

Without the Wisconsin Land Information Program, and specifically the county's ability to retain fees for land information modernization, many of the accomplishments identified in the plan would not have been possible. Similarly, the ability to continue the on-going activities and complete the new initiatives is very much dependant on the continuation of this program and revenue stream.

### **a. Technical Assistance**

Washington County staff are members of the land information technical assistance e-mail listserv (doa-landinfo@lists.wi.gov). Technical assistance is also received through training, conferences and other on-line resources. Washington County has maintenance contracts on all land information software; this includes vendor provided technical support. Membership in professional organizations and users' groups is encouraged. The county will identify and seek additional technical support as needed.

b. **Financing**

Washington County plans to use retained fees, Wisconsin Land Information Program grants, as well as county tax levy to fund the activities identified in this plan. The County will continue to pursue other grant opportunities and funding partnerships when available. Continued maintenance is a priority of the County as illustrated the inclusion of goal 7 of this plan.

c. **Ensuring Access**

Washington County tries to make land information available to a wide range of users. The available data (with documentation) and on-going projects are identified on the County website. Washington County charges minimal cost of reproduction fees for the data. The fee is waived for other units of government to promote use. Various on-line applications exist to provide direct access to publicly available land information.

d. **Statewide GIS Repository**

Washington County intends to contribute data to the statewide GIS repository when available. Continued participation will be dependent on the usefulness of that repository and if consumers of the data use what is posted.

e. **Procurement Practices**

The Washington County Land Information Advisory Commission and Planning, Conservation, and Parks Committee have always, and will continue to follow, county ordinances and administrative rules for procurement.

**3. Problems Encountered**

The problems encountered when implementing previous versions of this plan, for the most part, have been minor and solved as they come up. In some cases a solution has been developed, but not fully implemented.

A previous version of this plan identified a project to aggregate local assessment data and provide access to that data on the Internet. The small number of municipalities willing and/or able to participate in the County initiative did not make this project cost effective.

**D. Custodial Responsibilities**

Washington County has the same custodial responsibilities for data as most other counties in Wisconsin. Following are some of the land records custodial responsibilities listed by Department. If a specific statute, ordinance or formal policy confers custody, an indication will appear in parentheses. Washington County is not currently seeking to assume additional custodial responsibility. The county will consider any request for custodial responsibility and evaluate the request based on available and required resources, compatibility with other county data sets, and conformance with the county plan.

**Administration – Emergency Government**

- Maintain critical infrastructure features.

**County Clerk**

- Maintain voting ward and county supervisory district data.
- Maintain Highway Orders (§83.08(1)b)

**Highway**

- File right-of-way plats and construction plats
- Digital inventory of signs along all County Highways
- Pavement Surface Evaluation and Rating (PASER) Data for County Highways
- Maintain County Right of Way width mapping (County code 12.07 and §66.1031)

**Planning and Parks Department – County Surveyor**

- Maintain information on PLSS corners including tie sheets (§59.45)
- File and index surveys conducted in Washington County (completed by the Real Property Lister per internal policy) (§59.45)

**Planning and Parks Department – Geographic Information Systems Division**

- Maintain and implement the Washington County Land Information Plan (§59.72)
- Maintain countywide street network map and situs address points
- Acquire updated orthophotography as needed
- Acquire updated topographic mapping as needed

**Planning and Parks Department – Land and Water Conservation Division**

- Conservation Compliance
- Conservation Planning and Implementation
- Stormwater Management
- Non-metallic Mining
- Nutrient Management
- Water Quality and Quantity
- Invasive Species Populations

**Planning and Parks Department – Land Use Division**

- Maintain private sanitary system site plans (§59.70 (5), WAC 83.21 (9) & 83.55)
- Maintain surface hydrography mapping (§59.692)
- Maintain Shore land/Wetland/Flood Plane Zoning Maps and related permits (§59.692 & 87.30, NR 115 & NR 116)
- Maintain records related to land divisions in the unincorporated areas of Washington County (§236.45)

**Planning and Parks Department – Planning Division**

- Maintain comprehensive plans
- Maintain data pertaining to Park and Open Space Planning
- Maintain data pertaining to Farmland Preservation Planning.

### **Register of Deeds**

- Record and Scan Deeds, Mortgages, Subdivisions, Certified Survey Maps, Condominium and other related documents (§59.43)
- Maintain Tract Index of real property (§59.43)

### **Register of Deeds – Real Property Lister Division**

- Maintain description, ownership, and assessment information for all personal and real property (§70.09)
- Maintain parcel maps (§70.09)
- Condominium Review (§703.115)
- File and index surveys completed in Washington County, per internal policy (§59.45)

### **Sheriff**

- Maintain Emergency response maps
- Maintain incident maps for accidents, crime, etc...

### **Treasurer**

- Maintain tax rates and special assessment information (§70.09)
- Maintain tax information for all personal and real property (§29.25)

## **E. Framework Data, System Implementation and Statewide Standards**

See the Washington County GIS Division website (<http://www.co.washington.wi.us/gis>) and/or the GIS Inventory (<http://gisinventory.net>) sponsored by the National States' Geographic Information Council (NSGIC) for the more current information regarding framework data.

### **1. Geographic Positioning Reference Frameworks**

- Washington County's data is maintained in the State Plane Coordinate System (North American Datum of 1927) – Wisconsin South Zone and the National Geodetic Vertical Datum of 1929 (NGVD29).
- Washington County adheres to the following standards:
  - Standards for Geodetic Reference Systems
    - a) FGDC standards and specifications
    - b) Wis. Stats. Chapter 236.18
  - Standards for Public Land Survey System Corners
    - a) Corner Remonumentation (Sec. 59.63(1); Sec. 60.84 (3)(c) Wis. Stats).
    - b) Remon. Records (Wis. Stats. (Sec. 59.635(2)(b) and Wis. Admin. Code AE 7.08(2).
    - c) Coordinate Values (FGDC Third Order Class I).
  - Standards for Geographic Control Data
    - a) FGDC Third Order Class II for Horizontal Coordinate Values and Third Order for Elevation Values.

- All of Washington County is remonumented. A control survey network assigning horizontal and vertical state plane coordinate values to USPLSS sections corners and quarter corners is complete.
- Washington County implemented a program to inspect and repair the monuments, reference benchmarks, and ties for all monuments in one public land survey system township per year. For Washington County this means every monument will be inspected at least once every 12 years.
- Dossiers and CSSDs are available on the Southeastern Wisconsin Regional Planning Commission's website.

## **2. Orthoimagery and Georeferenced Image Base Data**

- The County has black and white digital orthophotography from 1995 at 1"=400' compilation scale. 1"=200' compilation scale digital orthophotography from 2000 (black and white) and 2005 (true color) is also available.
- True color orthophotography from 2007 is available for T09N R18E, T09N R19E, and T09N R20E.
- Historic aerial photography has been scanned, mosaicked, and georeferenced for 1941, 1950, 1963, 1970, 1980, and 1990.
- Updated Orthophotography is being acquired in 2010.

## **3. Elevation Data Products and Topographic Base Data**

- Digital Terrain Models (DTM) and Contour mapping is available for all areas of Washington County, although source and currency vary. Other data formats (i.e. Triangulated Irregular Networks) can be derived from the DTM data. The most current available data ranges from 1995 to 2006. To achieve complete county coverage, some data developed by the City of West Bend is required.
- The largest area is covered by a LiDAR project flown in December, 2006. Although raw data was acquired for the entire county, only *half* of the county was processed to produce end-user products (bare-earth ASCII files, DTM, and contours). The other *half* of the county already had end-user products available from older photogrammetric projects.
- In 2010 an additional 61 mi<sup>2</sup> from the December, 2006 LiDAR project will be processed. When complete, the most current available data for all areas of the County will be 2003 or newer.
- The need and timing to update the topographic base map will be determined as part of this plan.

## **4. Parcel Mapping**

- Washington County maintains digital parcel mapping for all areas of the county excluding the City of West Bend. The City of West Bend maintains city parcels. The City and County previously worked cooperatively to create a common data model that is mutually beneficial. This ensures that parcels for all areas of Washington County are maintained in a common data framework.

- The parcel data model used by Washington County includes all required and many optional components of the WLIB Digital Parcel Mapping Standard.
- The United States Public Land Survey system (USPLSS) reference framework was constructed with precision placement of all section and quarter section monuments. USPLSS sections and quarter sections were constructed from the monuments. Washington County parcel maps are constructed with coordinate geometry (COGO) and tied to the USPLSS.
- Washington County's parcel maps are suitable to support property tax and decision making by employing geodetic reference, topology and parcel identification. The maps are not survey quality.
- Every parcel identified on the map will have a unique local parcel identification number that ties the parcel to all tax databases. The WLIB Parcel Numbering System could be incorporated into the Washington County Land Information System through database manipulation and programming. This would create a lookup table tying the WLIB standard identification number to the local identification number.

#### **5. Parcel Administration and Assessment Information**

- By using the local parcel identification number, all parcels are able to be joined to the tax data maintained by Washington County. The tax data includes site address, owner name and address, short legal description, tax exempt status and assessment classes.
- Washington County has had document imaging since 1998. Additional projects have scanned all Subdivisions, all Condominiums, all Certified Survey Maps (CSM), deeds back to Jan 1, 1945, and all property surveys filed with the County Surveyor.
- The transfer return form requires a parcel number and this could be used to link the document imaging to the tax records. Washington County is exploring other alternatives to link the tax parcels to the document imaging system.
- Every parcel will have a unique local parcel identification number. The WLIB Parcel Numbering System could be incorporated into the Washington County Land Information System through database manipulation and programming. This would create a lookup table tying the WLIB standard identification number to the local identification number.

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

- Washington County and the City of West Bend previously worked together to develop a common data model for road centerlines and situs address points. Areas of custodial responsibility were defined and when used together, road centerlines and situs address points are available countywide.
- The road centerline network is topologically correct, includes name, road type, and address ranges in order to support routing and geocoding applications in addition to base mapping needs.
- Situs address points are digitized on the center of the structure, include house number and road name, and are used to improve the spatial accuracy of

geocoding applications. The inclusion of place name/landmark information is a developing component of this dataset.

- All addresses in Washington County are assigned at the local level. Learning of and incorporating new addresses in a timely manner are an on-going challenge.
- There is coordination between this dataset and the MSAG to ensure consistency. The data is used for wireless e911 and other emergency response applications.

#### **7. Hydrography, Hydrology and Wetlands Mapping**

- The county developed a hydrographic dataset that meets the needs of shoreland zoning and other county applications.
- Washington County has a watershed dataset derived by interpreting 1:24:000 USGS quadrangle maps. Other watershed data from state and federal sources are available and used depending on the specific need.
- Wetland data used most prominently in Washington County is a derivative of the Southeastern Wisconsin Regional Planning Commission's land use database. The county is transitioning away from this dataset and to the revised Wisconsin Wetland Inventory data.
- Washington County is also mapping historic wetlands to assist in restoration and mitigation projects.

#### **8. Soils Mapping, Land Cover and other Natural Resources Data**

- Washington County has acquired and uses the latest digital soils data available from the US Department of Agriculture, Natural Resources Conservation Service.
- Additional data, including critical species habitat, environmental corridors and groundwater mapping, is available from the Southeastern Regional Planning Commission and usable in the Washington County GIS.
- Washington County maintains an inventory of non-metallic mining sites in the County.

#### **9. Land Use Mapping**

- The county has incorporated land use mapping that was developed and periodically updated by the Southeastern Wisconsin Regional Planning Commission (SEWRPC). The most recent version is from 2006.
- A Land Use 2035 dataset was developed as part of the Washington County Comprehensive Planning process.

#### **10. Zoning Mapping**

- Washington County maintains Shoreland, Wetland and Floodplain zoning data for the unincorporated areas of the County. In the next year, this data will be modified to include updated FEMA floodplain data and the updated Wisconsin Wetland Inventory.

- Washington County is working to improve the accuracy of floodplains in the county by studying large areas where only approximate floodplain data currently exists.
- Washington County has an inventory of cemeteries and county landmarks. Work is on-going to map ancient burial sites and other places of cultural significance.
- Other data, including environmental corridors and sewer service areas, are maintained by SEWRPC.

#### **11. Election and Administrative Boundary System**

- Where districts are based on parcel lines and coded into the tax database, they will be derived from the parcel fabric. These districts include minor civil division boundaries, utility districts, drainage districts, lake management districts, school districts, and other districts with taxing authority.
- Washington County has spatially improved the US Census features and is actively working with the Census Bureau to include these improved geometries in the National TIGER data set.
- Legislative and other election districts, including county supervisor and ward plans, are derived from spatially enhanced census data conflated to the Washington County road centerline database.

#### **12. Critical Infrastructure and Facilities Management**

- Emergency service and mutual aid box alarm system (MABAS) areas are mapped.
- Road and railroad rights of way are included in the parcel dataset. The county also maintains an attributed road centerline database with links to pavement rating data for county highways.
- Traffic road signs maintained by the County are inventoried and tracked in the GIS.
- Washington County is building an inventory of all public open spaces and the recreational opportunities in each. Included in this dataset are boat launches and trails.
- A critical infrastructure database has been created that includes fire/police stations, hospitals, clinics, government facilities, etc...

#### **13. Database Design and System Implementation**

- See Item II.A.2 for additional information.
- Washington County has followed industry-accepted standards for database design and system engineering. The county has migrated to, and maintains all enterprise GIS data in, a relational geodatabase.
- Washington County continues to develop and implement GIS data models. Where appropriate, Washington County has cooperated with local units of government and drawn on vendor and neighboring county resources to complete these tasks.



- Washington County uses topology rules and internally developed Quality Assurance/Quality Control procedures to ensure the integrity of data maintained in the GIS.
- Washington County GIS adheres to the Federal Geographic Data Committee (FGDC) Metadata standards as well as additional locally developed data documentation standards.
- Washington County takes privacy of its citizens seriously and no information is distributed on-line or otherwise without considering the impact on privacy. Consequently, the County Internet privacy policy does not permit information to be retrieved by name (names will be returned in query results when searched by alternate criteria). Washington County servers and system security issues are addressed by the Washington County Information Systems.
- Industry standards and good documentation makes Washington County data usable within the organization (horizontal integration) and between organizations (vertical integration). Data are converted to other formats as needed.

#### **F. Public Access**

- Data is most often distributed on DVD/CD. Washington County considers a number of commonly used GIS and CAD data formats standard. Those acquiring the data are charged a small per DVD/CD fee for the data. If conversion is possible, additional formats will be provided for an additional fee.
- Washington County does not license its data and no license agreements are required for access.
- Basic and detailed data descriptions, data models, metadata, data dictionaries, and price lists are posted on the Washington County website.
- To promote data sharing, Washington County will waive the small fee for other units of government requesting the data.
- The Washington County Internet Privacy policy will not permit records to be searched by name in Internet applications. The name, however, will be returned when the record is searched by other criteria.
- Section I.D lists the Washington County sponsored Internet applications providing access to land records.
- Many data are still available in hard-copy for the cost of reproduction. Custom maps are made as time permits and charged time and materials.
- The \$1 fee designated for land information and housing data has helped fund the GIS mapping internet application, scanning and on-line access to deeds, as well as scanning and on-line access to property surveys.

#### **G. Integration and Cooperation**

Washington County has many cooperative relationships where data is shared. The relationships tend to be informal. The informal nature of these relationships is likely caused by the very open distribution policy adopted by the County. Since the County does not charge other units of government or require license agreements, the need for formal sharing documents is not needed. Following are key examples of integration and cooperation.

- Washington County's GIS program is, at the same time, centralized and distributed. The GIS Division of the Planning and Parks Department provides program coordination, maintains data for many other departments/divisions, and provides analytical and/or services to any County department requesting it. Some Departments/Divisions, most notably Land Conservation and Highway, have trained staff to handle many of their GIS needs. The GIS Division supports as needed these distributed users as well.
- Washington County and City of West Bend have a common data model for cadastral and road centerline datasets. Along with a common framework for data development, the City and County use common terminology and have areas of mapping responsibility clearly defined.
- Washington County and the City of West Bend government buildings are connected through a high-speed municipal area network (MAN). This provides real-time data sharing. Desktop GIS users in either organization have live read-only access to the other organization's data.
- The Southeastern Wisconsin Regional Planning Commission (SEWRPC) has a history of creating a regional consortium for orthophotography acquisition. These consortia frequently include federal, state, and local partners. SEWRPC also develops many planning datasets that benefit everyone working in the region.
- Washington County partnered with Ozaukee County when acquiring historic aerial photography. Contracting was simplified through a single vendor selection process. Some cost savings were also realized because images straddling the common county line were only scanned and processed one time and other economies of scale.
- Washington County has acquired road and other base data from seven nearby counties to enhance the data that is used for e911 dispatch. Dispatchers now have the necessary map data to help those 911 callers who are just outside of the County, but whose calls are routed to the Washington County Sheriff Department's public safety answering point (PSAP). Washington County has provided data in return when requested.
- Washington County frequently provides data, without cost, to the state, SEWRPC, local units of government and consultants hired by those units of government. The data is used in a variety of applications. The number of data requests Washington County is able to satisfy is in itself an example of cooperation.
- Washington County partnered with SEWRPC and 12 local units of government for comprehensive planning. Data and analysis were shared between all partners.
- In some cases Washington County will provide mapping or analytical support to local units of government in addition to simply providing the data. This includes address maps, mutual aid box alarm system (MABAS) maps, and election maps.

Cities, Villages, and Towns have been increasingly modernizing their land information databases. This will present new opportunities for integration and cooperation. More regular updates of cadastral and road data to the local units of government is expected. Washington County is also able to provide orthophotography and topographic base data. In return, Washington County anticipates the opportunity to receive general zoning, addressing, utility and assessment information from the municipalities.

The redistricting that will occur in 2011 is another place where cooperation is expected. Washington County provided assistance to many communities during the 2001 redistricting and expects similar relationships in 2011.

The creation of a ‘Washington County Technical GIS Users’ Group’ is also a possibility when there is enough staff at the local level to support a group. This would provide a place for technical staff from the County and municipalities to share data, resources and expertise.

Oversight for the Washington County Land Information Program begins with the Land Information Advisory Commission. This committee consists of representatives from departments with a major stake in the program as well as a county board supervisor and two members not affiliated with County government. The makeup of this committee alone helps ensure that all departments and municipalities benefit from the program. Those without membership on the committee can, and have, suggest projects. The Land Information Advisory Commission prioritizes all suggested projects and forwards those recommendations to the Planning, Conservation, and Parks Committee through the normal county budgeting process. All meetings are publically posted and open to anyone with an interest in Land Information Modernization.

When possible, data acquisition projects cover the entire county. Completing countywide data will help ensure that all municipalities benefit from the derived product.

#### **H. Communications, Education, Training and Facilitated Technical Assistance**

Available data is listed and described on the Washington County website (<http://www.co.washington.wi.us/>). Much of the core data is centralized on the GIS Division page (<http://www.co.washington.wi.us/gis>). Washington County has a policy of creating data model diagrams, data dictionaries, and FGDC compliant metadata for all core data. This information can be found on the Washington County website and distributed with each data request. Internal and external needs are documented and prioritized during budget preparation when the slate of land information projects is identified.

Washington County participates in a variety of associations, local users’ groups, and on-line groups. Coordinated training and peer support are an integral part of these groups.

Washington County has standard projection and display equipment for in-house training. In addition, the information systems training room provides a hands-on option.

Washington County staff are members of the land information technical assistance e-mail listserv ([doa-landinfo@lists.wi.gov](mailto:doa-landinfo@lists.wi.gov)).

Washington County intends to contribute data to the statewide GIS repository when available. Continued participation will be dependent on the usefulness of that repository and if consumers of the data use what is posted.

The land information officer education training funds are used to attend workshops, association meetings, and conferences. These include, but are not limited to WLIA Conferences, WLIA Regional Meetings and workshops.

**I. Administrative Standards Not Associated with Foundational Elements**

1. Washington County agrees to observe and follow the statutes relating to the Wisconsin Land Information Program and other relevant statutes.
2. Washington County agrees to permit the Wisconsin Department of Administration access to books, records and projects for inspection and audit.
3. Washington County agrees to complete the GIS Inventory Survey.
4. Washington County agrees to update this plan every 5 years and in the interim if changes to this plan become necessary.
5. Washington County acknowledges that development and implementation of an acceptable plan confers certain benefits on local government within a county, including continued eligibility for program funding. A peer review process will be used to assess plan acceptability by the land information community.