

A LAND INFORMATION SYSTEM PLAN FOR WAUKESHA COUNTY: VOLUME 3, 2007-2012



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Reviewed and Approved on May 17, 2007 by the
Waukesha County Land Information Technical Working Group

INTRODUCTION

On June 18, 1991, the Waukesha County Board of Supervisors adopted the report titled, A LAND INFORMATION SYSTEM PLAN FOR WAUKESHA COUNTY (hereto after referred to as the 1991 Plan). An updated version of this plan titled, A LAND INFORMATION SYSTEM PLAN FOR WAUKESHA COUNTY: Volume 2, 1998-2003 (hereto after referred to as the 1998 Update) was adopted by the Waukesha County Board of Supervisors on February 27, 1998. This Plan and Update inventoried existing efforts related to land information in Waukesha County and provided program Goals and Objectives. In addition, the 1998 Update included the Foundational Elements central to the creation of a Land Information Program as envisioned by the Wisconsin Land Information Board.

On May 4, 2006, the Waukesha County Land Information Program reached a major milestone when the Land Information Technical Working Group reviewed all existing Goals, Objectives, and Foundational Elements and concurred that each had been essentially completed. With the completion of these program elements, the Waukesha County Land Information Program must now be redirected to leverage past accomplishments for the development of new applications.

The new land information system planning initiative will establish strategic objectives for planning years 2007-2012. The Land Information System Plan for Waukesha County: Volume 3, 2007-2012 (2007 Plan) will be presented as 3 major sections. The first section will be a program review and statement of status of the Goals, Objectives and Foundational Elements set forth in the 1991 Plan and subsequent 1998 Update. The second section will present current activity levels of the Land Information Program including managed data sets, supported applications, and system integration activities. The third section will identify new Goals and Objectives, framed within the newly developed Waukesha County Strategic Outcomes, which will direct future program activity. The 2007 Plan will be used to prepare a Land Information System Operation and Fiscal Plan to recommend how these Goals and Objectives will be achieved through operational, staffing, prioritization, and funding decisions.

PART 1: PROGRAM SUMMARY, REVIEW, AND STATUS

GOALS AND OBJECTIVES

The 1991 Plan identified a total of two goals (1 and 2 below) and 5 objectives (1-5 below) for the Waukesha County Land Information Program (WCLIP). The 1998 Update identified 2 additional goals (3 and 4 below) and 3 additional objectives (6-8 below) based on a needs assessment review completed as part of that update effort. Those goals and objectives have been reproduced here in *italics*, along with the current status of each.

- Goal 1.** *To implement over time in Waukesha County a parcel-based, multipurpose, multi-user automated mapping and land information system, such system following the National Research Council model and 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 areas.*
- d. *Identifiers, including parcel numbers and codes associated with various cultural and natural areas.*
- e. *Nonspatial land information files, including cadastral parcel records and various cultural and natural resource data.*

Status: This Goal has been fully realized. The Geodetic reference framework has been completely install and fully documented. Large-scale planimetric and topographic base map feature set have been created. Countywide cadastral boundaries as well as other cultural and natural areas have been created together with parcel numbers and other identifying codes. These areas have been linked to nonspatial data created and maintained by other county agencies.

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

Status: In 2004, Waukesha County redesigned the file structure of Land records related mapping data into a GeoDatabase format. The County worked closely with municipalities to insure that the data structure and field names chosen could still be used by other users. The resulting structure has met the needs of users and provided additional capabilities.

Goal 3. *Enhance land records information through the development of imaging capabilities, integrating such capabilities with other systems such as the Grantor/Grantee and Tract Index, Tax system, and the GIS.*

Status: The newly developed Geodatabase, described under Goal 2, links the land records related mapping data to the Grantor/Grantee and Tract Index, as well as to the tax system.

Goal 4. *Develop a county-wide, efficient communication system for the transfer of digital map data, land information, imaged records, and other shared information. This system need not be limited to governmental units, but may include public, semi-private, and private (including residential) users of land information*

Status: The County has developed a HTTP site that is used to transfer data between public and private users and the County. This site can be used by the County to both send and receive data.

Objective 1. *To lay out a course of action that will continue to completion the current Waukesha County base mapping effort, focusing existing Waukesha County resources and those local government resources that become periodically available on completing the geodetic reference framework and large-scale planimetric and topographic base maps for the entire County.*

Status: This Objective was met with the completion of the Countywide Geodetic reference framework system and the collection of complete planimetric and topographic data.

Objective 2. *To direct any available new revenues, particularly revenues from supplemental county recording and filing fees, toward completing the cadastral boundary overlay and attendant parcel numbers, and--to the extent fiscal resources may permit--selected planning-oriented cultural and natural area boundary overlays and attendant identifiers for the entire County.*

Status: This Objective was met with the completion of the countywide cadastral dataset as well as other selected natural resources datasets.

Objective 3. *To encourage local units of government in Waukesha County who desire to move at a more rapid pace toward establishing an automated mapping and land information system for local government use to commit additional fiscal resources toward that end; recommending, however, that such resources be expended for work efforts which meet the agreed-upon system development standards.*

Status: Five communities in the County have internal GIS Divisions while additional communities contract for GIS services from private agencies. In all these cases, the County provides data to assist in the rapid and consistent deployment of local land information systems. These efforts have, to a large measure, completed this objective.

Objective 4. *To facilitate applications by Waukesha County and by local units of government in Waukesha County for state grants in support of the development of the recommended automated mapping and land information system for Waukesha County.*

Status: Waukesha County will support any local unit of government trying to receive a grant for the implementation of an automated mapping system. It should be noted that the main source for these grants in the past has been the Wisconsin Land Information Board (WLIB), which was discontinued in 2005. The contribution based grant program that was managed by the WLIB to provide additional funding to local communities was also discontinued at that time.

Objective 5. *To encourage partnership efforts between public sector governments and utilities and private sector utilities that will contribute toward the development of the recommended automated mapping and land information system for Waukesha*

County. (Plan, pages 31-32)

Status: Efforts have been made to integrate public sector mapping datasets with utilities and private sector utilities. Some exchange of data has occurred and has proved that the datasets can be successfully used together. Security concerns have tempered the desire to make the datasets fully integrated. At this time, this Objective is considered complete with the “proof-of-concept” regarding integration.

Objective 6. *Develop a comprehensive update and maintenance program for every component of the Land Information System. Such a program should address the requirements for physical observation and repair, as needed, of all field placed survey monuments, as well as topographic and planimetric base maps, cadastral maps, and orthophotography. Funding for the update program should be provided by the WCLIP or through partnerships which have been created to provide for such updating.*

Status: At this time, all datasets managed by the Land Information Division have a current maintenance program and are up to date. This Objective is considered complete.

Objective 7. *Install a Geographic Information System (GIS) to manage digital land information. Such a system should be integrated into the workflow of county departments to meet the requirements identified in the needs assessment. Selected data analysis, using the GIS, will be provided to local units of government based on a mutually agreeable cooperative agreement.*

Status: The County currently has a GIS that manages all digital land information and is integrated into the workflow of the Land Information Division. This Objective is considered complete.

Objective 8. *Develop standards for digital file integration. This effort will require continued technology research to develop faster and more efficient file transfer/conversion processes. A Waukesha County Data Layer Standards work group should be created and required to monitor the standardization of map data layer names and content for approval by the GeoProcessing Committee.*

Status: The newly developed parcel GeoDatabase format was developed with the assistance of local municipalities has fulfilled this Objective.

In summary, all goals and objectives previously identified for the Waukesha County Land Information Program have been substantially completed.

Waukesha County Land Information Program Core Products

Previous plans identified four types of information as being vital to the physical and economic development of Waukesha County. The datasets were identified as core WCLIP products and as such are to be managed and maintained by the WCLIP. The previously identified core products include: the geodetic control system, planimetric and topographic base maps, cadastral base maps, and Orthophotography. With the development of the combined Waukesha County Communications Center, which dispatches emergency services for multiple public safety agencies, the need for a Street Centerline file containing address range attributes was identified as a vital dataset to be developed and maintained by the County. Such a dataset was created and has been identified as the fifth core product of the WCLIP.

As stated earlier, Waukesha County will assume responsibility for the creation, maintenance, and distribution of all core products. In fulfilling this responsibility, the County may designate a local unit of government or a county department to function as the Data Steward. The responsibility of the Data Steward will be to maintain a core product for a defined area. The Data Steward will agree to meet all established County standards and requirements regarding the maintenance activities, including mapping standards, timeliness of delivery, and quality control. In return, the County may reimburse the Data Steward for all agreed upon work related to core product maintenance.

The 1998 Update identified the following factors to be considered in determining if a dataset should be considered as a core product: 1) County-wide coverage, 2) usefulness beyond a single unit of government or department, 3) no current, reliable source of support, 4) consistency with the goals and objectives of the Waukesha County Land Information program, and 5) consistency with the goals and objectives of the Wisconsin Land Information program

Foundational Elements and State-Wide Standards.

The 1991 Plan was created in response to the implementation of the Wisconsin Land Information Program (WLIP) in 1990. The WLIP required each County to create a Land Information Plan, and allowed each county to use the supplemental recording fees collected by the Register of Deeds Office as authorized under Wisconsin Statute 59.43(2) to fund the activities set forth in the Plan. The WLIP also required that the activities listed in a County Land Information Plan be limited to activities identified as Foundational Elements. Both the 1991 Plan and the 1998 Update identified each of the Foundational Elements of the State program together with a set of key features that would be developed as part of the County effort to complete the Foundational Elements. Those Foundational Elements together with the associated Key Features are displayed in italics below. Each Foundation Element has been substantially completed. A statement of actual status is included for each Foundational Element.

Foundational Element 1: Communication, Education, Training and Technical Assistance

Key Feature 1: Wisconsin Land Information Technical Assistance List Server

Waukesha County staff will subscribe to, and participate with, the Wisconsin Land Information Technical Assistance List Server.

Key Feature 2: Waukesha County Land Information Data Clearinghouse

Waukesha County staff will inventory digital land information available from local units of governments, other county departments, and the Waukesha County Land Information Office. This inventoried information, including metadata, associated costs, and point of contact will be published in a directory at least yearly. This published directory will be provided to the WLIB, and interested public and private data users.

Key Feature 3: County-Wide communication system development

The creation of a county-wide communication system will be investigated. A work group will be created to determine potential users of such a communication system, types of data to be transmitted and current and future technology trends. This key feature will require a significant amount of study and cooperation to complete. While it is envisioned that the work group study can be completed during the next 5 years, the actual implementation of such a system will continue beyond the 5 year planning horizon and will require significant shared financial resources above those which can be provided from the County funding sources identified above.

Key Feature 4: Integration of Internet technologies into the Land Information System

The potential for integration of internet technologies into the Land Information System will be constantly monitored. Providing access to such land information as geodetic control documentation, digital maps, and imaged documents will be reviewed, taking into account advancing technology and statutory requirements.

Key Feature 5: Training

An ongoing training program will be promoted through the Land Information Office. Training activities will include training on new versions of installed software systems, on-site consultant training and demonstration of new process technology, and State and National users group conferences. In addition, the WCLIP will sponsor training and educational sessions for local area data users as appropriate.

This Foundational Element has been completed through the extensive use of the WCLIP HTTP communication site and the GIS Internet site.

Foundation Element 2: Geographic Reference Framework

Key Feature 1: Survey Monumentation Maintenance

A program will be established to provide for a Registered Land Surveyor to visit and inspect survey monuments. The Surveyor will note the condition of each visited monument, repair any damaged monuments, and replace, or contract for the replacement of, all missing monuments. In addition, the surveyor will insure that all monuments comply with state statutes regarding documentation and that all horizontal and vertical control coordinates comply with Wisconsin Land Board recommendations. The Surveyor should visit, at a minimum, all survey monuments in a single survey township each year, progressing in a systematic manner across the County. This procedure will result in the review of each survey monument in the County during a 16 year cycle.

An education program will be established regarding the protection of monuments and filing monument condition reports. Section 59.74 of the Wisconsin State Statutes

requires that no survey landmark or monument be destroyed, removed or covered such that the landmark or monument is inaccessible for use. This section needs to be stressed and enforced, with all violators actively prosecuted. In addition, local units of government should insert language in contracts and developer's agreements requiring that all survey landmarks and monuments, damaged during construction, must be repaired.

Key Feature 2: Topographic and planimetric base mapping series

Topographic and planimetric base maps have been an integral component of developing the geodetic control system in Waukesha County. Creation of these base maps began prior to the inception of the WCLIP. These maps currently exist in various formats and represent different time periods. A work group will be formed to inventory all existing topographic and planimetric maps, inventory all users of these maps, review the existing Waukesha County mapping standard based on user needs, review current and future technology for map compilation, and recommend a plan to the GeoProcessing Committee for the updating and standardization of the maps. In addition, the work group will review and recommend potential users who may share the cost of the map update and revision.

Key Feature 3: Orthophotography support

Orthophotography is a relatively new component of the WCLIP. A parallel study to address the same concerns listed for topographic and planimetric base maps as those concerns relate to orthophotography should be completed, potentially by the same work group. The work group will also review and recommend potential users who may share the cost of the map update and revision.

This Foundation Element has been completed through the installation of geodetic control survey monuments, an annual maintenance program for the preservation of the geodetic control system, and a five year cycle of obtaining Orthophotography.

Foundation Element 3: Parcel Mapping

Key Feature 1: Completion of County-wide Cadastral Maps

Complete a set of county-wide cadastral maps for all areas of Waukesha County. These maps will be prepared at a scale of at least 1 inch equals 200 feet, or in selected areas 1 inch equals 100 feet, and according to mapping specifications set forth in the original Plan and in subsequent adopted mapping specifications.

Key Feature 2: Maintenance of County-wide Cadastral Maps

The County will establish a procedure to maintain and update the county-wide cadastral Maps. This procedure will insure that all changes to the existing maps, including those changes resulting from subdivision plats, certified survey maps, and annexations, will be displayed on the cadastral maps in a manner consistent with all adopted mapping specifications. The County may complete this mapping work using county staff, outside contract vendors, or data stewards as defined in the Master Data Sharing Agreement.

Key Feature 3: Establishment of data layering standards

Standardization of all information contained within each layer of digital maps, and individual fields of data files is key to the successful development and implementation of a data exchange process. The Waukesha County GeoProcessing Committee will establish a Data Layer Standards work group to perform ongoing review of proposed

data layer content and names. The workgroup will in turn recommend a standardized layer name list to the GeoProcessing Committee for approval as necessary.

Key Feature 4: Establishment of standards for the digital submission of Certified Survey Maps and Subdivision Plats.

At the direction of the Waukesha County GeoProcessing Committee, a workgroup will prepare standards for the digital submission of Certified Survey Maps (CSM's) and Subdivision Plats to regulatory authorities. These standards, which will be prepared as a template, will be approved by the GeoProcessing Committee and implemented by local units of government. These standards will facilitate the update of the digital cadastral base maps and assist in the regulatory review process.

Key Feature 5: Metadata

Waukesha County will incorporate the FGDC's Cadastral Standards for the National Spatial Data Infrastructure. This standard will be instituted in phases as data sets are completed. The County currently has established a 10 field metadata standard for all new cadastral mapping and existing cadastral map updates. Included in this information are the following data items:

- 1. Date of Parcel Mapping/Update*
 - 2. Update method*
 - 3. Document number, volume/real number, page/image number*
 - 4. Date of Document*
 - 5. Original tax key number*
 - 6. Other tax key numbers affected by converted parcel*
 - 7. Comments regarding specific information, problems, or resolutions encountered*
 - 8. Department/Consultant/Agency completing mapping*
 - 9. Initials of mapping technician*
-
- 10. Qualitative value (1, 2, or 3) representing parcel documentation
A1" = No problems encountered*

A2" = Additional information required to confidently determine parcel boundary

A3" = Documents relating to parcel are in conflict. A gap or overlap may be present at boundary

Key Feature 6: WLIB Parcel Identification Numbering System

The WLIB Parcel Identification Numbering System will be incorporated into the Waukesha County Land Information System through database manipulation and programming.

Foundation Element 3 has been completed. Countywide cadastral maps are completed and fully maintained. FGDC compliant metadata has been established. A method for accepting digital mapping has also been established.

Foundation Element 4: Parcel Administration

Key Feature 1: Waukesha County Grantor/Grantee and Tract Index and Tax File modernization

The Waukesha County Grantor/Grantee and Tract Index and Tax Files will be modified to integrate 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.

Key Feature 2: Development of a Waukesha County Land Records imaging system.

Waukesha County will implement a new document imaging system to enhance the retrieval of all land records. The imaging system will be integrated with the modified Grantor/Grantee and Tract Index and digital parcel maps. The integration process will require associating each imaged land record document with a tax parcel identifying number as appropriate.

Foundation Element 4 was completed with the conversion of land records related data to the geodatabase format and subsequent linking to the Waukesha County Grantor/Grantee, Tract Index, Tax Files, and the County Imaging system.

Foundation Element 5: Public Access

Key Feature 1: Enhanced Public Access

Efforts will be made through the modifications of the Waukesha County Grantor/Grantee and Tract Index, tax file, document imaging, and GIS to allow faster, easier, and more efficient public access to land records. The new systems will not only increase efficiency, but better address security and right-to-privacy issues.

Foundation Element 5 has been completed through the enhancement of the GIS interactive internet mapping site and Register of Deeds internet site.

Foundation Element 6: Zoning Mapping

Key Feature 1: Zoning Maps

New digital zoning district maps will be created incorporating information from the topographic base maps, cadastral maps, and orthophotography. The zoning maps may be created for the entire area of Waukesha County.

At this time, Foundation Element 6 has been completed for the areas where the County has general zoning jurisdiction. Efforts are underway to complete digital zoning maps in other shoreland areas where Waukesha County has jurisdiction.

Foundation Element 7: Soils Mapping

Key Feature 1: Soils Mapping

Existing soils maps, which have been converted to digital form by the SEWRPC, will be reviewed in light of Natural Resource Conservation Service regulatory requirements. Potential revisions, enhancements, corrections, and/or recompilation will be completed, based on cooperative arrangements between Federal, State, Regional, and County agencies which have expressed an interest in the soils data.

SURGO certified soils mapping has been completed for the entire area of Waukesha County by the Natural Resource Conservation Service as part of a strategic mapping effort by the WLIB to complete these maps for the entire State.

Foundation Element 8: Wetlands Mapping

Key Feature 1: Wetlands Mapping

Existing digital wetlands mapping prepared by the SEWRPC will be converted to allow for use on various computing platforms.

Foundation Element 8 has been completed.

Foundation Element 9: Institutional Arrangements and Integration

Key Feature 1: Institutional Arrangements and Integration

Formal agreements will be sought between Waukesha County and other Federal, State, Regional, and local government; local special-use districts; utility districts; and educational institutions as appropriate. All such agreements will be based on the terms set forth in the Master Data Sharing Agreement.

Foundation Element 9 has been completed through the use of a special agreement that allows Federal, State, and Local municipalities to obtain any WCLIP dataset on a complimentary basis. In addition, these agencies can receive special access to the Intranet portion of the GIS interactive mapping system.

Foundation Element 10: Reconciled Election and Administrative Boundary System

Key Feature 1: Special Area Mapping

Special areas, including minor civil division boundaries, utility districts, legislative districts, election districts, drainage districts, lake management districts, school districts, other districts with taxing authority, and other special area districts will be mapped incorporating features from the existing digital base maps.

Foundation Element 10 has been created using census, municipal, and tax record data.

Foundation Element 11: Reconciled Street Address and Street Network System

Key Feature 1: Addressing

Street center line and associated street address maps will be prepared. These maps will require special research and coding in order to accommodate the grid addresses which occur in parts of Waukesha County.

Foundation Element 11 was completed with the creation of the Countywide Street Centerline file with address attributes.

Foundation Element 12: Land Use Mapping

Key Feature 1: Land Use Mapping

Existing digital land use mapping will be converted to allow for use on various computing platforms.

Foundation Element 12 was completed.

Foundation Element 13: Natural Resource Mapping

Key Feature 1: Natural Resource Mapping

Existing digital environmental corridor mapping will be converted to allow for use on various computing platforms.

Foundation Element 13 was completed.

Foundation Element 14: Data Base Design

Key Feature 1: Data Base Modification

Waukesha County will modify the Land Records Grantor/Grantee index and Tax files to allow integration with the GIS and Document Imaging systems. This process will involve the creation database correspondence tables to facilitate the integration process. The proposed data model used in this revision was presented in "A Situation Assessment Report for the Waukesha County Register of Deeds Office, February 23, 1996."

Foundation Element 14 was completed with the conversion of land records related data to the GeoDatabase format and subsequent linking to the Waukesha County Grantor/Grantee, Tract Index, Tax Files, and the County Imaging system

INTEGRATION AND COOPERATION

Integration and Cooperation efforts were also recognized as a requirement of a sound Land Information System and were included in the original WLIP recommendations as well as in the 1991 Plan and 1998 Update. Integration and cooperation has been a cornerstone of the WCLIP. Over the years, various public and private agencies have been involved in developing automated mapping and land records systems throughout the County. These agencies have

included local municipalities, county departments, the Southeastern Wisconsin Regional Planning Commission, State agencies and Boards, and public and private utility companies. Even with the successes of the past, efforts will continue to be needed to monitor activities that may present additional opportunities for integration and cooperation.

PART 2: CURRENT PROGRAM

GOVERNANCE

The current governance of the Waukesha County Land Information Program was recommended by a county workgroup and approved by the County Board of Supervisors in 2000. The Workgroup proposal as adopted included the following recommendations:

1. Locate the Land Information Systems function in the Department of Parks and Land Use.
2. Create a Waukesha County Land Information Management Group to oversee the production and development of the land information system for the County departments consistent with the action elements identified in the County Land Information System Plan as adopted by the County Board.
3. Create an Intergovernmental Land Information Advisory Board to focus on discussing the development of the land information system for county-wide use, ensure intergovernmental communication and coordination. This Board will replace the current Geo-processing Committee.
4. Recognize the Land Information Technical Working Group under the direction of the Land Information Coordinator.
5. Development of the budget for this function will be the responsibility of the Director of Parks and Land Use.
6. Recommend that the Register of Deeds continue to retain the records for the County Surveyor.
7. Recommend the Department of Parks and Land Use be designated as the Land Information Office and that the Land Information Systems Coordinator be named as the Land Information Officer.

To date, all but one of the recommendations have been implemented. The Intergovernmental Land Information Advisory Board has not yet been formed as any issue that would be presented to this Board has been presented to the Waukesha County Cooperation Council for consideration.

MANAGED DATASETS

Geodetic Control System – Core Product

Description

The Geodetic Control System is used as the basis for all land descriptions in the

County. The System is comprised of over 2,500 concrete monuments which are located at each corner of each U.S. Public Land Survey System (PLSS) One-Quarter Section in the County. In addition, witness monuments have been located to mark the location of those corners that can not be occupied because of water or other natural impediments. The location of each monument is fully documented with a Dossier Sheet that describes the coordinates, witness marks, and a description of the known marker history. These documents are part of the Public Record and are currently on file in the County Register of Deeds office and at the Southeastern Wisconsin Regional Planning Commission (SEWRPC).

Applications

The Geodetic Control information contained on the Dossier Sheets is used by surveyors to accurately identify and define legal ownership of land divisions throughout the County.

Integration

The Geodetic Control information is currently hosted on an internet website managed by the SEWRPC under contract to the County. This hosting of the survey control information allows surveyors access to the data at anytime.

Planimetric Data Features – Core Product

Description

The Planimetric Data set includes information about selected physical features found in Waukesha County. The current data includes railways, pavement edges, streams, lakes, and road centerlines that were captured as part of the 2000 orthophotography project.

Applications

This information was used to create the street centerline file that has now been elevated to a Core Product. The other features are used in various base mapping applications.

Integration

Prior to the 2005 orthophotography project, it was determined that the planimetric features had either not changed significantly (railways, streams, lakes), were not of high importance to county projects (pavement edges), or were being managed through other applications (street centerlines). It was therefore decided that these features would not be updated during the 2005 orthophotography project. At the request of the municipal data users, these features are still being designated a system core product to allow the County to play a role in standardizing the product specifications that may be managed or updated by local municipalities.

Digital Terrain Model and Elevation Contour Maps – Core Product

Description

The Digital Terrain Model (DTM) is a computer readable data file that describes the surface of Waukesha County. From this model, digital contour data representing 2 foot elevation intervals have been developed. The DTM was completed countywide as part of the 2000 orthophotography project and updated to a uniform date as part of the 2005 orthophotography project.

Applications

The DTM can be used to render 3-dimensional images of the County. Computer software is available to compute cut and fill construction requirements and determine slopes and grades. Most importantly, the contour lines are used by planners and developers during the design phase of developments to insure sound design principals are maintained.

Integration

The DTM and contour data files have been provided to many developers and engineering companies that have integrated them into their design process to improve the developments currently being prepared in Waukesha County.

Cadastral Base Maps – Core Product

Description

Cadastral base maps pertain to the legal register of land parcels, particularly for land taxation, ownership or ownership transfer.

Applications

The Cadastral base maps are used in many mapping applications that are based on tax information such as ownership or value. These maps are also used as a base to display addresses for public safety applications.

Integration

The data presented on the Cadastral base maps is primarily developed by the Waukesha County Tax Listing Division. However, the Cities of Brookfield and New Berlin provide the tax listing services for their municipalities. These municipalities must in turn provide that information to the County in order for the maps to be updated. The City of Waukesha provides both the tax listing and parcel mapping service for the City. Waukesha County, in cooperation with the City of Waukesha, developed a conversion program that will import the maps created by the City into the County cadastral database.

The cadastral maps are integrated into many systems. At present, links to the Register of Deeds tax system and tract system, as well as links to the County imaging system are maintained. Other links to the Parks and Land Use, Health and Human Services, and Public Works Departments are also maintained for various applications.

Orthophotography – Core Product

Description

Orthophotography is created as aerial photography that has been manipulated using geodetic control points to remove distortion caused by changes in elevation or camera angle. Orthophotography was created for the entire county in 1995, 2000, and 2005. In 2005, the orthophotography was created as color images at a 6 inch pixel resolution.

Applications

The Orthophotography is used as a backdrop to many mapping products and are referenced to review conditions that existed at the time of the photography.

Integration

The Orthophotography has been used by many applications throughout the County including the Departments of Public Works, Parks and Land Use, and Public Safety.

County Master Address File – Core Product

Description

The County Master Address file contains individual addresses as provided by municipalities via a password protected internet application. Addresses are associated with tax keys where appropriate.

Applications

The main purpose of the County Master Address file is to provide newly created addresses to the County for inclusion in the emergency response data used by the Waukesha County Communications Center. In addition, this file can be used to validate house numbers and street names used by other applications at the County.

Integration

The County Master Address File is integrated with local municipalities which are provided access. The designated municipal staff member is able to add, edit, or delete addresses on the file in their municipality. In addition, the staff member can add street names to the master street name file that is maintained for each municipality. The address information provided by the municipality is directly used to update the Street Centerline file with address range attributers.

Street Centerlines with Address Range Attributes – Core Product

Description

The County manages a street centerline file that contains street names and address ranges for each street segment. The names are imported from the Master Address File. The ranges are created through interpretation of addresses either entered on the Master Address File or from surrounding street segment.

Applications

The attributed street centerline file has many uses. The primary use is as the basis for emergency dispatch operations in the Department of Public Safety. This file is also used as a base for many mapping applications including the published County Street Atlas. Lastly, this data file is used for displaying addresses on a map via a Geocoding process.

Integration

The street centerline file is primarily integrated with the Public Safety Department for emergency response and other mapping applications.

Zoning – in Cooperation with the Planning Division

Description

The County Planning Division maintains zoning maps for the entire areas of nine Towns in the County that are either under County zoning, or contract with the County to provide zoning and/or mapping services. The Planning Division also maintains zoning maps in all other areas of the County subject to shoreland zoning regulations,

although these maps have not yet been completely converted to a digital format.

Applications

These maps are used to administer zoning regulations throughout the County

Integration

The zoning maps are used to prepare exhibits for planning related meetings and to provide regulatory information to the general public. It should be noted that we currently do not maintain nor manage zoning maps created by local municipalities due the changing nature of this information.

Planned Land Use – In Cooperation with the Planning Division

Description

The County Planning Division maintains maps of approved future planned land use for the entire County as part of the County Development Planning process.

Applications

These maps are used to administer development regulations throughout the County

Integration

The development plan maps are used to prepare exhibits for planning related meetings and to provide regulatory information to the general public. It should be noted state statute requires that locally approved plans and associated mapped districts must be reflected in the countywide development plan map.

County Owned Lands – In Cooperation with the Parks Division and Public Works Department

Description

The County Parks Division and Public Works Department maintains a data file of all county owned lands. This file identifies the planned use of the lands including park, conservancy, road use, etc.

Applications

This data is used to manage the property assets of the County.

Integration

This database requires coordination between the Parks Division, Public Works Department, Treasurer's office and the Register of Deeds Office to keep the inventory of County owned lands accurate and current.

Highway Assets – In Cooperation with the Department of Public Works

Description

The County Public Works Department maintains an inventory of Highway Assets including signs and culverts on the County GIS

Applications

This inventory is used by the Public Works Department in conjunction with an Asset Management Program to manage the maintenance and replacement of the assets in the inventory.

Integration

This inventory is integrated with the county's mapping system and a separate asset management program used by the Public Works Department.

Election Districts – In Cooperation with the County Clerk and County Board Office

Description

The County maintains election ward maps displaying the local wards throughout the County.

Applications

Ward maps are used in applications regarding polling locations and determining local elected representatives. In addition, the ward boundaries were used in County Board redistricting activities.

Integration

Ward maps require integration with local municipalities and the County Clerk's office as annexations affect ward boundaries. Annexation and associated election ward information is provided by the municipal clerks to the County Clerk who must then provide the information to the LIS Division.

Emergency Response Districts – In Cooperation with the Public Safety Department

Description

Law, Fire, and Emergency Medical Service (EMS) response areas are currently maintained by the Land Information System Division. These areas indicate which agency is to be dispatched in case of an emergency. These area codes are also attached as an attribute to the street centerline file so they can be transferred to the Waukesha County Communication Center.

Applications

These areas are used in the Emergency Dispatch System

Integration

The emergency response districts are integrated with the Waukesha County Communication Center and local emergency response agencies to insure that the correct response is dispatched during an emergency.

School Districts and Special Taxing Districts – In Cooperation with the Public Safety Department and Tax Listing Division

Description

The County Tax Listing Division maintains information related to special taxing districts as part of the tax system. Codes identifying such districts as school districts, sewer and water utility districts, and lake management districts are included in the tax system. These codes can be used to create base maps of these special districts.

Applications

The presence of sewer and water utilities is an important consideration in zoning and planning applications as well as the administration of public health regulations by the

Environmental Health Division. In addition, the ability to create maps of these districts provides a method to review and correct the codes contained in the tax system database.

Integration

The special district areas are mapped directly from the County Tax system and requires the mapping system and tax system be fully integrated.

DISTRIBUTION POLICIES AND METHODS

Data Provision

All data that has been prepared by the Land Information System Division is made available to any user. The 1998 Update identified 3 types of users: 1) Noncontributing Data Users 2) Contributing Data Users and 3) Complimentary Data Users. Noncontributing Data Users are required to pay the price of copying the data to a medium suitable for distribution. If they wish to receive the data via electronic transmission, they pay a convenience fee equal to the copying price. Contributing Data Users are users who provide data or other in-kind services to the WCLIP and are therefore provided the data sets at no cost. Complimentary users are users who are identified as Federal, State, Regional or Local municipalities or educational institutions and are therefore provided the data sets at no cost. Use of WCLIP data is governed by the terms of the Waukesha County Data Sharing and Data Provision Agreement, which is made part of this plan as Attachment A.

Internet Mapping Website

Much of the data that has been created by the WCLIP is displayed on the LIS Division interactive website. This mapping site provides for various queries and views of data as well as the ability to generate maps. Use of the internet data is governed by the Waukesha County Internet Access Policy which states:

WAUKESHA COUNTY INTERNET ACCESS POLICY:

In accordance to the State of Wisconsin's laws, including the open records laws under Chapter 19 of the statutes. Waukesha County government provides access to public records. It is the intent of Waukesha County government to provide access to certain public records in an electronic format via the Internet as a service to the community, while protecting the privacy interests of citizens in the community, if possible. No information will be provided via the Internet that is not otherwise made available to the public at or by Waukesha County government offices.

In the instance of land information, names of property owners shall be available via the Internet when attached to individual, identifiable land parcels. At this time, the ability to search for properties by owner name will not be provided, as the limited need for this service does not counter related privacy concerns.

Approved by Waukesha County Board of Supervisors November 12, 2002.

Extranet Mapping Website

Some queries, data and applications have been created for the mapping website that can not be provided to the general public due to the Internet Access Policy. Access to these items is provided via an Intranet application to all County staff users. In addition, access to these items are provided to other government agencies upon executing an agreement indicating the use of this information will be used only for governmental uses. A copy of that agreement is included in this Plan as Attachment B.

PART 3: GOALS AND OBJECTIVES

In 2006, Waukesha County developed the following 7 Strategic Outcomes for the County:

- 1) **A safe county**
- 2) **An economically vibrant county**
- 3) **An environmentally responsible county**
- 4) **A well-planned county**
- 5) **A county that assists at-risk citizens**
- 6) **A county that provides customers with quality programs and services**
- 7) **Cost effective services delivered with competence and skill**

This Section will set forth new WCLIP goals that are associated with and will assist in reaching a County Strategic Outcome. For each WCLIP goal, a series of objectives will be developed that will identify how each goal will be accomplished and provide a measure by which the implementation of each goal can be measured.

Strategic Outcome 1 - A safe county

Strategic Outcome 2 - An economically vibrant county

Strategic Outcome 3 - An environmentally responsible county

Strategic Outcome 4 - A well-planned county

Strategic Outcome 5 - A county that assists at-risk citizens

Strategic Outcome 6 - A county that provides customers with quality programs and services

Strategic Outcome 7 - Cost effective services delivered with competence and skill

WCLIP Goal 7A – Create a Maintenance Plan for each WCLIP Core Dataset

WCLIP Objective 7A1 – Create a Maintenance Plan for each WCLIP Core Dataset that includes at least the following:

- a) Staff Responsibilities: Data Steward / Data provider / Data Technician
- b) Accuracy Tolerance
- c) Update Data source
- d) Maintenance cycle and workflow
- e) Update distribution and notification
- f) Quality Control
- g) Funding

WCLIP Objective 7A2 – Create a system for review and approval of Core Dataset

format changes.

WCLIP Goal 7B – Create and Maintain a useful Internet Mapping

WCLIP Objective 7B1 – Create a feedback mechanism to evaluate system performance and direct future cost effective enhancements.

WCLIP Objective 7B2 – Enhance access to Housing data via the internet as required by State Statute.

WCLIP Goal 7C – Lead in the development of spatial datasets that are of importance to multiple County Departments and/or Municipalities

WCLIP Objective 7C1 – Using the model that was successfully developed for the creation of the parcel GeoDatabase, identify other datasets that are of importance to multiple County Department and/or municipalities. Once identified, a spatial data design will be created, approved, and populated. At this time, it is envisioned that the following projects meet these criteria and should be developed in this manner: 1) Local and Municipal Land Use Plans 2) Shoreland Zoning and 3) Hydrology.

WCLIP Objective 7C2 – Development of spatial datasets should leverage the use of, and integrate with, existing County databases and data warehouse, as well as the County Imaging system.

WCLIP Objective 7C3 – Assist the county Information Technology Division in developing technologies that will enable the sharing of data and applications with municipalities and other entities external to County Government Departments.

WCLIP Objective 7C4 – Monitor applications and technology to develop mobile computing capabilities associated GIS functionality when appropriate and cost effective.

WCLIP Goal 7D – Assist in the integration of GIS technology with existing systems.

WCLIP Objective 7D1 – Existing County data systems are continually being evaluated for possible upgrades and enhancements. When an existing system is identified that would benefit from integrating with GIS technology, Land Information Program staff will assist Information Technology Division staff in the development of a project plan and in

facilitating the integration.

WCLIP Goal 7E – Monitor Local, State, and National trends in GIS.

WCLIP Objective 7E1 – Monitor emerging GIS technology and strategies at all levels of implementation and incorporate into the WCLIP those that will result in improved service provision in a more cost effective manner.

Attachment A

WAUKESHA COUNTY DATA SHARING AND DATA PROVISION AGREEMENT

Section 1.0 Identification

All contact regarding this agreement for Waukesha County will be with the Waukesha County Land Information System Manager, hereinafter referred to as "**LIS Manager**", identified as:

Name: Donald G. Dittmar
Address: 1320 Pewaukee Road, Room 260
City/State/Zip: Waukesha WI 53188
Telephone: 262-896-8270
Fax: 262-548-7042
e-mail: ddittmar@waukeshacounty.gov

Section 2.0 Data Use Classification

Noncontributing Data User

As a noncontributing data user, recipient agrees to receive data from Waukesha County in accordance with the terms set forth in sections 3.0, 4.0, 5.0, and 6.0 and for the price established in section 7.0.

Contributing Data User

As a contributing data user, recipient agrees to contribute directly to the Waukesha County Land Information Program. Such contribution must be approved by the LIS Manager and may be in the form of direct financial support, in-kind service, provision of materials or information, or the completion of review and quality assurance processes. In return for this contribution, recipient will receive data at no cost from Waukesha County in accordance with the terms set forth in sections 3.0, 4.0, 5.0, and 6.0.

Complimentary Data User.

As a complimentary data user, recipient agrees to receive data at no cost from Waukesha County in accordance with the terms set forth in sections 3.0, 4.0, 5.0, and 6.0. The LIS Manager must be contacted prior to contracting under this designation.

Section 3.0 Disclaimer

The information and depictions provided are for informational purposes only and Waukesha County specifically disclaims accuracy in this reproduction and specifically admonishes and advises that if specific and precise accuracy is required, the same should be determined by procurement of certified maps, surveys, plats, Flood Insurance Studies, or other official means. Waukesha County will not be responsible for any damages which result from third party use of the information and depictions herein or for use which ignores this warning.

Section 4.0 Metadata

Waukesha County has completed dataset-related information such as currency, accuracy, compilation, and scale in FGDC compliant metadata file with each dataset. This Metadata can be viewed on the Waukesha County Land Information System Division Internet homepage.

Section 5.0 Citation

Any use of the provided information shall be accompanied with the following citation: "(Dataset name from Section 7.0) created, maintained, and provided by the Waukesha County Land Information

Program. Reuse of this data without permission of Waukesha County Land Information System Manager is prohibited.”

Section 6.0 Nontransferable to other users

Recipient agrees not to provide the information identified in this agreement to a secondary users, unless the user is a contracted agent of recipient in which case the provided information can only be used in completing contracted services. Recipient agrees to provide a description of data use by any contracted agent if requested by the LIS Manager.

Section 7.0 Request and Price

Mapping products created by the Waukesha County Land Information System are available for purchase in digital form. Most products are available in either Microstation format (.dgn) or as ESRI shape files (.shp). Data are provided on CD and mailed within 3 working days of receipt of order. To order, print the order form contained as the next 2 pages of this document, indicate order, sign, and fax to Waukesha County. The pricing system is based on cost of reproduction which has been determined to be \$50 per CD dataset with each dataset identified on the order form.

Faxing the completed and executed order form to the LIS Manager at 262-548-7042 will constitute a binding order.

Payment will be expected within 15 days of placing order.

Make Checks payable to “Waukesha County Parks and Land Use Department”

Mail payments to the LIS Manager at the addresses listed in Section 1.

Failure to send payment will result in the denial of any future requests for data by the Recipient.

Attachment B

WAUKESHA COUNTY LAND INFORMATION SYSTEM ACCESS AGREEMENT

This Agreement is made and entered into as of _____, 200_, between WAUKESHA COUNTY ("County"), and _____ ("Accessor").

WHEREAS, the County has compiled various information regarding the Land Information (the "Data"); and

WHEREAS, the County has developed an application to provide access to the Data via a password protected external link to the County computer network; and

WHEREAS, Accessor wishes access to that information;

NOW THEREFORE, in consideration of the premises and mutual covenants hereinafter set forth, and other good and valuable consideration, the adequacy of which are hereby acknowledged, the parties agree as follows:

- (1) The County hereby grants Accessor the right to obtain one password to provide access to the Data, subject to the limitations below
- (2) Accessor acknowledges that current land boundaries and easements cannot be reliably located from the Data, and that land records should be consulted for more accurate and up-to-date information in that regard.
- (3) Accessor agrees to use the information received from the data for use only for the conduct of general government business. Use of the Data for purposes other than those associated with government business will result in the voiding of this agreement and the denial of access to the data.
- (4) The County agrees to provide access to the Data at no charge to the Accessor
- (5) A single access to the Data will be provided to the Accessor. Access will be obtained via an Internet connection to a secure access point. The Accessor will be required to provide a valid email address of a user, either a staff member or employee, that will be used in accessing the data. The user will enter the email address and a password to be provided by the

County that has been associated with the provided email address. The email address to be used for this access is:

(enter email address to be used for access here)

- (6) **DISCLAIMER OF WARRANTIES.** The information and depictions contained in the Data are for informational purposes only and Waukesha County specifically disclaims accuracy in this reproduction and specifically admonishes and advises that if specific and precise accuracy is required, the same should be determined by procurement of certified maps, surveys, plats, Flood Insurance Studies, or other official means. Waukesha County will not be responsible for any damages which result from the use of the information or for use which ignores this warning.

IN WITNESS HEREOF, the undersigned parties have duly executed this Agreement in a manner appropriate to each.

Accessor

Signature: _____

Name(print): _____

Title: _____

Date: _____

Waukesha County

Signature: _____

Name(print): _____

Title: _____

Date: _____