Land Information Plan

2015 Update

Last Amended by the Washington County Land Information Council on February 16, 2018

Contents

EXECUTIVE SUMMARY

About this Document. This document is a land information plan for Washington County prepared by the land information officer (LIO) and the land information council. By Wisconsin statute, "a countywide plan for land records modernization" is required for participation in the Wisconsin Land Information Program (WLIP). The purpose of this document is twofold: 1) to meet WLIP funding eligibility requirements necessary for receiving grants and retaining fees for land information, and 2) to plan for county land records modernization in order to improve the efficiency of government and provide improved government services to businesses and county residents.

WLIP Background. The WLIP, administered by the Wisconsin Department of Administration, is funded by document recording fees collected by register of deeds at the county-level. In 2014, Washington County received $1,000 in WLIP grants and retained a total of $162,720 in local register of deeds document recording fees for land information. Beginning in 2016, WLIP Strategic Initiative grants are projected to increase the county WLIP grants by $50k per year.

This plan lays out how funds from grants and retained fees will be prioritized. However, as county budgets are determined on an annual basis with county board approval, this plan provides estimated figures that are subject to change and are designed to serve planning purposes only.

Land Information in Washington County. Land information is central to county operations, as many essential services rely on accurate and up-to-date geospatial data and land records. A countywide land information system supports economic development, emergency planning and response, and a host of other citizen services. The Washington County land information system integrates and enables efficient access to information that describes the physical characteristics of land, as well as the property boundaries and rights attributable to landowners.

Mission of the Land Information Office. The Washington County Land Information Office will create and maintain a countywide framework of shared geographic information that conforms to standards enabling data sharing and collaborative decision making.

Land Information Office Projects. To realize this mission, in the next three years, the county land information office will focus on the following projects:

1. Continue the Public Land Survey System Monument Maintenance Program
2. Acquire updated orthophotography and LiDAR data.
3. Integrate POWTS and shoreland zoning with tax roll records.
4. Acquire oblique aerial imagery
5. Study all remaining unstudied floodplains in Washington County
6. Scan historic tax roll data
7. Providing parcel and zoning data in the "searchable format" for inclusion in the statewide parcel map.
8. Acquire "survey grade" PLSS coordinates in a modern datum and integrate those coordinates in the county parcel map.

The remainder of this document provides more details on Washington County and the WLIP, summarizes current and future land information projects, and reviews the county's status in completion and maintenance of the WLIP map data layers known as Foundational Elements.

1 INTRODUCTION

In 1989, a public funding mechanism was created whereby a portion of county register of deeds document recording fees collected from real estate transactions would be devoted to land information through a new program called the Wisconsin Land Information Program (WLIP). The purpose of the land information plan is to meet WLIP requirements and aid in county planning for land records modernization.

The WLIP and the Land Information Plan Requirement

In order to participate in the WLIP, counties must meet certain requirements:

- Update the county's land information plan at least every three years
- Meet with the county land information council to review expenditures, policies, and priorities of the land information office at least once per year
- Report on expenditure activities each year
- Submit detailed applications for WLIP grants
- Complete the annual WLIP survey
- Subscribe to DOA's land information listserv
- Meet a June 30, 2017 deadline to post certain types of parcel information online

Any grants received and fees retained for land information through the WLIP must be spent consistent with the county land information plan.

Act 20 and the Statewide Parcel Map Initiative

A major development for the WLIP occurred in 2013 through the state budget bill, known as Act 20. It directed the Department of Administration (DOA) to create a statewide digital parcel map in coordination with counties.

LAND INFORMATION

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.

– Wis. Stats. section 16.967(1)(b)

Act 20 also provided more revenue for WLIP grants, specifically for the improvement of local parcel datasets. The WLIP is dedicated to helping counties meet the goals of Act 20 and has proposed that funding be made available to counties in the form of Strategic Initiative grants to be prioritized for the purposes of parcel dataset improvement. For Strategic Initiative grant eligibility, counties will be required to apply WLIP funding toward achieving certain statewide objectives, specified in the form of "benchmarks." Benchmarks for parcel data—standards or achievement levels on data quality or completeness—are determined through a participatory planning process and will be detailed in future WLIP grant applications.

County land information plans were initially updated every five years. However, as a result of Act 20, counties must update and submit their plans to DOA for approval every three years. Thus, the minimum planning horizon for these documents is three years.

This is the first post-Act 20 required update to the Washington County land information plan.

County Land Information System History and Context

The original Land Information System Plan for Washington County, completed in March 1992, identified two basic goals.

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.

As framework layers were completed, additional goals were developed and included in plan updates. Slowly, goals focused less on data creation and more on the vertical and horizontal integration of land information. Washington County has a maturing land information system and is committed to keeping data current and accurate. Washington County is also committed to providing public access to land information.

Some of the significant achievements made at Washington County include:

- 100% of PLSS corners are remonumented with horizontal and vertical control (100 PPM coordinate accuracy).
- 100% of parcels are digitized using coordinated geometry and referenced to the PLSS network.
- Countywide historic aerial imagery from 1941, 1950, 1963, 1970, 1980, 1985, and 1990 that is scanned, edge matched and georeferenced.
- Countywide digital orthophotography from 1995, 2000, 2005, 2010, and 2015.
- Countywide oblique and ortho imagery from 2013.
- Countywide LiDAR data from 2006 (1.0 m point spacing) and 2015 (0.7 m point spacing) as well as older photogrammetric contours for select areas of the county.
- Countywide site addresses and road centerlines that are used for a variety of county applications including emergency response.
- Surface water and shoreland/wetland/floodplain zoning features are digitized.
- A large number of planning layers used for comprehensive and other planning efforts.
- All real estate documents recorded in the register of deeds are scanned and available on-line.
- Register of Deeds pioneered e-recording in Wisconsin.
- All surveys filed with the county surveyor are scanned and available on-line.
- An on-line mapping application that receives over 12,000 visits per month.
- Access to POWTS and zoning records tied to parcels and available on-line with the ability to submit pumping maintenance information on-line.

Plan Participants and Contact Information

This plan was prepared by the county LIO, the Land Information Council, and others as listed below.

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Approved by the Land Information Council: 10/9/2015
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2 FOUNDATIONAL ELEMENTS

Counties must have a land information plan that addresses development of specific datasets or map layer groupings historically referred to as the WLIP Foundational Elements. Foundational Elements incorporate nationally-recognized "Framework Data" elements, the major map data themes that serve as the backbone required by users to conduct most mapping and geospatial analysis.

In the past, Foundational Elements were selected by the former Wisconsin Land Information Board under the guiding idea that program success is dependent upon a focus for program activities. Thus, the *Uniform Instructions* place priority on certain elements, which must be addressed. The list of WLIP's Foundational Elements has evolved with each update of the county land information plan instructions.

FOUNDATIONAL ELEMENTS

- **PLSS**
- **Parcel Mapping**
- **LiDAR and Other Elevation Data**
- **Orthoimagery**
- **Address Points and Street Centerlines**
- **Land Use**
- **Zoning**
- **Administrative Boundaries**
- **Other Layers**

PLSS

Public Land Survey System Monuments

Layer Status

PLSS Layer Status	
Name	**Status/Comments**
Total number of PLSS corners (section, ¼, meander) set in original government survey	2065
Number and percent of PLSS corners that have been remonumented	100%
Number and percent of remonumented PLSS corners with survey grade coordinates (see below for definition)	0%*
Number and percentage of survey grade PLSS corners integrated into county digital parcel layer	NA*
Number and percentage of non-survey grade PLSS corners integrated into county digital parcel layer	100%
Percentage of PLSS corners that have digital tie sheets (whether or not they have corresponding coordinate values)	100%
Digital tie sheets available online? Yes or No	Yes
Approximate number of PLSS corners believed to physically exist based on filed tie-sheets or surveys, but do not have coordinate values	0%
Approximate number of PLSS corners believed to be lost or obliterated	0%
Total number of PLSS corners along each bordering county	Dodge County – 52 monuments Fond du Lac County– 46 monuments Ozaukee County – 55 monuments Sheboygan County – 25 monuments Waukesha County – 73 monuments
Number and percent of PLSS corners remonumented along each county boundary	100%
Number and percent of remonumented PLSS corners along each county boundary with survey grade coordinates	0%*
Does your county collaborate with or plan to collaborate with neighboring counties for PLSS updates on shared county borders?	Yes

* Coordinate values on 100% of the monuments in Washington County were collected under the direction of a professional land surveyor before the advent of modern GPS. The network maintains a Third Order Class I accuracy. Although this may not meet the recently developed "Wisconsin County Surveyor's Association survey grade standard", it is vastly different from corner coordinates that might still be based on landnet, orthophotographic evidence or some other approximation. The current accuracy has served both the surveying and non-surveying segments of the land information community well for many years.

Custodian

- Washington County Surveyor

Maintenance

- Washington County has a monument maintenance program where approximately 1/12 of all PLSS corners, including ties and reference benchmarks, are inspected annually. Any deficiencies found are repaired and brought to current county standards
- Every year the county reaches out to local governments and paving contractors requesting information about road projects that could damage monuments. Response has been very good and through this outreach monuments are prepped prior to construction and, if necessary, replaced after construction.
- Each year the county repairs or replaces monuments reported to the county by surveyors and other professionals reliant on the monuments.

Standards

- Statutory Standards for PLSS Corner Remonumentation
  Washington County meets s. 59.74, Wis. Stats. Perpetuation of section corners, landmarks.
  Washington County meets s. 60.84, Wis. Stats. Monuments.
  Washington County meets ch. A-E 7.08, Wis. Admin. Code, U.S. public land survey monument record.
  Washington County meets ch. A-E 7.06, Wis. Admin. Code, Measurements.
  Washington County meets s. 236.15, Wis. Stats. Surveying requirements.
- Wisconsin County Surveyor's Association **survey grade** standard (Coordinates collected under the direction of a Professional Land Surveyor, in a coordinate system allowed by s. 236.18(2), and obtained by means, methods and equipment capable of repeatable 2 centimeter or better precision): All monument coordinates were collected under the direction of a professional land surveyor and have third order class I accuracy. Washington County has identified a project in this plan to acquire survey grade coordinates in a modern datum for all PLSS monuments.

Other Geodetic Control and Control Networks

e.g., HARN, Height Mod., etc.

Layer Status

Washington County does not maintain any other geodetic control or control network

Parcel Mapping

Parcel Geometries

Layer Status

- 100% of parcels in Washington County are mapped, referenced to the PLSS network and entered using coordinate geometry. Updates are completed as documents are recorded or surveys filed.
- The native data format is in a Microsoft SQL Server/Esri SDE database. From this format the data can be converted to many commonly used GIS formats.
- Data is in State Plane 1927 – Wisconsin South Zone.
- The parcel polygon incudes the tax key as an attribute. Using the tax key, the parcel polygons can be joined to tax/assessment data, POWTS, or any other database that is also associated with a tax key.
- Parcels are maintained using the Esri Parcel Fabric Data Model. Although the county does not currently use Esri's Local Government Information Model, tools exist that would convert the data stored in the parcel fabric to the local government information model.

Custodian

- Washington County GIS

Maintenance

- The county actively maintains this data throughout the year as documents are recorded or surveys filed.
- Parcels that are retired are maintained in a history file.

Standards and Documentation

- Washington County maintains a data dictionary in a human-readable form, with thorough definitions for each element/attribute name.

Assessment/Tax Roll Data

Layer Status

- This layer is complete. Washington County maintains the tax roll for all communities except the City of West Bend using Transcendent Technologies' Ascent software. The City of West Bend data is maintained in the City's Devnet software with regular updates loaded into the county system.
- Assessment data is maintained by the local assessor. Washington County has limited access to the detailed assessment information that is not included in the tax roll.

Custodian

- Washington County Real Property Lister maintains the tax roll data for all counties except the City of West Bend.
- The City of West Bend Assessor maintains the tax roll for the City
- The Washington County Treasurer maintains tax billing and receipting data through a coordinated effort with the local treasurers.

Maintenance

- Updates are entered throughout the year as deeds are recorded and tax billing/payment information received.
- Historic records are maintained as required by statute.

Standards

- s. 73.03(2a), Wis. Stats. Department of Revenue (DOR) – Powers and duties defined. Department of Revenue Property Assessment Manual – Chapter 5 and DOR format standard requested by DOR for assessment/tax roll data – Washington County complies with these standards
- s. 59.72(2)(a), Wis. Stats. Presence of all nine "Act 20" attributes: The only zoning information maintained by Washington County is shoreland/floodplain/wetland zoning in the unincorporated areas of the county. That information is available as an overlay. The other 8 "Act 20" attributes are present.
- s. 59.72(2)(a), Wis. Stats. Crosswalk of attributes: Washington County has identified a project in this plan that will export the "Act 20" attributes from the tax roll to the "searchable format" standard prior the 2016 data submission date. This project will make the crosswalk table unnecessary.
- s. 70.09, Wis. Stats. Real Property Lister – Washington County complies with these standards.

Act 20 Attributes Required by s. 59.72(2)(a)	Field Name(s) in County Land Info System*	Notes on Data or Exceptions to DOR Standard
Assessed value of land	LNDVALUE	
Assessed value of improvements	IMPVALUE	
Total assessed value	CNTASSDVALUE	
Class of property, as specified in s. 70.32 (2)(a)	PROPCLASS	
Estimated fair market value	ESTFMKVALUE	
Total property tax	GRSPRPTA	
Any zoning information maintained by the county	Overlay, Not an attribute of Parcel	Zoning information is not required in DOR schema
Any property address information maintained by the county	SITEADDRESS	
Any acreage information maintained by the county	DEEDACRES GISACRES	

* Field names in this table are consistent with the searchable format data schema because Washington County is building a crosswalk from the tax system to the searchable schema prior to submittal to the state.

Non-Assessment/Tax Information Tied to Parcels - POWTS

e.g., permits, easements, non-metallic mining, brownfields, restrictive covenants

Layer Status

- The maintenance of Private On-Site Wastewater Treatment Systems (POWTS) installed since 1980 is monitored by the County. Information about the POWTS and its maintenance history is tied to the parcel and maintained in the Transcendent Technologies suite of products.
- An inventory of systems installed prior to 1980 is underway. For some (1969 – 1980) the county has some permit records. Those older than 1969 are being discovered by analyzing tax and existing POWTS records as well as some field verification. When the inventory is complete, the identified POWTS will be added to the Transcendent System.

Custodian

- Planning and Parks Department

Maintenance

- The data is actively maintained by department staff when permits are issued.
- Maintenance information is entered by pumpers through an on-line portal or by department staff.
- The software is tightly integrated with the tax system. This ensures the integrity of the link between the POWTS and tax records is maintained.

Standards

- Consistent with all state statutes and county ordinances.

Non-Assessment/Tax Information Tied to Parcels – Zoning Records

e.g., permits, easements, non-metallic mining, brownfields, restrictive covenants

Layer Status

- Washington County has a current project that will migrate shoreland/floodplain/wetland zoning records from a custom program to the Transcendent Technologies suite of products. Once there, all zoning records maintained by the county will be tightly integrated with the parcels. *Note: Washington County does not administer any general zoning and only administers shoreland/floodplain/wetland zoning in the unincorporated areas of the county.*

Custodian

- Planning and Parks Department

Maintenance

- The data is actively maintained by department staff when permits are issued.

Standards

- Consistent with all state statutes and county ordinances.

ROD Real Estate Document Indexing and Imaging

Status

- **Grantor/Grantee Index**. Washington County has a digital, searchable grantor/grantee index from 1/1/1945 to the present.
- **Tract Index**. Washington County has a digital, searchable tract index from 1/1/1997 to the present. Tract books from 1830 through 12/31/1996 are scanned. The tract index is based on the PLSS (1/16 section) except for subdivisions and condominiums where the tract index is based on Subdivision/Condominium lot and block. All real estate documents recorded in the Register of Deeds are included in the tract index.
- **Imaging**. All real estate documents recorded in the register of deeds are scanned.
- The register of Deeds uses Trimin software for data maintenance and IMS21 for imaging.

Custodian

- Register of Deeds

Maintenance

- The Register of Deeds continually adds and updates records as documents are recorded.

Standards

- s. 59.43, Wis. Stats. Register of deeds; duties, fees, deputies. – Washington County meets this standard.
- ch. 706, Wis. Stats. Conveyances of real property; Recording; Titles. – Washington County meets this standard.

LiDAR and Other Elevation Data

LiDAR

Layer Status

- The most current LiDAR flight was flown in the spring of 2015. The post spacing is 0.7m. Point cloud data was delivered in both NAD 27/NGVD 29 and NAD 83/NAVD 88. The project provided a uniform, countywide deliverable.
- Washington County has a legacy LiDAR dataset from Dec 2006. The post spacing is approximately 1m. Per NSSDA/FEMA guidelines: RMSEz x 1.960 = 95% confidence level; 0.29 x 1.9600 = 0.57 ft. Per NDEP/ASPRS guidelines: 95th percentile (CVA) = 95% confidence level = 0.64 ft

Custodian

- Washington County GIS

Maintenance

- There is little maintenance with LiDAR data. The data and its derivative products are made available in a variety of formats.
- There is not a specific update schedule for LiDAR data. The county will look to acquire an updated LiDAR dataset when the benefits of an updated surface outweigh the costs.

Standards

- The 2015 flight was designed to meet USGS LiDAR Base Specifications QL2.

LiDAR Derivatives

e.g., terrain, contours, digital elevation models, etc.

Layer Status

- The 2015 deliverable included a countywide DTM and 1' contour file. Other derivative products (Terrain, DEM, etc…) are created by the county as needed.
- The 2006 deliverable included a DTM and 2' contour file for 278.75 sections.

Custodian

- Washington County GIS

Maintenance

- There is not a specific update schedule for LiDAR data. The county will look to acquire an updated LiDAR dataset when the benefits of an updated surface outweigh the costs.

Standards

- The 2015 flight was designed to meet USGS LiDAR Base Specifications QL2.

Other Types of Elevation Data

Layer Status

- 1994 photogrammetric project covering 12 sections around and including the Village of Kewaskum. The deliverable included topographic features consisting of geodetic and geographic reference elements, hydrographic elements, planimetric elements, and hypsometric elements.
- 1995 photogrammetric project covering the 36 sections that make up the Town of Erin. The deliverable included topographic features consisting of geodetic and geographic reference elements, hydrographic elements, planimetric elements, hypsometric elements and a DTM.
- 1997 photogrammetric project covering 14 sections around and including the Village of Slinger. The deliverable included topographic features consisting of geodetic and geographic reference elements, hydrographic elements, planimetric elements, hypsometric elements and a DTM.
- 2003 photogrammetric project covering 18 sections in the Oconomowoc River sub-watershed. The deliverable included topographic features consisting of geodetic and geographic reference elements, hydrographic elements, planimetric elements, hypsometric elements and a DTM.
- 2005 photogrammetric project covering 111 sections in various Washington County communities. The deliverable included 2' contours and a DTM.

Custodian

- Washington County GIS

Maintenance

- This dataset is made available in a variety of formats, but is not actively maintained.
- The photogrammetric elevation data has been updated by 2 countywide LiDAR projects.

Standards

- National Map Accuracy Standards for 1:2400 scale mapping

Orthoimagery

Orthoimagery

Layer Status

- Washington County has the following countywide digital orthophotographic datasets.
  - 1995 – 2’ pixel, leaf-off, black and white
  - 2000 – 1’ pixel, leaf-off, black and white
  - 2005 – 1’ pixel, leaf-off, true color
  - 2010/2011 – 6” pixel, leaf-off, true color (The entire county was flown in 2010. Snow, in an amount exceeding the project specification, required about 25% of the county to be re-flown in 2011)
  - 2013 – 9” pixel, leaf-off, true color (Pictometry project – not AccuPLUS)
  - 2015 – 6” pixel, leaf-off, true color

Custodian

- Washington County GIS

Maintenance

- For many years Washington County has acquired orthophotography as part of the regional consortium organized and facilitated by the Southeastern Wisconsin Regional Planning Commission. That consortium has a history of acquiring imagery every 5 years and that update schedule is anticipated to continue. Although the consortium is loosely affiliated with WROC, Washington County does not directly acquire imagery through WROC. A 2020 Southeastern Wisconsin flight is anticipated.
- In 2013 Washington County initiated a program with Pictometry to acquire imagery between the regional projects. The specific Pictometry product purchased is referenced with less ground control and the tone balancing less complete. When the regional and local projects are combined, orthogonal imagery is available for Washington County every 2 or 3 years. The next Pictometry flight is planned for 2017.

Standards

- National Map Accuracy Standards for 1:4800 scale mapping – 1995
- National Map Accuracy Standards for 1:2400 scale mapping – 2000, 2005
- National Map Accuracy Standards for 1:1200 scale mapping – 2010/2011, 2015

Historic Orthoimagery

Layer Status

- Washington County has the following countywide historic orthoimagery datasets. In each case the original negatives were scanned and georeferenced using an analytical aerotriangulation solution. Although georeferenced, the positional accuracy is not defined. The pixel resolution is one foot.
  - 1941 – Leaf-on, Black and White, 1:20000, Source of historic aerial negatives: National Archives
  - 1950 – Leaf-on, Black and White, 1:20000, Source of historic aerial negatives: National Archives
  - 1963 – Leaf-off. Black and White, 1:24000, Source of historic aerial negatives: SEWRPC
  - 1970 – Leaf-off. Black and White, 1:20000, Source of historic aerial negatives: SEWRPC
  - 1980 – Leaf-off. Black and White, 1:20000, Source of historic aerial negatives: SEWRPC
  - 1985 – Leaf-off. Black and White, 1:20000, Source of historic aerial negatives: SEWRPC
  - 1990 – Leaf-off. Black and White, 1:19200, Source of historic aerial negatives: SEWRPC

Custodian

- Washington County GIS

Maintenance

- The goal was to obtain at least one set of historic imagery per decade for as far back as possible. With this goal met, there is no current plan to scan additional years of historic digital data.
- Washington County is not aware of image datasets older than 1941 that are complete for the county.

Standards

- No quantifiable standard was adhered to. The following qualitative measures were used when evaluating the delivered imagery.
  - When historic imagery was compared to current imagery, roads should touch in at least one place.
  - Where one historic tile ends and another begins, roads that cross that seem should touch in at least place.
- In general, the newer the historic imagery, the better the georeferencing and edge-matching.

Other Types of Imagery

e.g., oblique, infra-red, etc.

Layer Status

- 4-way Countywide, Community (9” GSD) oblique imagery from 2013

Custodian

- Washington County GIS

Maintenance

- In 2013 Washington County initiated a program with Pictometry to acquire imagery between the regional orthophotography projects. The next Pictometry flight is planned for 2017

Standards

- None

Address Points and Street Centerlines

Address Point Data

Layer Status

- Complete when City of West Bend data is merged with Washington County data.

Custodian

- Washington County GIS
- City of West Bend Department of Development

Maintenance

- Washington County does not assign any addresses. All address assignment is done at the local level and Washington County is reliant on the local governments to report addresses that are created, modified, or retired.
- Address points are continually updated. The geographic feature is placed on the structure as observed on orthophotography. When structures are newer than the available orthphotography the point is placed at an approximate location. The location of the point is refined when new photography is acquired.
- The County and City of West Bend have an agreed 'area of responsibility' and have similar data models. The data from the county and city can be combined to create a seamless data layer.

Standards

- None

Building Footprints

Layer Status

- Building footprints were one of the planimetric features captured as part of legacy photogrammetric topographic projects. Those projects include:
  - 1994 – 12 sections around and including the Village of Kewaskum.
  - 1995 – 36 sections that make up the Town of Erin.
  - 1997 – 14 sections around and including the Village of Slinger.
  - 2003 – 18 sections in the Oconomowoc River sub-watershed.
- Building footprints for the City of West Bend are available from the City Department of Development.

Custodian

- Washington County GIS
- City of West Bend Department of Development.

Maintenance

- Washington County does not maintain any building footprint data and has no plan to acquire building footprints in future projects.

Standards

- None

Other Types of Address Information – Address Ranges

e.g., address ranges

Layer Status

- Washington County maintains left and right addresses ranges on its road centerline feature. This layer is complete when City of West Bend data is merged with Washington County data.

Custodian

- Washington County GIS
- City of West Bend Department of Development

Maintenance

- Washington County does not assign any addresses. All address assignment is done at the local level and Washington County is reliant on these local governments to report addresses that are created, modified, or retired.
- Address ranges are continually updated using the best data available to Washington County. .
- The County and City of West Bend have an agreed 'area of responsibility' and have similar data models. The data from the county and city can be combined to create a seamless data layer.

Standards

- None

Street Centerlines

Layer Status

- Complete when City of West Bend data is merged with Washington County data.

Custodian

- Washington County GIS
- City of West Bend Department of Development

Maintenance

- Street centerlines are added using new subdivisions and road plans. Locations are refined using current orthophotography.
- The County and City of West Bend have an agreed 'area of responsibility' and have similar data models. The data from the county and city can be combined to create a seamless data layer. Staff make a significant effort to ensure that the endpoint of the county street feature exactly match the starting point for the city street features so that the merged data can be used for routing applications.

Standards

- None

Rights of Way

Layer Status

- 100% complete for Washington County.

Custodian

- Washington County GIS

Maintenance

- Continually updated as part of the parcel mapping workflow. Data is maintained using the Esri Parcel Fabric.

Standards

- None

Trails – Major Recreational Trails

e.g., recreational trails

Layer Status

- Major state and local trails. (I.e. Ice Age Trail, Eisenbahn Trail, West Bend River Walk, etc…) This layer does not include local park trails. This layer is believed to be complete.

Custodian

- Washington County Planning and Parks Department
- Washington County GIS

Maintenance

- Updated as needed

Standards

- None

Land Use

Current Land Use

Layer Status

- 2010 Land Use is complete for Washington County

Custodian

- Southeastern Wisconsin Regional Planning Commission

Maintenance

- Traditionally updated every 5 years in conjunction with the regional orthophotography program.

Standards

- SEWRPC land use mapping standards

Future Land Use

Layer Status

- 2035 Land Use is complete

Custodian

- Southeastern Wisconsin Regional Planning Commission (Washington County may assume custodial responsibility at some point in the future)

Maintenance

- An update to the county comprehensive plan, in partnership with local governments, will begin in 2016

Standards

- s. 66.1001, Wis. Stats. Comprehensive planning.
  Future land use maps are typically created through a community's comprehensive planning process. Future land use mapping for a county may be a patchwork of maps from comprehensive plans adopted by municipalities and the county.
- SEWRPC land use mapping standards

Zoning

County General Zoning

Layer Status

Washington County does not regulate any general zoning. This information is maintained by the local government with regulatory authority

County Special Purpose Zoning – Shoreland/Floodplain/Wetland Zoning

e.g., shoreland, farmland preservation, floodplain, and airport protection

Layer Status

- Complete for the unincorporated areas of Washington County. Washington County does not have regulatory authority for shoreland/floodplain/wetland zoning in the incorporated areas of the County.

Custodian

- Washington County Planning and Parks Department
- Washington County GIS

Maintenance

- Washington County uses the most current version of the Wisconsin Wetland Inventory as amended by the Washington County board based on specific wetland determinations.
- Washington County uses FEMA floodplains, but has and continues to aggressively complete floodplain mapping projects that will remove all Zone A floodplain in County.
- Shorelands are modified when navigability studies are completed or when the floodplain is studied.

Standards

- None

Municipal Zoning Information Maintained by the County

e.g., town, city and village, shoreland, floodplain, airport protection, extra-territorial, temporary zoning for annexed territory, and/or zoning pursuant to a cooperative plan

Layer Status

Washington County does not maintain any municipal zoning information.

Administrative Boundaries

Civil Division Boundaries

e.g., towns, city, villages, etc.

Layer Status

- 100% complete for Washington County.

Custodian

- Washington County GIS

Maintenance

- Continually updated as part of the parcel mapping workflow. Data is maintained using the Esri Parcel Fabric.

Standards

- None

School Districts

Layer Status

- Complete
- All parcels are attributed with the school district(s) to which it belongs. Parcels were merged based on the school district attribute to create school district polygons.

Custodian

- Washington County Real Property Lister
- Washington County GIS

Maintenance

- On-going as part of the tax listing database maintenance workflow.
- The county has worked with specific school districts in the past to correct errors. Additional verification in some areas is needed.

Standards

- None

Election Boundaries - Wards

e.g., voting districts, precincts, wards, voting places, etc.

Layer Status

- Complete
- Wards are attributed with polling location/address, alder/trustee district, supervisor district, state assembly and senate districts, congressional district, court of appeals district, sanitary districts, and school districts.

Custodian

- Washington County Clerk
- Washington County GIS

Maintenance

- Wards were developed in 2011 by the local units of government with assistance from Washington County
- Wards are modified when annexations occur or when polling places change.

Standards

- Includes all attributes required by the Legislative Technology Services Bureau and the Government Accountability Board.

Election Boundaries – County Supervisory Districts

e.g., voting districts, precincts, wards, voting places, etc.

Layer Status

- Complete

Custodian

- Washington County Clerk
- Washington County GIS

Maintenance

- Current supervisory districts were created in 2011
- Washington County reduced the size of its board and created new districts, effective with the April 2016 election.
- This feature will not change until the 2021 redistricting effort.

Standards
- None

Election Boundaries – Polling Places
e.g., voting districts, precincts, wards, voting places, etc.

Layer Status
- Complete

Custodian
- Washington County Clerk
- Washington County GIS

Maintenance
- Modified whenever there are changes to polling places.

Standards
- None

Utility Districts
e.g., water, sanitary, electric, etc.

Layer Status
- Some utility districts have taxing authority and are maintained as an attribute in the tax roll. For these districts, the layer is complete. Washington County does not maintain data for districts that are not included as a tax roll attribute.

Custodian
- Washington County Real Property Lister

Maintenance
- On-going as part of the tax listing database maintenance workflow.

Standards
- None

Public Safety
e.g., fire/police districts, emergency service districts, 911 call center service areas, healthcare facilities

Layer Status
- Ambulance - Complete
- Dive Team – Complete
- ESN – Complete
- Fire – Complete
- First Response – Complete
- Haz Mat – Complete
- MABAS – Complete
- Patrol Area – Complete

Custodian
- Washington County Sheriff
- Washington County Real Property Lister
- Washington County GIS

Maintenance
- Updated as needed

Standards
- None

Lake Districts

Layer Status
- Parcels are attributed with the lake district to which it belongs. Parcels were merged based on the lake district attribute to create lake district polygons.

Custodian
- Washington County Real Property Lister
- Washington County GIS

Maintenance

- On-going as part of the tax listing database maintenance workflow.
- The county has worked with specific lake districts in the past to correct errors. Additional verification in some areas is needed.

Standards

- None

Native American Lands

Layer Status

Washington County does not have any Native American lands

Other Administrative Districts - Parks

e.g., county forest land, parks, etc.

Layer Status

- The layer is believed to be complete for all local, county, and state parks. The layer also includes areas owned by land trusts, or others, which are open to the public. The layer may not be complete for privately held land that is open to public
- The polygons are attributed with the amenities available at the park or public open space.

Custodian

- Washington County Planning and Parks Department
- Washington County GIS

Maintenance

- Updated as changes are reported to the County.

Standards

- None

Other Layers

Hydrography Maintained by County or Value-Added

e.g., hydrography maintained separately from DNR or value-added, such as adjusted to orthos

Layer Status

- Believed to be 100% complete. Includes flowing water and lakes/ponds (> 2 ac) as seen on and digitized to match current orthophotography.

Custodian

- Washington County GIS

Maintenance

- This layer is critical to and maintained as part of the shoreland/floodplain/wetland zoning feature dataset.

Standards

- None

Cell Phone Towers

Layer Status

Washington County does not maintain Cell Phone Tower information.

Bridges and Culverts

Layer Status

Washington County does not currently maintain a comprehensive inventory of bridges or culverts.

Other - Railroads

Layer Status

- Complete for the county.

Custodian

- Washington County GIS.

Maintenance

- Railroad right of way is maintained in the parcel database and railroad centerlines were digitized to match current orthophotography.

Standards

- None

3 LAND INFORMATION SYSTEM

The WLIP seeks to enable land information systems that are both modernized and integrated. Integration entails the coordination of land records to ensure that land information can be shared, distributed, and used within and between government at all levels, the private sector, and citizens.

LAND INFORMATION SYSTEM

An orderly method of organizing and managing land information and land records

– Wis. Stats. section 16.967(1)(c)

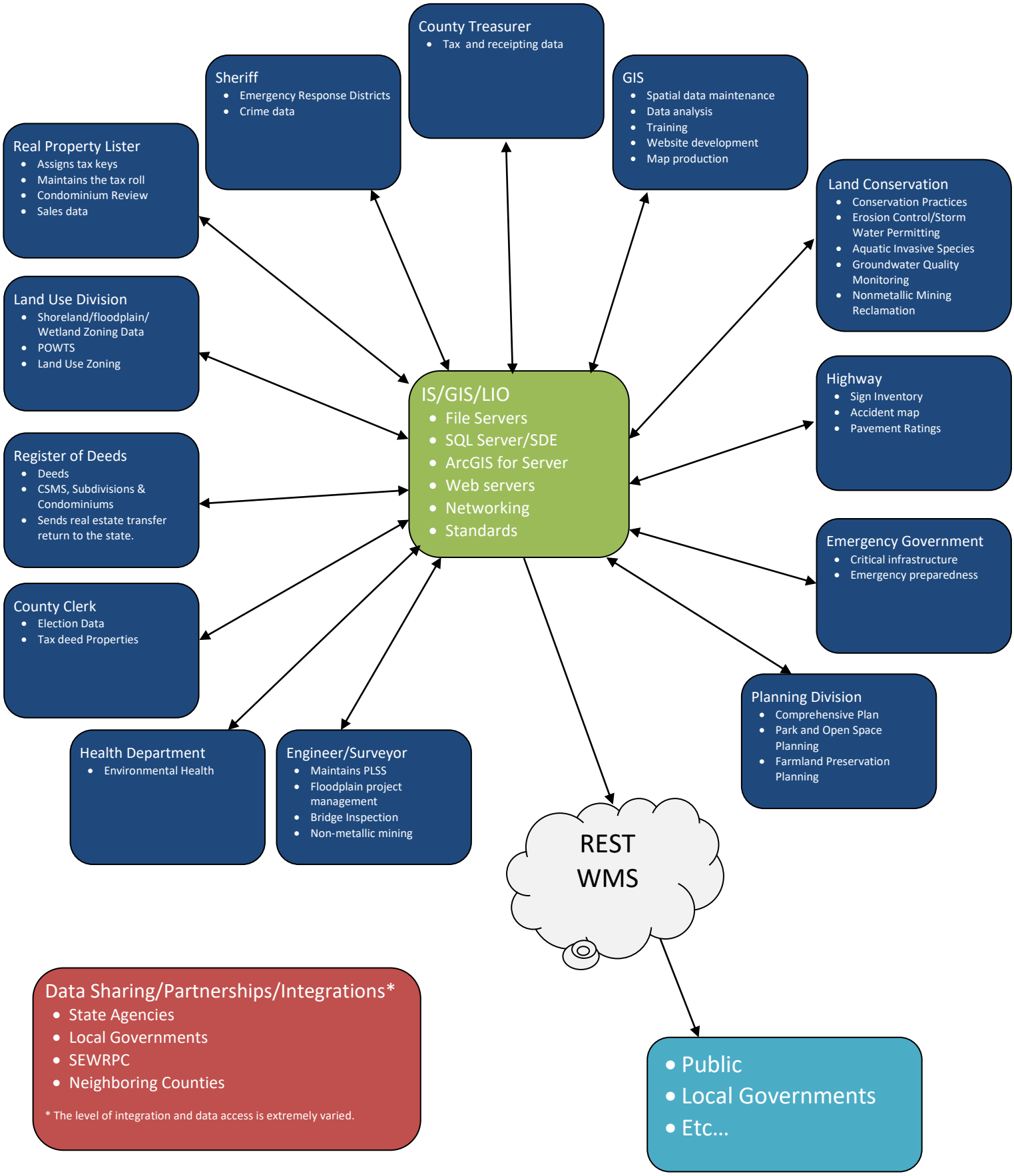
One integration requirement is listed under s. 16.967(7)(a)(1), Wis. Stats., which states that counties may apply for grants for:

> The design, development, and implementation of a land information system that *contains and integrates*, at a minimum, property and ownership records with boundary information, including a parcel identifier referenced to the U.S. public land survey; tax and assessment information; soil surveys, if available; wetlands identified by the department of natural resources; a modern geodetic reference system; current zoning restrictions; and restrictive covenants.

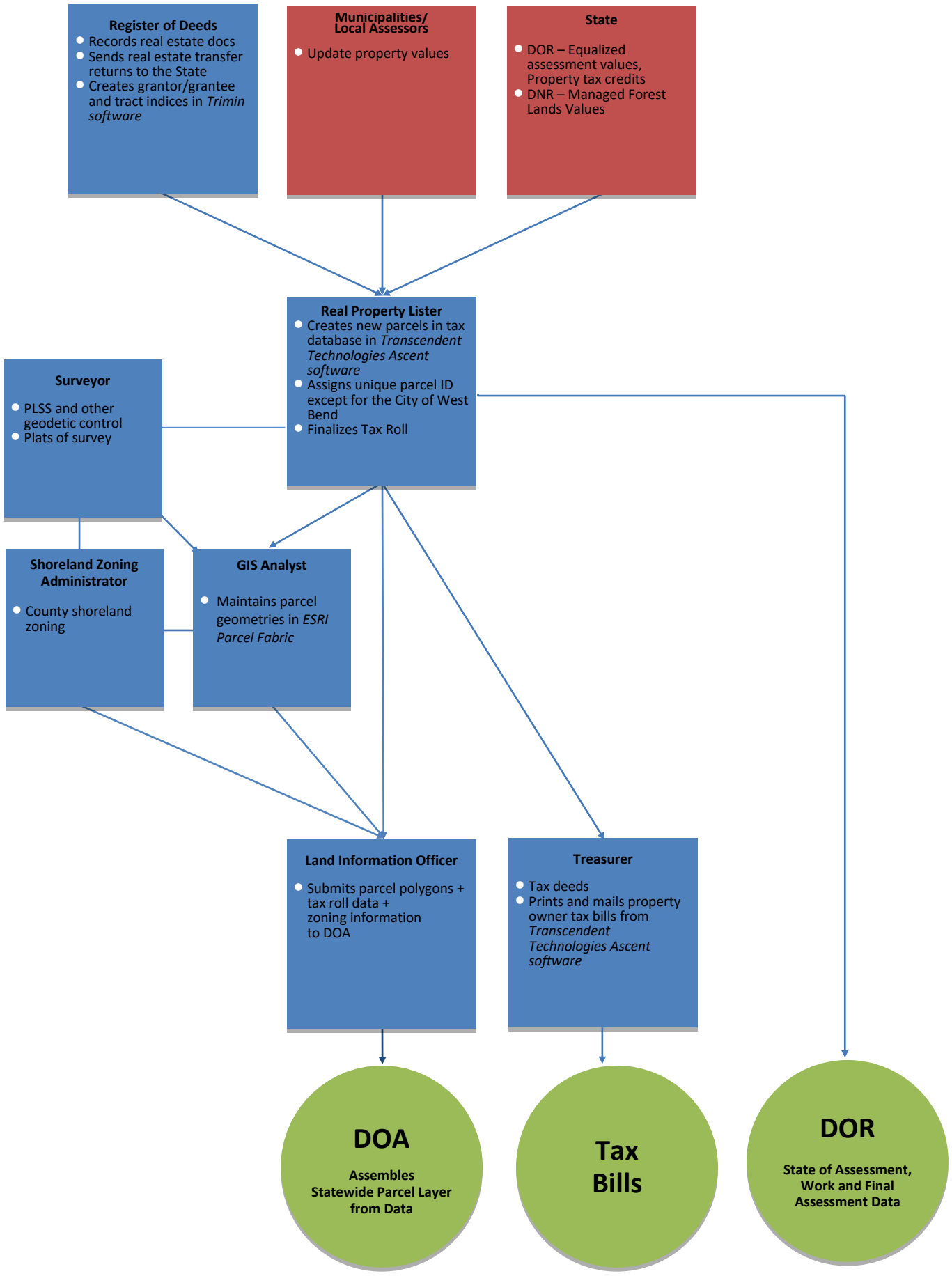
This chapter describes the design of the county land information system, with focus on how data related to land features and data describing land rights are integrated and made publicly available.

Current Land Information System

Diagram of County Land Information System



County Parcel Data Workflow Diagram



Technology Architecture 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 for Desktop. Analytical capabilities are expanded through the use of ArcGIS for 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 7 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 serve data to all county users.

ArcGIS for Server is used to publish data for Internet distribution. The main GIS website is an application created and hosted by Applied Data Consultants. The county has and continues to develop a task specific applications. Older applications are Adobe flash based and hosted locally. Increasingly, ArcGIS On-line is being used over flash for task specific applications. Register of Deeds records are presented on-line using Trimin's Landshark software. Transcendent Technologies software is used to publish tax, POWTS, and zoning data. Providing access to land information in a web application is critical to expanding the benefit of land information modernization to the public and less technical county staff.

In some cases the Esri or Bentley software does not meet all the requirements of a specific business need. In these cases a department may purchase add-on or standalone 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 and vendor supplied best practices 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.

Metadata and Data Dictionary Practices

Washington County uses TKME from the USGS to develop metadata at the feature dataset level for all core data and uses Metadata Parser (MP) to ensure the metadata created is consistent with the FGDC Content Standard for Digital Geospatial Metadata. The metadata is supplemented with data schema diagrams and data dictionaries.

Municipal Data Integration Process

Washington County and the City of West Bend are connected through a Municipal Area Network. GIS users at the city have read-only access to county GIS database servers. County staff have read only access to city GIS database servers.

The county has worked with a number of municipalities to publish REST services allowing the municipalities to display live county hosted data within their own Intranet or Internet applications.

In some cases data is still exchanged using DVDs or ftp transfer.

Consistent referencing systems and good metadata ensure that when it is received, the shared data is easy to use.

Public Access and Website Information - County

Type of Website	Software or App	3rd Party or Contractor	URL	Update Frequency/ Cycle
GIS web mapping site	*WGX*	*Applied Data Consultants*	http://maps.co.washington.wi.us.us/	As data is updated
ROD land records search tools	*Landshark*	*Trimin*	https://landshark.co.washington.wi.us/LandShark/	Daily
RPL tax parcel site	*Ascent*	*Transcendent Technologies*	http://landrecords.co.washington.wi.us/landrecords/	As records are updated
Zoning Integrated in GIS web mapping site	*WGX*	Applied Data Consultants	http://landrecords.co.washington.wi.us/LandRecords/	As needed
PLSS tie sheets	*Regional Land Information*	SEWRPC	http://maps.sewrpc.org/regionallandinfo/surey.shtm	As needed
Plats of survey - Searchable database	*Survey Scans*	Wisnet	http://www.co.washington.wi.us/surveys/	At least quarterly
Plats of survey – Mapping Application	*Plat Finder*	None	http://maps2.co.washington.wi.us/apps/plats	At least quarterly
Active Living Mapping Site – mapping application	*Get Moving Washington County*	GeoDecisions	http://getmovingwashingtoncounty.org	Annually
Addressing – Mapping Application	*Address Finder*	ArcGIS Online	http://maps2.co.washington.wi.us/AddressFinder/	As data is updated
Election Districts – Mapping Application	*District Finder*	None	http://maps2.co.washington.wi.us/districtfinder/	As data is updated
Land Conservation – Mapping Application	*Nutrient Application Restriction Application*	None	http://maps2.co.washington.wi.us/Apps/nmr	As needed
Surveyor – PDF images	*Index of Benchmarks*	None	http://www.co.washington.wi.us/744	As needed
Surveyor – PDF Images	*Donated survey field book indexes*	None	http://www.co.washington.wi.us/743	AS needed
Surveyor - PDF Images	*Highway Registry Books*	None	http://www.co.washingotn.wi.us/728	As needed
POWTS – Searchable Database	*POWTS Maintenance*	Transcendent Technologies	http://powts.co.wasington.wi.us	As records are updated.
Highway – Searchable database	*Highway Plans*	None	http://www.co.washington.wi.us/highwayprojects	As needed
Real Property Lister – PDF Images	*Tax maps*	None	http://www.co.washington.wi.us/669	Annually

Public Access and Website Information – Municipal

http://rmgis.ruekert-mielke.com/Germantown/	Village of Germantown*
http://maps.ci.hartford.wi.us/	City of Hartford*
http://kewaskum.ags.ruekert-mielke.com/	Village of Kewaskum*
http://www.ci.west-bend.wi.us/GIS/	City of West Bend

* Some data accessed is from county servers through REST end points.

Data Sharing

Data Availability to Public

Most land records are accessible to the public through free on-line applications. Statutory fees are changed when accessing documents recorded in the Register of Deeds. The public can also request copies of digital data or paper maps (cost of reproduction fees are charged).

Data Sharing Restrictions

Washington County does not permit on-line records to be searched by name. The complete privacy policy is accessible in the on-line applications where the name search is restricted. No other data access, other than data specifically protected by state statute, is limited. Washington County does not require the signing of any data sharing agreements or use restriction statements.

Government-to-Government Data Sharing

Washington county typically waives all fees (including the reproduction fee) when data is requested by another unit of government. In most cases this is reciprocated when the county requests data from other units of government.

Training and Education

Washington County encourages staff to stay current in the field by attending conferences and training. Typically the staff attending the training will report back and present what they learned to the staff unable to attend the training. The county has an internal GIS Users group for staff to gather and share experiences.

For those using our public on-line offerings, the county has provided user manuals, YouTube videos and in some cases in-person classes or presentations.

4 CURRENT & FUTURE PROJECTS

Project #1: Public Land Survey System Monument Maintenance

Project Description/Goal

Maintain all public land survey system monuments, ties and references benchmarks in Washington County. In 2006 Washington County completed a pilot project in the Village of Richfield to inspect all monuments and repair the problems found. From 2007 – 2014, similar projects were completed for the Towns of Trenton, West Bend, Polk, Erin, Jackson, Hartford, Kewaskum, and Addison. The intent is to complete similar work for 1 town per year. The resulting program would inspect every monument in the county once every 12 years. The specific town is determined by the County Surveyor. (This is in addition to the general monument maintenance that occurs throughout the county as problems are reported.)

2015 – Town of Wayne (on-going)

2016 and 2017 – Complete the two remaining towns in the first cycle. Town of Farmington and Village of Germantown

2018 – Start over with the Village of Richfield. As towns are studied for the second time, Washington County will determine if a 12 year cycle is appropriate.

Business Drivers

- Washington County has spent considerable resources to remonument the entire county. Maintenance is needed to protect this investment.
- If single monument is lost, it is less expense to relocate one monument than it would be if there was a significant deterioration of the network.
- Surveyors and other professionals rely on the monuments.
- Monuments are the basis for land descriptions
- Many GIS layers are referenced to the PLSS network.

Objectives/Measure of Success

- 100% of monuments are placed and stable.
- Every monument has at least 4 ties.
- Every monument has at least 2 reference benchmarks.

Project Timeframes

Milestone	Duration	Date
Phase I – Monument inspection and reporting	–	Jan - June
Phase II – Monument repair		July - Dec

Responsible Parties

County Surveyor – Project management and Quality Control
Contracted Surveying Firms – Phase I and Phase II work

Estimated Budget Information

$50,000/yr

Funding Source: WLIP Retained Fees

Project #2: 2015 Orthophotography/LiDAR Acquisition

Project Description/Goal

Washington County has a history of partnering in a regional consortium to collect orthophotography every 5 years. Those projects occur in years ending in 0 and 5. The on-going project will acquire 6" pixel true color orthophotography. The data will be delivered in both NAD27 and NAD83.

Prior to Dec 2006, various smaller topographic mapping projects were completed. Currency and deliverables varied greatly around the County. In December 2006 a countywide LiDAR project was completed. In 2015 Washington County is updating its LiDAR data with a new countywide flight. The deliverable includes 0.7 post spaced classified .LAS, a DTM and contour files. The point cloud will be delivered in both NAD27/NGVD29 and NAD83/NAVD88

Business Drivers

- Orthophotography is one of the most use layers in the county GIS and is used to determine current ground condition and the measurement of ground features.
- Current orthophotography is important for zoning, planning, law enforcement and other county programs.
- Orthophotography is the base on which other layers like surface water and address points are digitized.
- Washington County has an ambitious goal of eliminating all zone A floodplain in the county. An accurate elevation surface is needed for this initiative.
- Elevation data is used for preliminary highway planning and land conservation practice design.

Objectives/Measure of Success

- Delivery of Orthophotography meeting all project specifications.
- Delivery of LiDAR data meeting all project specifications.

Project Timeframes

Milestone	Duration	Date
Contract Delivery Date	–	Dec 1, 2015

Responsible Parties

SEWRPC – Contract administration, QA/QC, consortium coordination.
Contracted Firm – Data collection and processing
County GIS – County Review

Estimated Budget Information

$8,481 – Orthophotography
$126,650 – LiDAR

Funding Source WLIP Retained Fees

Project #3: Land Use Sanitation/Zoning Modernization - Amended

Project Description/Goal

Migrate shoreland zoning permit records from legacy systems to a Transcendent Technologies Land Use module. This will bring together tax listing, POWTS and zoning into a single integrated system. Because records are tied to tax key, all records will be tied to the parcel geometries maintained by the county GIS.

In 2010 Washington County purchased Transcendent Technologies POWTS program and loaded all systems currently on the county's maintenance program (1980-present). This project will add to that existing record set all systems installed prior to 1980.

On an "as time permits" basis, Washington County has scanned all POWTS permits back to 1982. This project will speed up the scanning for the remaining files (1969-1982) by increasing hours for a part-time employee.

Scan all zoning permit files. Scanned shoreland zoning images will be tied to their matching database record and the spatial parcel database.

Business Drivers

- A complete POWTS inventory is required to comply with state statute.
- Elimination of duplication of effort. (Parcel ownership information is currently entered in multiple places)
- Enhanced public access (all records will be available on-line, including scanned permit files)
- Enhanced analytic and reporting functions in the new software
- Better integration with the parcel geometry leading to enhanced spatial analysis options.
- Database and application will be on a hardware/software platform that is better supported.
- Better archiving and disaster recovery

Objectives/Measure of Success

All data from the legacy zoning application is successfully migrated. Maintenance of new zoning data is done in the new system.

Every property in Washington County with a POWTS is in the maintenance program.

All POWTS permits are scanned in the county imaging program and publicly available over the Internet.

All shoreland zoning permit files are scanned in the county imaging program, tied to parcel data, and publicly available over the Internet.

Project Timeframes

Milestone	Duration	Date
Migration of Zoning Data	–	Dec 31, 2015
Migration of Historic POWTS Data		June , 30, 2016
POWTS Permit Scanning	-	Dec 31, 2016
Shoreland Zoning Scanning		Dec 31, 2018

Responsible Parties

Washington County GIS - Contract and project management

Washington County Planning and Parks and GIS - Identification of properties with POWTS installed prior to 1980

Washington County Planning and Parks (WLIP funds will be used to allow a part time employee to work additional hours for the sole purpose of scanning these records) – POWTS Permit file scanning

Transcendent Technologies – POWTS and Zoning data migration.

Scanning Vender – Scanning of shoreland zoning permit files.

Estimated Budget Information

$5000 - $6250 Zoning Data Migration

$1250 - $1875 Sanitation Data Migration

$5000	Sanitation File Scanning
$60,000	Shoreland Zoning File Scanning

Funding Source WLIP Retained Fees

Amendment Approval

2/16/18	Land Information Council
3/28/18	Public Works Committee
4/17/18	Washington County board of Supervisors (approval of the fund transfer necessary to complete the project.)

Project #4: Oblique Aerial Imagery

Project Description/Goal

Washington County flew countywide 9in pixel ortho and oblique imagery with Pictometry in 2013. Pictometry projects are timed so they provide an image dataset between the regional orthophotography projects. This project will support the existing infrastructure and acquire updated imagery in 2017.

Business Drivers

- Many users and applications benefit from orthophotoography that is updated more frequently than the 5 year regional orthophotoography update cycle.
- The addition of oblique imagery provides benefit to public safety, assessment and other functions.
- Local governments benefit from and have access to the county funded imagery and system at no cost to them.

Objectives/Measure of Success

- New countywide ortho and oblique imagery is delivered in 2017.

Project Timeframes

Milestone	Duration	Date
Imagery Delivery	–	Mid 2017
	-	

Responsible Parties

Pictometry – Data acquisition and application/data hosting.

Estimated Budget Information

$1750	2016	Support and hosting
$37,888	2017	Support, hosting and data acquisition
$1750	2018	Support and hosting

Funding Source WLIP Retained Fees

Project #5: Floodplain Mapping

Project Description/Goal

Washington County is a developing county in the metro-Milwaukee area. The accuracy of floodplain data does not match current needs. During the FEMA Map Modernization program floodplain studies completed in the 1980's were rejected, which for many owners meant the zoning of their property reverted to unstudied floodplain. Washington County has an ambitious goal of elimination all zone A floodplains in the County. Over the past 5 years significant projects were completed to improve floodplains in parts of the County. The projects included here will complete the work for the county.

Business Drivers

- Much of the floodplain in the county, including some areas with development pressure, is approximate.
- Floodplain zoning became more challenging after map modernization when many studied floodplains reverted to unstudied floodplain.
- Accurate floodplains will reduce unnecessary delays for property owners looking to improve their property.
- Accurate floodplains will allow for better zoning administration and reduce the risk of property loss during a flooding event.

Objectives/Measure of Success

- All floodplains in Washington County are studied using modern methods and mapped using detailed topographic information.

Project Timeframes

Milestone	Duration	Date
Field Surveys	–	Sept 2015 – April 2016
QC Field Surveys		Oct 2015 – May 2016
Hydrology		Nov 2015 – June 2016
QC Hydrology		Nov 2015 – June 2016
Hydraulics		June 2016 – Nov 2016
QC Hydraulics		Aug 2016 – Dec 2016
Mapping		Dec 2016 – Feb 2017
QC Mapping		Mar 2017
Final Submittal to FEMA		April 2017
QC Completeness of Package		May 2017

Responsible Parties

Washington County Surveyor/Engineer – Project scoping, project management and data review
Washington County Planning and Parks – Data review, county zoning updates, public hearings
Washington County GIS – Map production and data integration
Wisconsin DNR – Coordinate floodplain studies, consultation, in-kind contribution to county projects
Private Surveying firm – Structure and cross section surveys
Private Engineering firm – Hydrologic and hydraulic mapping

Estimated Budget Information

Mid Milwaukee

$39,465	Surveying
$0	Hydraulics, Hydraulics and Mapping completed by DNR.

North and West Branch Milwaukee River

$42,310	Surveying
$99,316	Hydrology, Hydraulics and Mapping

Menomonee River Tributaries

$1509	Surveying
$3331	Hydrology, Hydraulics and Mapping

Nor-X-Way Channel

$2300	Surveying
$5078	Hydrology, Hydraulics and Mapping

Rock River

$57,772	Surveying
$127,547	Hydrology, Hydraulics and Mapping

Funding Source WLIP Retained Fees

Project #6: Historic Tax Roll Scanning

Project Description/Goal

Washington County has many years of historic tax rolls that are in paper form that the county must maintain in perpetuity. This project would scan and enhance public access to those records.

Business Drivers

- Disaster recovery
- Enhanced county and public access when these records are needed for property or genealogical research.

Objectives/Measure of Success

- Clear and readable scanned images are created for historic tax rolls.
- The scanned images are indexed in a way that they are searchable by the public and county staff.

Project Timeframes

Milestone	Duration	Date
Image and index Delivery	–	2017
	-	

Responsible Parties

County Treasurer – Project management and QC
Washington County IS – Loading imagery into county document imaging system
Washington County GIS – public access
Contracted Services – Scanning and indexing

Estimated Budget Information

$75,000 Document scanning and indexing

Funding Source WLIP Retained Fees

Ongoing Costs Not Associated with a Specific Project

Project Description/Goal

WLIP retained fees are used to maintain on-line mapping capabilities. This includes server software support, web hosting fees, internal charges directly related to the maintenance of on-line mapping applications and external agreements for minor tweaks to the application.

WLIP retained fees also enhance the budget of the GIS Office by funding hardware acquisition for those responsible for maintaining land information, GIS software support, and training of GIS staff.

Business Drivers

- Public demand for access to public information
- County staff have the tools and training necessary to be efficient

Objectives/Measure of Success

- GIS mapping sites are available to the public and integrated with related systems.
- Staff are appropriately trained and current in their field.
- Software is supported and upgraded to current versions
- Staff have the hardware and software to be effective.

Project Timeframes

NA

Responsible Parties

NA

Estimated Budget Information

$8,500/yr	Internet Mapping Application software support, hosting and minor enhancements.
$10,000/yr	Training, software support, and hardware upgrades for land information staff in the GIS office.

Funding Source WLIP Retained Fees

Project Plan to Achieve Searchable Format (Benchmarks 1 & 2)

Project Description/Goal

How searchable format will be met

- Washington County recently upgraded to a new tax system (Transcendent Technologies' Ascent Suite) where nearly all of the Benchmark 1 and 2 attributes reside. Washington County will work with Transcendent Technologies (and possibly other Transcendent customers) to create a database view that formats all benchmark 1 and 2 attributes in the searchable format.
- Washington County will write a script in the GIS to combine the database view to geographic data and any other attributes maintained outside of Ascent. The script would do any reformatting required to meet the searchable format.

Business Drivers

- The *Project Plan to Achieve Searchable Format for Benchmarks 1 & 2* is a requirement for Strategic Initiative grant eligibility.

Objectives/Measure of Success

- The objective is to meet the searchable format for Benchmarks 1 & 2 (Parcel and Zoning Data Submission, Extended Parcel Attribute Set Submission) by March 31, 2016

Project Timeframes

Milestone	Duration	Date
Database View Creation	–	Jan 2016 – Feb 2016
GIS Script Creation	-	March 2016
V2 Data Submittal		March 31, 2016

Responsible Parties

Transcendent Technologies – Database View Creation
Washington County GIS Analyst – GIS Script Creation
Washington County Land Information Officer – V2 Data submittal.

Estimated Budget Information

<$1000 Contracted service to write required database view

Funding Source WLIP Strategic Initiative Grant

Project Plan for Parcel Completion (Benchmark 3)

Project Description/Goal

Current status of parcel data

- Washington County is 100% parcel mapped and successfully meets Benchmark 3. There are currently 61,020 parcels in Washington County, all of which are mapped.

Goals

- Maintain Parcel Mapping

Planned approach

- Washington County GIS maintains parcel data using the Esri Parcel fabric.

Business Drivers

- The *Project Plan for Parcel Completion* is a requirement for Strategic Initiative grant eligibility.
- Current parcel data is a key component in many county activities.

Objectives/Measure of Success

- The objective is to continue to meet Benchmark 3 (Completion of County Parcel Fabric)
- Parcel data is complete, current, and accurate.

Project Timeframes

N/A

Responsible Parties

Washington County GIS Analyst

Estimated Budget Information

No WLIP Funding

Project Plan for PLSS (Benchmark 4)

Project Description/Goal

Planned approach

- Washington County will undertake a project to convert all PLSS Coordinates from NAD27/NGVD29 to NAD83/NAVD88. To do this, Washington County is planning to reoccupy all monuments using modern GPS equipment. This will also upgrade corner accuracy from Third Order Class I to a value that meets the County Survey's definition of "survey grade". We expect an accuracy approaching 1 in 50,000.
- The relative change in distance between monuments is expected to be very small. Monuments will be entered into the parcel fabric using their new coordinate value. Parcels and related features will be adjusted to the new monuments using automated GIS tools.

Current status

- 100% of the 2065 monuments in Washington County have been remonumented. Various initiatives, including a monument maintenance program project, ensure the physical location of the monument is maintained.
- Coordinate status (accuracy class)
  - **0% - Survey-grade** – Coordinates collected under the direction of a professional land surveyor, in a coordinate system allowed by s. 236.18(2), and obtained by means, methods and equipment capable of repeatable 2 centimeter or better precision
  - **100% - Sub-meter** – Accuracies of 1 meter or better
  - **0% - Approximate** – Accuracies of within 5 meters or to coordinates derived from public records and other relevant information

Note: Coordinate values on 100% of the monuments in Washington County were collected under the direction of a professional land surveyor before the advent of modern GPS. The network maintains a Third Order Class I accuracy. Although this may not meet the recently developed "Wisconsin County Surveyor's Association survey grade standard", it is vastly different from corner coordinates that might actually have inaccuracies approaching 1 meter.

Goals

- Survey grade quality coordinates in NAD83/NAVD88 for 100% of the coordinates in Washington County.

Missing corner notes

- There are a very small number of corners that fall within bodies of water. In these cases meander corners have been set. There are no other missing corners in Washington County.

County boundary collaboration

- Washington County will share data with neighboring counties and coordinate efforts to ensure we are not redoing any work completed by neighboring counties that already meets the county standard.

Business Drivers

The *Project Plan for PLSS* is a requirement for Strategic Initiative grant eligibility.

Improved accuracy and a modern datum will simplify survey functions in our Highway, Land Conservation, Parks, and Facilities Departments. Surveyors doing work for local governments, Wisconsin Department of Transportation and the private sector will have the same benefit.

Current workflows often require the conversion of datasets between the older and newer datums. This has the potential to introduce error. This project will dramatically reduce the need for datum conversion. An example of when datum conversion is required is when trying to use Washington County topographic data that was traditionally captured in NGVD29 with FEMA flood elevations published in NAVD88.

Objectives/Measure of Success

The objective is to meet Benchmark 4 (Completion and Integration of PLSS) by Dec 31, 2019

Project Timeframes

Field work for the project is expected to start late 2017 or early 2018 and conclude by the end of 2018.

Least squares adjustments, preparation of new dossiers, control survey summary diagrams, and other office work will take place in 2019.

Washington County is requesting an extension to their 2016 Strategic Initiative Grant. The proposed project schedule will permit the pooling of 2016, 2017, 2018 and 2019 Strategic Initiative Grants as well as time to save the necessary locally retained fees that will be needed to fund the project.

Responsible Parties

County Surveyor – Project Specifications, Quality Control, Project Coordination

Land Information Officer – Project Coordination

Southeastern Wisconsin Regional Planning Commission – Coordinate with other counties and publish new coordinate values.

Private Surveying Firm – Field surveying, office work, dossier and control survey summary diagram preparation

Estimated Budget Information

$500,000	$200,000 Strategic Initiative Grant (2016, 2017, 2018, 2019) with the balance from locally retained Wisconsin Land Information Program Funds. *This is a very rough estimate.*

Amendment #1: On-line Access to Scanned Documents

Project Description/Goal

Update the software Washington County uses to publish scanned land records to staff, professionals and the public via the Internet. The software allows integration of scanned documents within other on-line applications. Currently used for tax bills, surveys, highway plans, and sanitary permits.

Business Drivers

- Existing solution is 10 years old and has compatibility issues with some modern web browsers.
- Existing solution does not have external support and has minimal internal support.
- Existing solution is a WebSphere application on an IBM iSeries. This platform is inconsistent with Washington County's current IT direction.
- Access to scanned land records is a widely used feature of the Washington County public facing Land Information System.
- Web based access is convenient for the public and reduces the time county staff spends filling data requests.
- Web based access provides remote access to records for county staff.
- Provides room for growth if additional land records are imaged.

Objectives/Measure of Success

- On-line access to scanned land records is maintained.
- Integration with other on-line applications is maintained or improved.
- The image serving software is supported and is consistent with Washington County's overall IT direction.

Project Timeframes

Milestone	Duration	Date
Develop, test, go-live with new system	6-8 weeks	Start as soon as all approvals are granted

Responsible Parties

Washington County IS – Project management, server setup, access to servers, firewall configuration, testing, etc…

Contracted Services – Application development, system testing, and moving the functionality live.

Estimated Budget Information

$16,200 Application Development

Funding Source WLIP Retained Fees

Amendment Approval

5/20/16 Land Information Council
6/22/16 Public Works Committee

Amendment #2: Trimin Migration

Project Description/Goal

Upgrade the Trimin software suite used by the Register of Deeds to record, index and make publically available real estate documents. This project would migrate Trimin from AS400/DB2 to Windows/SQL Server.

Business Drivers

- Washington County IT is standardizing solutions countywide on the SQL Server platform.
- The Register of Deeds Office would like to continue their relationship with Trimin and be consistent with county IT direction.
- Internal support for AS400 based systems has diminished.
- Improve database back-ups, optimization, etc... processes.
- Facilitate future integrations by having all land records applications in a SQL Server environment.

Objectives/Measure of Success

- Eliminate Trimin Modules' reliance on AS400/DB2.
- Improved internal support for database administration.
- Public access to land information is maintained or enhanced.
- Increased potential for future integrations.

Project Timeframes

Milestone	Duration	Date
Install and configure application, migrate data, go-live	4-8 weeks from project kick-off	2016

Responsible Parties

Washington County IS – Server setup, access to servers, firewall configuration, etc…
Register of Deeds – Verification of migrated data and testing.
Contracted Services – Migration of data, application installation and configuration, verify migrated data, etc…

Estimated Budget Information

$6000	Trimin consulting Services
$5000	Hardware/software/system level consulting

Funding Source WLIP Retained Fees

Amendment Approval

7/8/16	Land Information Council
7/27/16	Public Works Committee

Amendment #3: Expand Remote Web Tax Receipting

Project Description/Goal

Implement an on-line tax-receipting program in 18 of the 20 municipalities in Washington County. The two remaining municipalities are already using the solution. This project will create workflow efficiencies and improve access and timeliness of tax payment information.

Business Drivers

- Receipting data collected by 18 municipalities as tax bills are paid is not imported/uploaded to the county tax database until early to mid-February.
- There are frequently issues with the tax receipt import files that are submitted to the county.
- Tax payment information on the county land information websites is outdated until the file is loaded into the tax database.
- If the tax payment information on the county land information website is not current, it results in frustration for the public and increased workload answering phone calls for county and local government staff.

Objectives/Measure of Success

- Tax payments receipted by local governments are immediately posted to the county tax database.
- Tax payment information displayed on the county land information websites is real-time, improving public access to this important parcel data.
- Eliminate the cumbersome receipt file import workflow.
- Reduced counter and phone traffic for the County and local government staff.

Project Timeframes

Milestone	Duration	Date
Implementation of remote web receipting in 18 municipalities.	TBD	Complete by Dec 1, 2018

Responsible Parties

Contracted Services – Setup and configuration.
County and Municipal Treasurers – Project management and testing

Estimated Budget Information

$12,000 Transcendent Technologies, implementation fees

Funding Source: WLIP Retained Fees and Tax Levy

Amendment Approval

08/04/17 Land Information Council

Project presented to and supported by Public Works Committee as part of 2018 budget request.