

**LINCOLN COUNTY, WI
LAND INFORMATION PLAN
2019-2021**



Lincoln County Land Services Department
Lincoln County Service Center
801 N. Sales Street, Suite 105
Merrill, WI 54452-1632

CONTENTS

- EXECUTIVE SUMMARY3
- 1 INTRODUCTION5
- 2 FOUNDATIONAL ELEMENTS8
 - PLSS.....9
 - Parcel Mapping.....10
 - LiDAR and Other Elevation Data13
 - Orthoimagery.....14
 - Address Points and Street Centerlines.....17
 - Land Use19
 - Zoning.....20
 - Administrative Boundaries.....22
 - Other Layers.....27
- 3 LAND INFORMATION SYSTEM.....30
 - Public Access and Website Information35
- 4 CURRENT & FUTURE PROJECTS37
 - Project #1: Plan for PLSS (Benchmark 4).....38
 - Project #2: Scan and Index Register of Deeds Documents39
 - Project #3: RPL LTE Position – Gaps, Overlaps, and ROW Research.....40
 - Project #4: GIS LTE Position – ROW Project Completion and WLIP Project Support.....41
 - Project #5: Orthoimagery.....41
 - Project #6: Web Server - Website Upgrades.....42
 - Project #7: ArcGIS Open Data – ArcGIS HUB43
 - Project #8: Web Development – Create Single Purpose Websites.....43
 - Project #9: Historic Aerial Photo Ortho Rectification.....44
 - Ongoing costs not associated with a specific project.....45

EXECUTIVE SUMMARY

About this Document

This document is Lincoln County's Land Information Plan 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 Lincoln County's Register of Deeds. In 2017, Lincoln County was awarded \$107,168 in WLIP grants and retained a total of \$46,192 in 2017 in local Register of Deeds document recording fees for land information.

The *Lincoln County Land Information Modernization 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 only provides estimated figures that are subject to change and are designed to serve planning purposes.

Land Information in Lincoln County

The land information system is essential to Lincoln County's services. This system enables efficient access to accurate geospatial and land records data, including descriptions of the physical characteristics of land, the property boundaries, and the rights attributable to landowners. From this data, a vital and up-to-date addressing system is provided and used for emergency dispatch, permitting, voting, and census. In addition to addressing, the land information system supports taxation, zoning, forestry applications, economic development, emergency planning and response, and a host of other citizen services all of which are utilized by federal, state, local, and private organizations.

Mission of the Land Information Office

In the next three years, Lincoln County's Land Information Office strives to be recognized for its exceptional web mapping site, gains in governmental efficiencies with increased utilization of GIS, improvements in parcel mapping accuracy, and responsiveness to meeting the land records needs of residents and businesses.

Land Information Office Projects

To realize this mission, in the next three years, the Lincoln County Land Information Office will focus on the following projects:

1. Plan for PLSS (Benchmark 4)
2. Scan and Index Register of Deeds Documents
3. RPL LTE Position – Gaps, Overlaps, and ROW Research
4. GIS LTE Position – ROW Project Completion and WLIP Projects Support
5. Orthoimagery
6. Web Server - Website Upgrades
7. ArcGIS Open Data – ArcGIS HUB
8. Web Development – Create Single Purpose Websites
9. Historic Aerial Photo Ortho Rectification
10. Ongoing costs not associated with a specific project

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

1 INTRODUCTION

In 1989, a public funding mechanism was created whereby a portion of the county's 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:

- Meet funding eligibility requirements which include WLIP Benchmarks
- 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
- Coordinate the sharing of parcel/tax roll data with the Department of Administration in a searchable format determined by DOA under s. 59.72(2)(a)

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 59.72(1)(a)

Any grants received and fees retained for land information through the WLIP must be spent consistently 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. Act 20 also provided more revenue for WLIP grants, specifically for the improvement of local parcel datasets. To meet the goals of Act 20, the WLIP dedicated itself to helping counties by making funding available to counties in the form of Strategic Initiative grants which are prioritized for the purposes of parcel/tax roll dataset improvement. For Strategic Initiative grant eligibility, each county is 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—were determined through a participatory planning process. Current benchmarks are detailed in the WLIP grant application, as will be future benchmarks.

WLIP Benchmarks (For 2016-2018 Grant Years)

- Benchmark 1 & 2 – Parcel and Zoning Data Submission/Extended Parcel Attribute Set Submission
- Benchmark 3 – Completion of County Parcel Fabric
- Benchmark 4 – Completion and Integration of PLSS

More information on how Lincoln County is meeting these benchmarks appears in the Foundational Elements section of this plan document.

County Land Information System History and Context

In 1990, Lincoln County approved a resolution authorizing participation in the Wisconsin Land Information Program. Through this resolution, Lincoln County was required to appoint a Land Information Officer and to develop and implement a Land Records Modernization Plan. The original Land Information Plan was adopted in February 1992 with updates occurring in 1999, 2003, 2005, 2010, and 2015. Since the inception of the program in 1990, Lincoln County has been involved in numerous land records movements. One of those being the use of Geographical Information Systems (GIS) which allowed for the creation and acquirement of digital land data. This data includes digital orthophotos, natural resources data, parcel maps, road network, addresses, Lidar, floodplains, and many others. This GIS data has provided better access to land related information internally to Lincoln County, as well as state and federal agencies, private entities and the general public.

County Land Information Plan Process

Lincoln County Land Information Plans were initially updated every five years. However, as a result of Act 20, counties now must update and submit their plans to DOA for approval every three years. This 2019-2021 plan, completed at the end of 2018, is the second post-Act 20 required update.

Plan Participants and Contact Information

Another requirement for participation in the WLIP is the county land information council, established by legislation in 2010. The council is tasked with reviewing the priorities, needs, policies, and expenditures of a land information office and advising the county on matters affecting that office.

According to s. 59.72(3m), Wis. Stats., the county land information council is to include:

- Register of Deeds
- Treasurer
- Real Property Lister or designee
- Member of the county board
- Representative of the land information office
- A realtor or member of the Realtors Association employed within the county
- A public safety or emergency communications representative employed within the county
- County surveyor or a registered professional land surveyor employed within the county
- Other members of the board or public that the board designates

This land information council must have a role in the development of the county land information plan and approve final plans, as required by the DOA.

The Lincoln County Land Information Plan was prepared by the county LIO, the Lincoln County Land Information Council, and others as listed below.

Lincoln County Land Information Council and Plan Workgroup				
Name	Title	Affiliation	Email	Phone
+ Sarah Koss	Register of Deeds	Lincoln County Register of Deeds	skoss@co.lincoln.wi.us	715-539-1065
+ Diana Petruzates	Treasurer	Lincoln County Treasurer	dpetruzates@co.lincoln.wi.us	715-539-1067
+ Ellen Ronsman	Real Property Lister	Lincoln County Land Services	eronsman@co.lincoln.wi.us	715-539-1055
+ Christopher Heller	County Board Member	Lincoln County Board	christopher.heller@co.lincoln.wi.us	715-351-1500
+ Norm Bushor	Land Information Program Manager	Land Information Officer	nbushor@co.lincoln.wi.us	715-539-1058
+ Matt Bremer	Land Services Administrator	Land Services Administer	mbremerl@co.lincoln.wi.us	715-539-1052
+ Jackie Leonard	Broker/Owner	Northwoods Community Realty, LLC	jackie@choosejackie.com	715-612-2673

+ September Murphy	Emergency Management Director	Lincoln County Emergency Management	smurphy@co.lincoln.wi.us	715-536-6228
+ Tony Dallman	County Surveyor	Lincoln County Land Services	tdallman@co.lincoln.wi.us	715-539-1059
+ Jason Hake	Administrative Coordinator	Lincoln County	jason.hake@co.lincoln.wi.us	715-539-2501
Paul Bernard	GIS/Survey Technician	Lincoln County Land Services	pbernard@co.lincoln.wi.us	715-539-1051
+ Kevin Kleinschmidt	Forestry, Land, and Parks Administrator	Lincoln County Forestry, Land, and Parks	kkleinschmidt@co.lincoln.wi.us	715-539-1039
Dan Miller	Solid Waste Director	Lincoln County Solid Waste/Landfill	dmiller@co.lincoln.wi.us	715-536-0424
Art Lersch	Community Development Agent	UW-Extension	akostman@co.lincoln.wi.us	715-539-1072
+ John Hanz	Highway Commissioner	Lincoln County Highway	jhanz@co.lincoln.wi.us	715-536-0352
Jeff Jaeger	Sheriff	Lincoln County Sheriff's Office	jjjaeger@co.incoln.wi.us	715-536-6274
+ Chris Marlowe	County Clerk	Lincoln County Clerk	cmarlowe@co.lincoln.wi.us	715-539-1020
Ken Maule	Economic Development Director	Lincoln County Economic Development	kmaule@co.lincoln.wi.us	715-539-1026
Andrew Faust	Senior GIS Analyst	North Central Wisconsin Regional Planning Commission	afaust@ncwrpc.org	715-849-5510 Ext. 305

+ Land Information Council Members designated by the plus symbol

Website: www.co.lincoln.wi.us

2 FOUNDATIONAL ELEMENTS

Lincoln County 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 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, this plan places priority on certain elements, which must be addressed in order for any county land information plan to be approved. Beyond the county's use for planning purposes, Foundational Element information is of value to state agencies and the WLIP to understand progress in completion and maintenance of these key map data layers.

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	Status/Comments
Number of PLSS corners (selection, ¼, meander) set in original government survey that can be remonumented in your county	• 2,971
Number and percent of PLSS corners capable of being remonumented in your county that have been remonumented	• 2592 94% - Does not include corners in water, or county forest
Number and percent of remonumented PLSS corners with survey grade coordinates (see below for definition) <ul style="list-style-type: none"> • SURVEY GRADE – coordinates collected under the direction of a Professional Land Surveyor, in a coordinate system allowed by 236.18(2), and obtained by means, methods and equipment capable of repeatable 2 centimeter or better precision • SUB-METER – point precision of 1 meter or better • APPROXIMATE – point precision within 5 meters or coordinates derived from public records or other relevant information 	• 1513 58%
Number and percent of survey grade PLSS corners integrated into county digital parcel layer	• 1513 100%
Number and percent of non-survey grade PLSS corners integrated into county digital parcel layer	• 1079 100%
Tie sheets available online?	• Yes, http://www.co.lincoln.wi.us/land_survey/ https://maps.sco.wisc.edu/surveycontrolfinder/#10/45.3415/-89.9636/PLSS/terrain
Percentage of remonumented PLSS corners that have tie sheets available online (whether or not they have corresponding coordinate values)	• 100%
Percentage of remonumented PLSS corners that have tie sheets available online (whether or not they have corresponding coordinate values) and a corresponding URL path/hyperlink value in the PLSS geodatabase	• 100%
PLSS corners believed to be remonumented 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	• 125
Which system(s) for corner point identification/ numbering does the county employ (e.g., the Romportl point numbering system known as Wisconsin Corner Point Identification System, the BLM Point ID Standard, or other corner point ID system)?	• A local ID system is used along with the Wisconsin Corner Point Identification (WCPI) system. The local system is used internally for indexing hardcopy file storage. The WCPI system is the main identifier or key used for maintenance, database linkage to documents, and integration with the WLIP.
Does the county contain any non-PLSS areas (e.g., river frontage long lots, French land claims, private claims, farm lots, French long lots, etc.) or any special situations regarding PLSS data for tribal lands?	• No
Total number of PLSS corners along each bordering county	• • Langlade 49 ; Oneida 83 ; Price 25 ; Taylor 37 ; Marathon 61
Number and percent of PLSS corners remonumented along each county boundary	• • Langlade 46 , 93%; Oneida 80 , 96%; Price 24 , 96%; Taylor 36 , 97%; Marathon 61 , 100%
Number and percent of remonumented PLSS corners along each county boundary with survey grade coordinates	• • Langlade 34 , 73%; Oneida 40 , 50%; Price 13 , 54%; Taylor 32 , 88%; Marathon 44 , 72%
In what ways does your county collaborate with or plan to collaborate with neighboring counties for PLSS updates on shared county borders?	• Lincoln County is working with adjoining counties by sharing tie sheets and other appropriate survey information.

Custodian

- Lincoln County Land Services Department

Maintenance

- Lincoln County Surveyor

Standards

- Statutory Standards for PLSS Corner Remonumentation
 - s. 59.74, Wis. Stats. Perpetuation of section corners, landmarks
 - s. 60.84, Wis. Stats. Monuments
 - ch. A-E 7.08, Wis. Admin. Code, U.S. public land survey monument record
 - ch. A-E 7.06, Wis. Admin. Code, Measurements
 - s. 236.15, Wis. Stats. Surveying requirement
- SURVEY GRADE standard from Wisconsin County Surveyor's Association
 - **SURVEY GRADE** – coordinates collected under the direction of a Professional Land Surveyor, in a coordinate system allowed by 236.18(2), and obtained by means, methods and equipment capable of repeatable 2 centimeter or better precision
 - **SUB-METER** – point precision of 1 meter or better
 - **APPROXIMATE** – point precision within 5 meters or coordinates derived from public records or other relevant information

Other Geodetic Control and Control Networks

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

Layer Status

- HARN and local UDN Layers Complete

Custodian

- Lincoln County Land Services Department and Wisconsin Department of Transportation (WiDOT)

Maintenance

- Lincoln County will watch the local monuments and contact the WiDOT if anything is in danger of being destroyed or has been destroyed.

Standards

- All projects were finished in accordance to and approved with WiDOT specifications. More specifically, the HARN and Height Mod projects were finished by WiDOT and the county's local UDN was completed with the assistance of WiDOT. The local UDN was completed with 1ppm and 2ppm precision coordinates on the monuments.

Parcel Mapping

Parcel Geometries

Layer Status

- **Progress toward completion/maintenance phase:**
 - Lincoln County Parcel Geometries are in Maintenance Phase.
 - 100% of the county's parcels are available in a commonly-used digital ArcGIS format which will meet Benchmark V2, Searchable format standards.
 - Continued work is being down to meet benchmark 3.
- **Projection and coordinate system:**
 - Lincoln County's parcels are fit to GPS coordinates referenced to the Public Land Survey System (PLSS) corners. This data is based upon and stored in the Lincoln County Coordinate System 83/91 which is referenced to the Wisconsin State High Accuracy Reference Network (HARN).
- **Integration of tax data with parcel polygons:**
 - Lincoln County does have a parcel polygon model that directly integrates tax/assessment data as parcel attributes.
- **Esri Parcel Fabric/LGIM Data Model:**
 - The county does not use or plan to implement the ESRI Parcel Fabric Data Model and/or ESRI's Local Government Information Model.
 - Lincoln County utilizes its own data model and currently plans on keeping it because it is a successful and reliable model.

- **Online Parcel Viewer Software/App and Vendor name:**
 - Public Access Land Records Viewer – In-house/Lincoln County Staff
- **Unique URL path for each parcel record:**
 - Yes, there is a unique URL path for each parcel record and these URL's are stable with values that can be exported. The values and information that can be accessed through the URL include up to 80 specific items about a property. A few examples are recorded documents, owner's names, addresses, descriptions, taxes, tax receipts, lottery credit claims, and assessments.

Custodian

- Lincoln County Land Services Department

Maintenance

- **Update Frequency/Cycle.** Parcel polygons are updated as deeds are recorded by the ROD and information is entered by the Real Property Lister.

Standards

- **Data Dictionary:**
 - Within the dataset's metadata, there are definitions for each attribute maintained by the county. Those attributes listed by Wis. Stat. 59.72(2)(a) that are linked to the parcels from the tax collection and real property listing system do not carry the same level of description. Lincoln County is in the process of migrating its tax records system and once complete, will develop metadata on all published fields.

Assessment/Tax Roll Data

Layer Status

- **Progress toward completion/maintenance phase:** NA
- **Tax Roll Software/App and Vendor name:**
 - Ascent Land Records Suite – Transcendent Technologies
- **Municipal Notes:** NA

Custodian

- Lincoln County Land Services Department

Maintenance

- **Maintenance of the Searchable Format standard:**
 - To maintain the Searchable Format standard, Lincoln County will clean-up and standardize all data prior to submission in order to match the Searchable Format standards. Therefore, the digital parcel data set will be complete and ready for direct aggregation into the statewide parcel layer.
- **Searchable Format Workflow:**
 - The county maintains parcel/tax roll data in the Searchable Format or close enough to the Searchable Format that **little human labor is required** for the annual submission of parcel/tax roll data to DOA.

Standards

- Presence of all required attributes, including "Act 20" attributes
- Standard file naming conventions
- Standardized attribute field names and metadata
- s. 73.03(2a), Wis. Stats. Department of Revenue (DOR) – Powers and duties defined
 - Wisconsin Department of Revenue Property Assessment Manual (Chapter 5) and attendant DOR standards
 - DOR XML format standard requested by DOR for assessment/tax roll data

Non-Assessment/Tax Information Tied to Parcels

e.g., Permits, Easements, Non-Metallic Mining, Brownfields, Restrictive Covenants

Layer Status

- Lincoln County does not have a Sanitary Permits Layer. The permits are tracked in the Land Records Management System and related to parcels by their PIN number.

Custodian

- Lincoln County Land Services and Zoning Departments

Maintenance

- Daily maintenance as needed

Standards

- Wis. Stat. 59.70(5)

ROD Real Estate Document Indexing and Imaging

Layer Status

- **Grantor/Grantee Index:**
 - Grantor/Grantee Index Layer is in Maintenance Phase
 - Lincoln County's Grantor/Grantee Index dates back from 1853 to present day
 - 1853 to 1934 Grantor/Grantee Index Books
 - 1935 to present day – Grantor/Grantee Index is computerized
- **Tract Index:**
 - Tract Index Layer is in Maintenance Phase
 - Computerized Tract Index – 1990 to present day
 - Tract Index Books – 1853 to 1989
 - Track index is Parcel PIN based
 - Type of documents in the Tract Index are Mortgage, Deed, Satisfaction of Mortgage, Land Agreements, Easement, Probate documents, Circuit Court documents, Plats, Certified Survey Maps, and Liens.
- **Imaging:**
 - Imaging Layer is in Maintenance Phase
 - Computerized Document Images date from 1935 to present day
- **ROD Software/App and Vendor Name:**
 - **iDocument/Laredo/Tapestry** – Fidlar
 - Laredo/Tapestry fees are as follows:
 - Laredo
 - Monthly subscription fees based on minutes used
 - 0-250 Min - \$100/month
 - 251-500 Min - \$150/month
 - 501-1000 Min - \$225/month
 - 1001-2000 Min - \$325/month
 - 2001 Minutes and up/unlimited minutes - \$500/month
 - \$.45 per page for each printed image
 - Tapestry
 - \$6.95 per search
 - \$1.00 per page for each printed image

Custodian

- Lincoln County Register of Deeds Department

Maintenance

- Documents are maintained daily to protect the integrity of the records
- A duplicate copy of each record is created
- Computerize documents dating 1853 to 1934 as time and budget allow

Standards

- s. 59.43, Wis. Stats. Register of Deeds; duties, fees, deputies.
- ch. 706, Wis. Stats. Conveyances of real property; Recording; Titles.

LiDAR and Other Elevation Data

LiDAR

Layer Status

- LiDAR Layer Complete
- **Most recent acquisition year:**
 - 2015
- **Accuracy:**
 - Quantum Spatial completed a field survey of 22 control calibration points along with 99 QC checkpoints in non-vegetated and vegetated land cover classifications (total of 121 points) as an independent test of the accuracy of this project.
 - Point Cloud Testing
 - RAW Non-Vegetated Vertical Accuracy (RAW NVA) was 4.4cm (meeting the requirements)
 - Digital Elevation Model Test:
 - Non-Vegetated Vertical Accuracy (NVA) was 8.8cm and Vegetated Vertical Accuracy (VVA) was 25.8cm (both meeting the requirements)
- **Post spacing:**
 - Unknown
- **Contractor's standard, etc.:**
 - Quantum Spatial and USGS Standards
- **Next planned acquisition year:** Unknown

Custodian

- Lincoln County Land Services Department and United States Geological Survey

Maintenance

- Static dataset

Standards

- The project was delivered in NAD83 (2011) Wisconsin County Coordinate System - Lincoln County, US Survey Feet; NAVD88 (Geoid 12A) US Survey Feet. Additionally, all horizontal coordinates for ground control and QA points for all LiDAR classes are also reported in NAD83 (2011) Wisconsin County Coordinate System - Lincoln County, US Survey Feet. The required accuracy testing was performed on the LiDAR dataset (both the LiDAR point cloud and derived DEM's) according to the USGS LiDAR Base Specification Version 1.2 (2014).

LiDAR Derivatives

e.g., **Bare-Earth Digital Terrain Model (DTM), Bare-Earth Elevation Contours, Bare-Earth Digital Elevation Model (DEM), Digital Surface Model (DSM), etc.**

Layer Status

- LiDAR Derivatives Layers Complete to include DEM, DTM, DSM, and Bare-Earth Elevation Countours

Custodian

- Lincoln County Land Services Department

Maintenance

- Static Data

Standards

- Dataset deliverables will be the same as USGS LiDAR acquisition specification version 1.1 and FEMA Appendix 4B standards. Deliverables include Metadata, Raw Point Cloud, Classified Point Cloud, Bare-Earth Surface (DEM), Breaklines, 2' Contours, Digital Surface Model, and FEMA accuracy report.

Other Types of Elevation Data

Layer Status

- 10' Contour Elevation Data Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- Lincoln County standards

Other Types of Elevation Data

Layer Status

- 2' Contour Elevation Data Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- Lincoln County standards

Orthoimagery

Orthoimagery

Layer Status

- Orthoimagery Layer Complete
- **Most recent acquisition year:** 2015
- **Resolution:** 6 inch
- **Contractor's standard:** WROC Standards
- **Next planned acquisition year:** 2020, 5 year updates
- **WROC participation in 2020:** Yes

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- WROC standards

Historic Orthoimagery

Layer Status

- 2010 Orthoimagery Layer Complete
- 2010 Flight – 12 inch Rural Area, 6 inch Urban

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- WROC Standards

Historic Orthoimagery

Layer Status

- 2005 Orthoimagery Layer Complete
- 2005 Flight – 12 inch Rural Area, 6 inch Urban

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- WROC standards

Historic Orthoimagery

Layer Status

- 1992 Orthoimagery Layer Complete
- 1992 BW Flight – 1 meter

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- Unknown – USGS product

Historic Orthoimagery

Layer Status

- 1990 Orthoimagery Layer Complete
- 1990 Color Mosaic Flight

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- Unknown

Historic Orthoimagery

Layer Status

- 1952-1955 Orthoimagery Layer Complete
- Imagery Mosaic

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- United States Department of Agriculture (USDA) standards

Historic Orthoimagery

Layer Status

- 1938 Orthoimagery Layer Complete
- Imagery Mosaic

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- USDA standards

Other Types of Imagery

e.g., Oblique Imagery, Satellite Imagery, Infra-red, etc.

Layer Status

- National Agriculture Imagery Program (NAIP) 2010 Layer Complete
- Crop Flight, 1 meter GSD product providing an ortho image base for Common Land Unit Boundaries

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- NAIP standards

Other Types of Imagery

Layer Status

- National Agriculture Imagery Program (NAIP) 2008 Layer Complete
- Crop Flight Imagery

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- NAIP standards

Other Types of Imagery

Layer Status

- National Agriculture Imagery Program (NAIP) 2005 Layer Complete
- Crop Flight Imagery

Custodian

- Lincoln County Land Services Department

Maintenance

- Static dataset

Standards

- NAIP standards

Address Points and Street Centerlines

Address Point Data

Layer Status

- Address Point Data Layer is in Maintenance Phase with regular updates.
- The county has jurisdiction for Rural (Town) Road and Address standards but manages all the address information in the county. Lincoln County has two cities that issue addresses for their residences. The cities forward that information to Lincoln County for assimilation into our various systems like Dispatch (E911) or Land Records. Once verified and in Lincoln County's systems, the county will notify all potential entities that may be affected by the new address. This normally includes all county departments, US Postal Service coverage areas, paramedics, emergency service providers, first responders, fire departments, town officials and others.
- This layer is integrated with the county's E911 Dispatch system, Master Street Address Guide system, Land Records Viewer system, US Postal Services system, and State Voter Registration system while also being distributed to other agencies at the state and federal level such as Census.

Custodian

- Lincoln County Land Services Department

Maintenance

- This layer was developed over many years with revolving staff and consultants. There are many occurrences where a new address will raise issues with existing addresses, address ranges, zip codes, voting layers, and other layers. Standard maintenance is ongoing and includes tasks and responsibilities to deal with these existing complex problems. Standard maintenance has added tasks and responsibilities because of these existing problems.
-

Standards

- The driveway entrances and structures are located with GPS while site addresses are verified with the Tax Roll, Master Street Address Guide, state road aids/gas tax maps, and the existing E911 Addressing.
- Lincoln County Addressing and Road Naming Ordinance.

Building Footprints

Layer Status

- Building Footprints Layer Complete
- Building Footprints are captured from the 2010 ortho flight images

Custodian

- Lincoln County Land Services Department

Maintenance

- No current plans

Standards

- Developed by North Central Wisconsin Regional Planning Commission (NCWRPC)

Other Types of Address Information

e.g., Address Ranges

Layer Status

- Address Range Data Layer is in Maintenance Phase with regular updates.
- This layer is tied directly to the Street Centerline Layer and falls under the jurisdiction and management of the Land Services Department.

Custodian

- Lincoln County Land Services Department

Maintenance

- This layer was developed over several years with rotating staff and consultants. There are many occurrences where a new address will raise issues with existing addresses, address ranges, zip codes, voting layers, and other layers. Therefore, standard maintenance is ongoing and includes tasks and responsibilities to deal with these existing complex problems.

Standards

- Road Ranges must fit within the address grid developed for Lincoln County. The county's address grid starts in the south east corner of the county with the lowest possible north address as 1 and the lowest possible west address also as 1. It divides the county moving north and west into grid cells every 13.2 feet creating a grid range that a road's address range must fall within.
- Lincoln County Addressing and Road Naming Ordinance.

Street Centerlines

Layer Status

- Street Centerlines Data Layer is in Maintenance Phase with regular updates.
- This layer is used to help administrate Lincoln County's Addressing and Road Naming Ordinance.

Custodian

- Lincoln County Land Services Department

Maintenance

- This layer was developed over many years with revolving staff and consultants. There are many occurrences where a new address will raise issues with existing addresses, address ranges, zip codes, voting layers, and other layers. These issues require different methods of fixing that can include splits, flips, extends or complete changes. Standard maintenance is ongoing and includes tasks and responsibilities to deal with these existing complex problems. Standard maintenance has added tasks and responsibilities because of these existing problems.
- Positional accuracy is continually being updated to align with the traveled ROW.

Standards

- Centerlines are captured or created using GPS, 6-inch photographs, or deed information.
- This layer's origin of automation is unknown and appears to be developed with inconsistent standards. This layer appears to have undergone redesigns to meet several dispatching software changes at the county level.
- Road names are compared with the county's MSAG, as well as the State of Wisconsin Road Aids (Gas Tax Maps) that are certified for names and mileage each year by the municipal towns.
- The layer is currently being groomed for a new E911 dispatching software that is projected to be installed 4th quarter of 2018.
- Lincoln County Addressing and Road Naming Ordinance

Rights of Way

Layer Status

- Right of Way information gathering In Progress

- Lincoln County does not have a separate road right-of-way (ROW) dataset. The ROW boundaries are managed in our parcel lines dataset and the majority of these lines have been assembled from various sources of information.
- The county contracted with a vendor to index, organize, geo-register and rectify existing state and county ROW plat scans originally automated/scanned by the Highway Department. The second phase of the project then used an LTE to research, scan, and inventory all hard copy state and federal ROW plat mapping from the Land Services Department. This data was then compared to the phase 1 product allowing documentation of duplicates, higher quality scans, missing pages, and new ROW plat scans. Phase 2 data will need to be finalized by integrating it into the phase 1 product. From this end product, Lincoln County will be able to geographically identify ROW Boundaries and assimilate this information into its base parcel mapping. This information will also be made available to the public via a web map interface that queries geo-location or inventoried database information such as the state/federal project number, highway name, date, consultant name, revision, and municipality.

Custodian

- Lincoln County Land Services Department

Maintenance

- This will be updated as new ROW plat information is obtained from road projects.

Standards

- Since this layer is non-existent, no standards exist at this time. New standards are in development for tracking ROW types and features in the polygon data that is the result of mapping out the ROW line work. At this point, research for ownership is one of the biggest hurdles.

Trails

e.g., Recreational Trails

Layer Status

- Trail Layers are Complete
 - Include snowmobiles, ATV, hiking, and other recreational trails

Custodian

- Lincoln County Forestry Department

Maintenance

- Ongoing with yearly updates

Standards

- Captured with GPS and orthophotography

Land Use

Current Land Use

Layer Status

- Current Land Use Layer is in Maintenance Phase
 - Existing Land Use as of 2010

Custodian

- Lincoln County Land Services and Zoning Departments

Maintenance

- Updates occur when Comprehensive Plans change or when needed

Standards

- Developed by North Central Wisconsin Regional Planning Commission

Future Land Use

Layer Status

- Future Land Use Layer Complete
 - Planned Land Use from Comprehensive Planning Project

Custodian

- Lincoln County Land Services and Zoning Departments

Maintenance

- Amendments are as needed (2011)

Standards

- s. 66.1001, Wis. Stats. Comprehensive planning
- Future land use maps are created through a community's comprehensive planning process.
 - If a future land use map is created as part of an adopted comprehensive plan(s), then it can be assumed to meet the standards in s. 66.1001.
 - According to s. 66.1001, beginning on January 1, 2010, if a town, village, city, or county enacts or amends an official mapping, subdivision, or zoning ordinance, the enactment or amendment ordinance must be consistent with that community's comprehensive plan.
 - Future land use mapping for a county may be a patchwork of maps from comprehensive plans adopted by municipalities and the county.

Zoning

County General Zoning

Layer Status

- Lincoln County does maintain a GIS representation of county general zoning boundaries
- County General Zoning Layer Complete

Custodian

- Lincoln County Zoning Department

Maintenance

- The layer is updated as rezoning occurs.

Standards

- Coincides with parcel basemap features
- Pursuant to the authorization in Wis. Stat. 59.51 and 59.69

Shoreland Zoning

Layer Status

- Lincoln County does maintain a GIS representation of county shoreland zoning boundaries
- Shoreland Zoning Layer Complete
- Land Use Affidavits is a layer with all of the shoreland land use affidavits in the county. These affidavits are agreements for the preservation of a shoreland buffer. This layer is not made available to the public but is referenced when needed for statistics and information.

Custodian

- Lincoln County Land Services and Zoning Departments

Maintenance

- Updated as needed
 - Every winter all of the previous year's affidavits are entered for tracking into an access database, which is linked through the parcel identification number.

Standards

- Lake Protection Grant objectives; pursuant to the authorization in Wis. Stat. 59.69, 59.694, 59.692, 87.30, and 281.31 as amended

Farmland Preservation Zoning

Layer Status

- Not administered by county; Lincoln County does not have a Farmland Preservation Zoning Layer
- **Year of certification:** NA

Floodplain Zoning

Layer Status

- The county does maintain a GIS representation of floodplain zoning boundaries.
- The county's floodplain zoning GIS data is the same as/identical to the FEMA map
- **Letters of Maps Change** – FEMA Flood Insurance Rate Maps (FIRMs) can be changed through "Letters of Maps Change," which is comprised of a few things: Letters of Map Amendment, Letters of Map Revision, and Letters of Map Revision Based on Fill. These are documents issued by FEMA that officially remove a property and/or structure from the floodplain. They are collectively called Letters of Map Change.
- Floodplain Zoning Layer Complete

Custodian

- Federal Emergency Management Agency (FEMA)

Maintenance

- The layer is updated as Letters of Map Change are received along with any other FEMA requirements.

Standards

- As set to the authorization in Wis. Stats. 61.35 and 62.23 for villages and cities; Wis. Stats. 59.69, 59.692, and 59.694 for counties; and the requirements in Wis. Stat. 87.30.

Airport Protection

Layer Status

- Not administered by county
- **Airport protection zoning map depicts:** General zoning overlay for airport protection
 - This layer is administered by the municipalities and the county must still adhere to any regulations that apply.

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

- Extra-Territorial Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- Updated when annexations occur or when any communication between Lincoln County and the Cities of Merrill and Tomahawk requires maintenance.

Standards

- Developed using the buffer tool in ArcGIS around city boundaries

Administrative Boundaries

Civil Division Boundaries

e.g., Towns, City, Villages, etc.

Layer Status

- Civil Division Boundaries Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- This layer is maintained to be coincident with Lincoln County's boundary, PLSS boundaries, parcel boundaries, supervisory districts, and wards.

School Districts

Layer Status

- **Progress toward completion/maintenance phase:**
 - School Districts Layer is in Maintenance Phase
 - Two formats including county-wide polygon layer and school district codes related to tax parcel records
- **Relation to parcels:**
 - School districts are attached to each tax parcel record
 - **Attributes linked to parcels:**
 - School District Code

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Developed to be coincident with parcel boundaries and PLSS layers.

Election Boundaries

e.g., Voting Districts, Precincts, Wards, Polling Places, etc.

Layer Status

- Wards Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- This layer is maintained to be coincident with Lincoln County's boundary, municipal boundaries, PLSS boundaries, parcel boundaries, supervisory districts, and wards.
- Lincoln County manages the ward boundaries as a composite layer that includes Wards, Supervisory, Municipal, and County Boundaries.

Election Boundaries

Layer Status

- Supervisory Districts Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- This layer is maintained to be coincident with Lincoln County's boundary, municipal boundaries, PLSS boundaries, parcel boundaries, supervisory districts, and wards.
- Lincoln County manages the supervisory boundaries as a composite layer that includes Wards, Supervisory, Municipal, and County Boundaries.

Election Boundaries

Layer Status

- Municipal Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- This layer is maintained to be coincident with Lincoln County's boundary, municipal boundaries, PLSS boundaries, parcel boundaries, supervisory districts, and wards.
- Lincoln County manages the municipal boundaries as a composite layer that includes Wards, Supervisory, Municipal, and County Boundaries.

Election Boundaries

Layer Status

- Polling Places Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Developed to be coincident with GPS location and site address.

Utility Districts

e.g., Water, Sanitary, Electric, etc.

Layer Status

- Gleason Sanitary Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Developed using the Gleason Sanitary District Plat.

Public Safety

e.g., Fire/Police Districts, Emergency Service Districts, 911 Call Center Service Areas, Public Safety Answering Points, Healthcare Facilities

Layer Status

- Emergency Service Zones (Composite of Fire/Police/Ambulance/First Responder) Layer Complete
 - Each of the zones are pulled out as separate layers and used in the county's E911 Dispatch system.

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Developed to be coincident with Roads and Parcel Geometries Layers.

Public Safety

Layer Status

- Information Points Layer Complete
 - This layer contains ATV/snowmobile intersections, landing zones, mile markers, towers, and turn-a-rounds.

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Located using GPS, parcels, and aerial photography.

Public Safety

Layer Status

- Hydrants Layer Complete
 - This layer contains locations and general descriptions of hydrants which are located within both the City of Merrill and the City of Tomahawk.

Custodian

- City of Merrill and City of Tomahawk

Maintenance

- As needed

Standards

- Locations were captured by GPS and all information is consistent with city criteria.

Public Safety

Layer Status

- Miscellaneous Features Layer Complete
 - This layer contains locations of churches, schools, towers, cemeteries, airports, parks, hospitals, reservoirs, dams, streams, lakes, channels, summits, and a few other features.

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Captured and mapped using GPS points and orthoimagery

Public Safety

Layer Status

- General Forestry Layers Complete
 - This is a grouping of layers including Berms, Gates, Woods Roads, Wildlife Openings, Snowmobile/ATV Intersections, Snowmobile Trails, Summer ATV Trails, Ice Age Trail, and Public Access Points which are made available to public safety personnel.

Custodian

- Lincoln County Forestry Department

Maintenance

- As needed

Standards

- Some information was captured using GPS while the rest has unknown methods.

Lake Districts

Layer Status

- Lincoln County does not have a Lake District Layer
 - District codes are in the tax roll database

Native American Lands

Layer Status

- Lincoln County does not have a Native American Lands Layer

Other Administrative Districts

e.g., County Forest Land, Parks/Open Space, etc.

Layer Status

- County Forests Lands Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Forestry boundaries were located by the county surveyor with GPS. This layer was built to be coincident with PLSS and Parcel Boundaries layers.

Other Administrative Districts

Layer Status

- Parks Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- The Parks layer is managed as a point feature class.
- The county is planning on a Parks Boundaries polygon layer to be developed by Lincoln County's GIS staff with help from the Forestry Department.

Other Administrative Districts

Layer Status

- Soils Layer Complete

Custodian

- NRCS

Maintenance

- As needed

Standards

- Developed by the National Cooperative Soil Survey and the U.S. Department of Agriculture's Natural Resources Conservation Service.

Other Administrative Districts

Layer Status

- TID Districts Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed by projects

Standards

- Developed to be coincident with Roads and Parcel Geometries layers.

Other Administrative Districts

Layer Status

- Census Block 2000 Layer Complete

Custodian

- US Census

Maintenance

- Static layer

Standards

- US Census

Other Administrative Districts

Layer Status

- Zip Code Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed to match USPS boundary updates

Standards

- Polygon feature class created with Lincoln County standards.

Other Layers

Hydrography Maintained by County or Value-Added

Layer Status

- Hydrography Layer Complete
- This layer has been integrated with the county's parcel mapping in order to capture more accurate water boundaries. Previously, the water boundaries for parcel edges were captured from the WDNR 24:000 scale mapping.

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Created using photogrammetric methods using our 2015 flight by Ayres
- Base data developed by Ayres
- Attributes conflated from the WDNR 1:24000 Hydro datasets.
- Ponded bodies of water that are 1-acre and larger are collected as polylines. Flowing water is collected as double lined polylines when 20-ft wide or wider. Flowing water between 20-ft and 8-ft in width will be collected as single lines down the center of the stream. The planimetric hydro features will be collected at 1"=100' map scale and will meet or exceed ASPRS standards of the source orthoimagery.

Cell Phone Towers

Layer Status

- Cell Phone Towers Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Mapped using GPS

Bridges and Culverts

Layer Status

- Culverts Layer Complete
- This layer was automated by previous GIS staff and the status of feature or attribution completion is unknown.

Custodian

- Lincoln County Highway Department

Maintenance

- There is currently no maintenance planned for this layer

Standards

- Developed in conjunction with road centerlines, GPS, Wis. Stat. 84.17(2) and National Bridge Inspection Standards 23 CFR 650 Subpart C.

Bridges and Culverts

Layer Status

- Bridges Layer Complete
- This layer was automated by previous GIS staff and the status of feature or attribution completion is unknown.

Custodian

- Lincoln County Highway Department

Maintenance

- There is currently no maintenance planned for this layer.

Standards

- Unknown

Other

e.g., Pipelines, Railroads, Non-Metallic Mining, Sinkholes, Manure Storage Facilities, etc.

Layer Status

- Signs Layer Complete
- This layer was automated by previous GIS staff and the status of feature or attribution completion is unknown.

Custodian

- Lincoln County Highway Department

Maintenance

- There is currently no maintenance planned for this layer.

Standards

- Developed in conjunction with road centerlines and GPS.

Other

Layer Status

- Non-metallic Mining Layer in maintenance

Custodian

- Lincoln County Land Services and Conservation Departments

Maintenance

- Yearly updates

Standards

- Boundaries are captured and verified by GPS.

Other

Layer Status

- Watersheds Layer Complete
- Polygon shapefile representing watersheds delineated by the Wisconsin DNR

Custodian

- Wisconsin DNR Bureau of Watershed Management

Maintenance

- As updated by the DNR

Standards

- Compiled by DNR from 1:24,000-scale topographic maps

Other

Layer Status

- Railroads Layer Complete

Custodian

- Lincoln County Land Services Department

Maintenance

- As needed

Standards

- Mapped using aerial photographs.

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 the government at all levels, the private sector, and the public.

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.

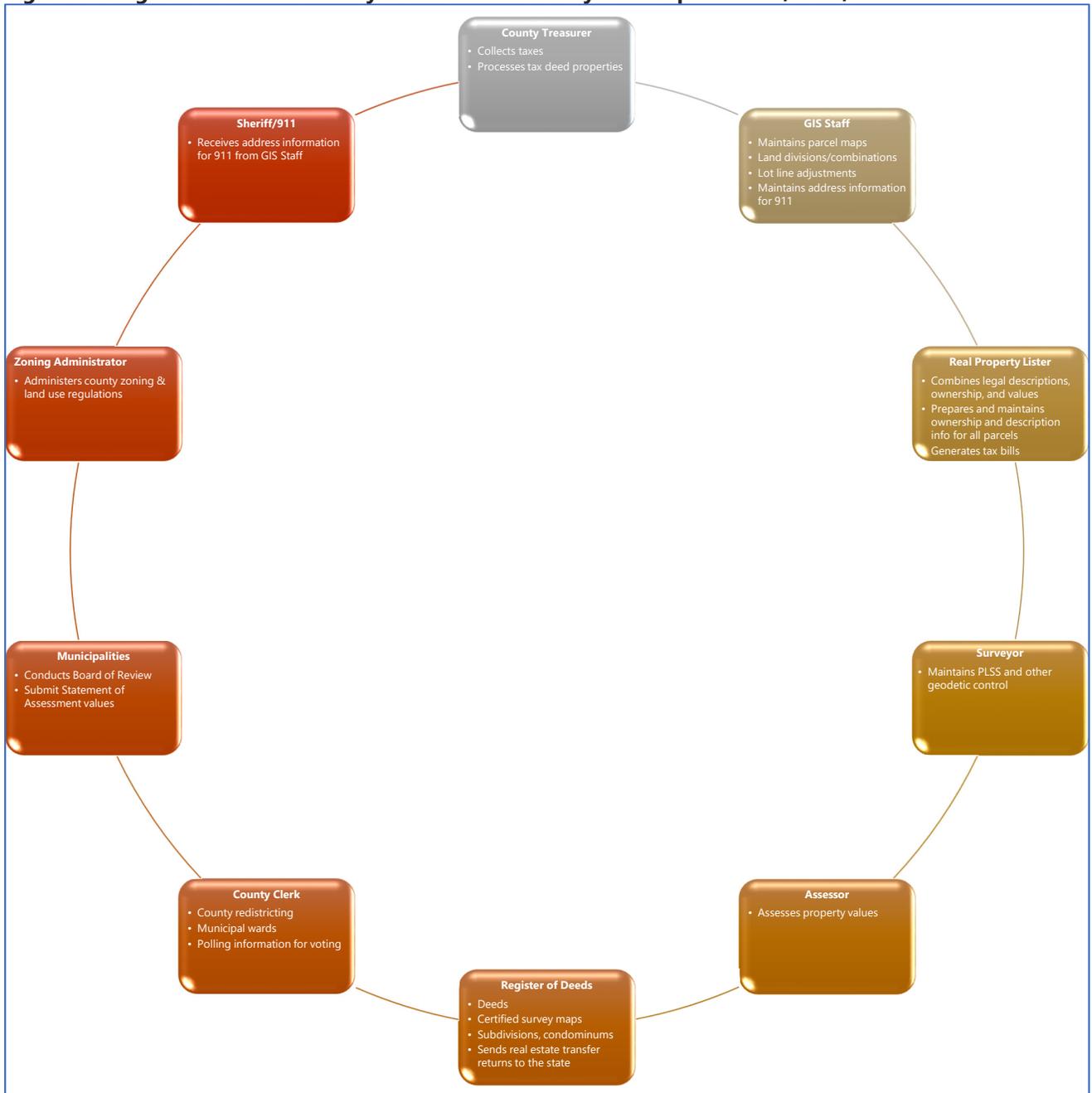
This chapter describes the design of the county land information system, with focus on how data related to land features and data describing land rights are integrated and made publicly available.

Current Land Information System

Diagram of County Land Information System

The diagram below shows the design of Lincoln County's Land Information System where numerous offices are involved in the creation and maintenance of the land information data.

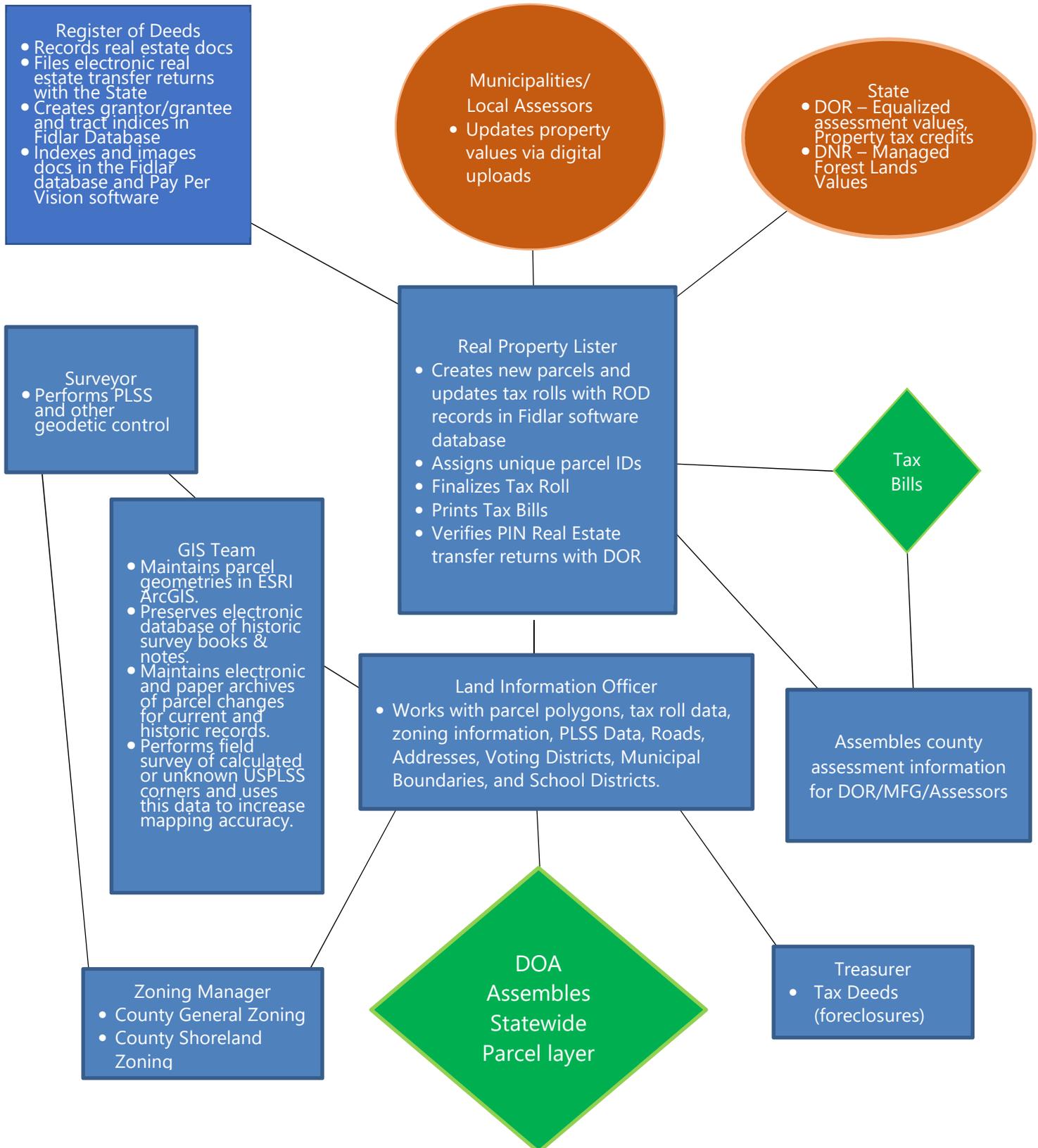
Figure 1: Diagram of Lincoln County Land Information System departments, staff, and roles



County Parcel Data Workflow Diagram

The county parcel diagram depicts Lincoln County's parcel design. This design is composed of a number of positions and departments which include Register of Deeds, Local Assessors, the State, Real Property Lister, Surveyor, GIS Manager/Team, Zoning Manager, DOA, Land Information Office, and Treasurer.

Figure 2: Diagram of County Parcel Design



Technology Architecture and Database Design

This section refers to the hardware, software, and systems that the county uses to develop and operate computer systems and communication networks for the transmission of land information data.

Hardware

- HP computers, servers, printers/scanners/copiers, plotters, GPS units

Software

- Lincoln County utilizes GIS software from ESRI. The following licenses are assigned and managed by Lincoln County's Land Information Officer:
 - 2 ArcGIS Desktop Advanced, Concurrent Use License, Version 10.6.1
 - 3 ArcGIS Desktop Standard, Concurrent Use License, Version 10.6.1
 - 5 ArcGIS Desktop Basic, Single Use License, Version 10.6.1
 - 1 ArcView GIS 3.1 US, Version 3.1
 - 1 ArcGIS 3D Analyst for Desktop Concurrent Use License, Version 10.6.1
 - 5 ArcSDE SQL Server Read Write Server Connection License, Version 9.1
 - 1 ArcGIS for Server Enterprise Basic (Windows), Up to Four Cores License Migrated from ArcSDE 9.1 License, Version 10.6.1
 - 1 ArcGIS for Server Enterprise Standard (Windows), Up to Four Cores License Migrated from 9.1 License, Version 10.6.1
 - 1 ArcPad License, Version 10.2.5
- ESRI's ArcGIS Online (included with annual ArcGIS software maintenance)
- Laredo software supplied by Fidlar Technologies provides ROD land records search tools
- RPL/Tax parcel site software supported by Transcendent Technologies

Website Development/Hosting

- There are publicly accessible land information web applications on Lincoln County's Land Services Mapping Portal.
- The Map Gallery page contains links to the Public Access Land Records Viewer App, the Land Records Property and Tax System, the Highway ROW Plats, the Local Road Aids/Gas Tax Map, the Tie Sheets/Section Summaries, the Survey Maps, the Rural Roads Map, the Supervisory Districts Map, the Lincoln County Polling Locations Map, the Forestry, Land, and Parks Map, and the Broad Band/Connect American Fund Application.
- The Data Downloads page contains links to Metadata Documentation, Shapefile and Geodatabase Downloads, Aerial Imagery, LiDAR 2015, and Enhanced Elevation Data.

Metadata and Data Dictionary Practices

Metadata Creation

- **Metadata creation and maintenance process:**
 - Lincoln County is in progress of metadata development on existing datasets and feature classes. As the county has migrated its data to a new ArcGIS SDE database, metadata has been created and maintained at the feature class and feature dataset level.

Metadata Software

- **Metadata software:**
 - ArcCatalog is used to update and provide access to geospatial metadata.
 - The software does generate metadata consistent with the FGDC Content Standard for Digital Geospatial Metadata and ISO geographic metadata standard 19115.
- **Metadata fields manually populated:**
 - Purpose, Abstract, Credits, Use Limitations, Topics and Keywords, Contacts, Maintenance, Status, Extent, Lineage, and Entity and Attribute fields.

Metadata Policy

- **Metadata Policy:**

- The metadata is created using the guidelines from the FGDC CSDGM metadata style to fulfill the metadata standard.
- At a minimum, metadata should list Identification and Reference data. The metadata may also include information relating to Data Quality, Spatial Data Organization, Spatial Reference, Entity and Attributes, and Distribution.

Municipal Data Integration Process

- Municipal data is integrated into Lincoln County's database when it is necessary. However, the county does not store or maintain such data.

Public Access and Website Information

Public Access and Website Information (URLs)

Public Access and Website Information

GIS Webmapping Application(s) Link - URL

<http://maps.co.lincoln.wi.us/publicaccess/>

GIS Download Link - URL

<http://maps.co.lincoln.wi.us/webapps/gisportal/data.html>

Real Property Lister Link - URL

<https://ascent.co.lincoln.wi.us/LandRecords/PropertyListing/RealEstateTaxParcel#/Search>

Register of Deeds Link - URL

<https://tapestry.fidlar.com/Tapestry2/Default.aspx>

Single Landing Page/Portal for All Land Records Data

URL

<http://maps.co.lincoln.wi.us/webapps/gisportal/>

Municipal Website Information

Municipal Website

Municipal Website URL

City of Merrill's Public Gallery

<https://merrill.maps.arcgis.com/apps/MapAndAppGallery/index.html?appid=6340ad606ef6428ab19f2f706398a01c>

City of Tomahawk GIS Application

<https://gis.msa-ps.com/TomahawkGIS/>

Data Sharing

Data Availability to Public

Data Sharing Policy

- Lincoln County's data is available for free. Users can access this data either by viewing and downloading data off of Lincoln County's public website or by requesting the information in writing.

Open Records Compliance

- Lincoln County is in accordance with the Wisconsin Open Records Law.

Data Sharing Restrictions and Government-to-Government Data Sharing

Data Sharing Restrictions

- Lincoln County is willing to share GIS data and, currently, has no restrictions on this data sharing.

Government-to-Government Data Sharing

- Lincoln County encourages and supports all integration, education, and cooperation activities relating to land records. By utilizing standard GIS software and data formats, the county is capable of both obtaining and sharing all types of available land records data with government entities.

Training and Education

- Lincoln County staff attend Wisconsin Land Information conferences and workshops, ESRI online trainings, and other online training resources.

4 CURRENT & FUTURE PROJECTS

This chapter lists the current and future land information projects that Lincoln County is currently undertaking or intends to pursue over its planning period. A project is defined as a temporary effort that is carefully planned to achieve a particular aim. Projects can be thought of as the means to achieving the county's mission for its land information system.

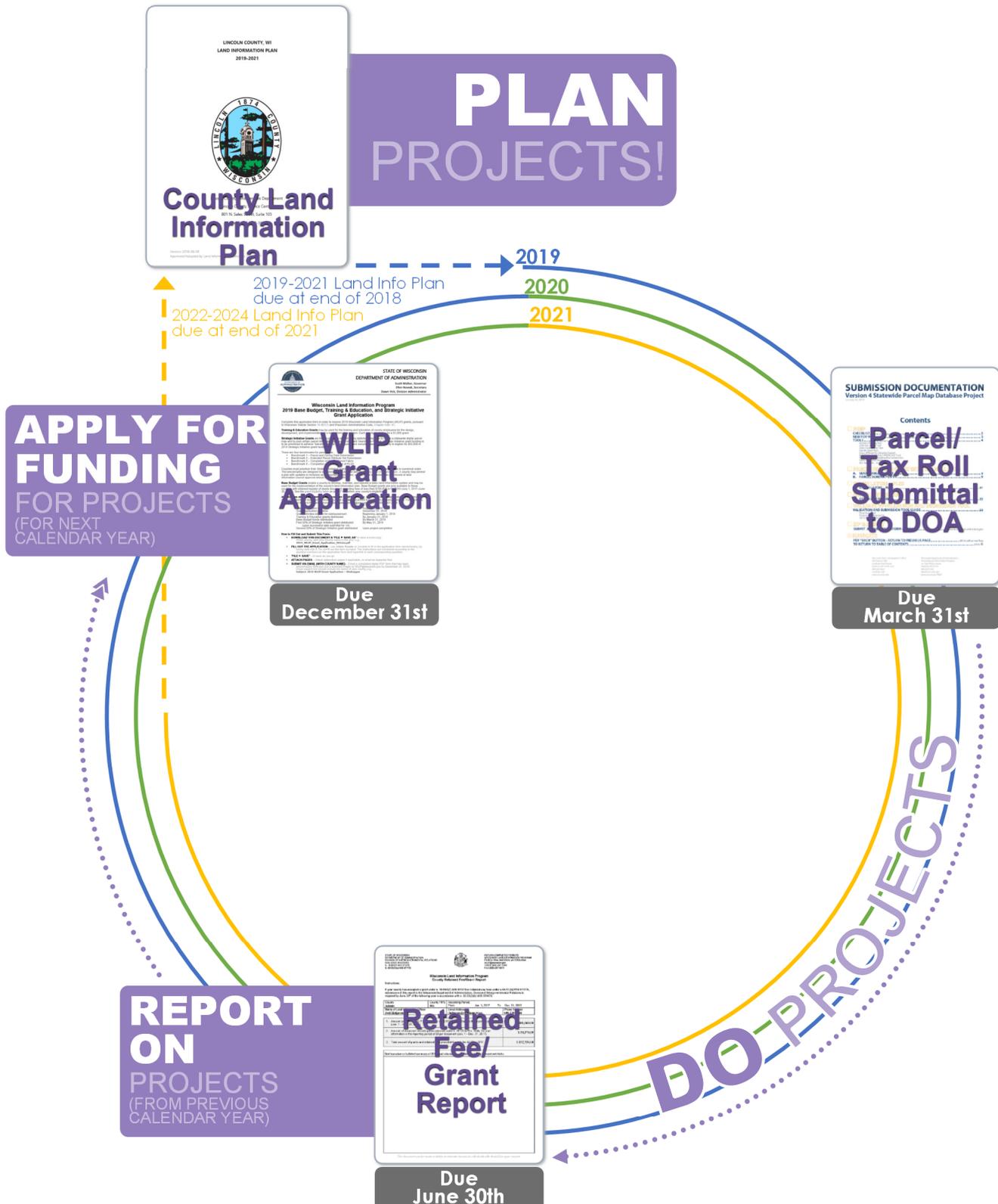


Figure 1. The WLIP Land Information Plan/Grant Project Cycle

Project #1: Plan for PLSS (Benchmark 4)

Project Title: Project Plan for PLSS (Benchmark 4)

Project Description/Goal

Planned Approach

- There are currently 143 PLSS corners in Lincoln County that do not have a monument record on file. These corners fall outside of our county forest boundaries. The county surveyor has set these as a priority for remonumentation and will be performing the work in-house in order to establish and catalog these new monument records.
- There are currently 1,372 corner monuments with X,Y coordinates that were captured using GPS technology of varying ages over the past 18 years by the Lincoln County Surveyor. These coordinates are being verified for accuracy through various means by the County Surveyor. They are believed to be survey grade accuracy.
- Points that are researched and found not to have a Survey Grade status will be the priority for the county surveyor to establish with Survey Grade Coordinates.
- Lincoln County believes that the remaining work to be done can be accomplished by the County Surveyor in conjunction with normal PLSS Maintenance.
- **Land Info Spending Category:** PLSS

Current Status

- **Tally of the total number of corners:** 2,734~
- **Re monumentation status:** 2,592 – 94%~
- **Coordinate status (accuracy class) if known:** See PLSS Layer Status table in Chapter 2
- Lincoln County has completed bench mark 4, the County has submitted datasets to the state and has received acceptance. The County will continue to work toward qualification of Survey Grade Coordinate Accuracy on corners.

Goals

- **Number of corners to be remonumented and/or rediscovered:** 142~
- **Number to have new coordinates established:** 1079~
- **Accuracy class for these new coordinates:** Survey Grade
- **Way in which these points will be integrated into the parcel fabric:** The new PLSS corner coordinate points will be used to update the existing PLSS Corner Control Network. The PLSS fabric will be re-established on top of this control network and areas where parcels do not match the new control network will be remapped or adjusted. An approach of working in areas with the largest discrepancies is being developed. There are multiple factors to consider for this "discrepancy" workflow such as the number of surveys affected and the density of the parcel fabric.

Missing Corner Notes

- **Documentation for any missing corner data:** Corners that sit within the interior of Lincoln County's forest land are not part of this effort.

County Boundary Collaboration

- Lincoln County is working with adjoining counties by sharing tie sheets and other appropriate survey information.

Business Drivers

- Benchmark 4 is a requirement for the WLIP and Lincoln County.
- Lincoln County has established all of its corner coordinates and is continually improving the accuracy and metadata of these coordinates.

Objectives/Measure of Success

- The objective is to meet Benchmark 4 Survey Grade Accuracy.

Project Timeframes –

Timeline – Project Plan for PLSS

Milestone	Duration	Date
Remonumentation project start.	3 years	Underway
County Surveyor Completes Remonumentation phase.		January 1 st , 2022
Survey Grade Coordinate Qualification and Capture project start	3 years	January 1 st , 2019
Survey Grade Coordinate Qualification and Capture Complete		January 1 st , 2022
Survey Grade Coordinate integration with parcel mapping project start	Ongoing	Ongoing

Responsible Parties

- The Lincoln County Surveyor and Lincoln County Land Services Department

Estimated Budget Information

- This work will be completed in-house by the Lincoln County surveyor and staff.

Project #2: Scan and Index Register of Deeds Documents

Project Description/Goal

- This project will focus on cleanup of the Register of Deeds (ROD) indexing system.
- A second focus and something that will be taken on during this plan cycle if funding permits will be to perform back scanning of hardcopy information before 1935. A project scope and timeframe will be developed for this project as the first phase gets completed.
- Land Info Spending Category:** Other Parcel Work

Business Drivers

- Lincoln County departments need easily accessible and accurate ROD documents for land records ownership tracking, real property listing, survey, legal description entries, and title searches. The current indexing was done many years ago and without standards.
- Lincoln County has documents that are scanned that have not been indexed to date.
- Lincoln County regularly researches and has requests for documents that pre date 1935. No documents before 1935 exist in digital format.
- Lincoln County recently migrated to a new Land Records system that integrates with the ROD system. This new Land Records system obtains ROD information and provides users with a link to the ROD system, in some cases this information is incorrect.

Objectives/Measure of Success

- Once completed, this project will enable users to query tabular information in the Register of Deeds Office based on the legal description, the owner name, or document type.
- Users will be able to link from the Land Records system directly to the ROD system.

Project Timeframes

- This is an ongoing project.

Timeline – Project Plan for Scanning and Indexing ROD Documents		
Milestone	Duration	Date
Project start	Ongoing	January 1, 2019
Hire contractor	Unknown	February 1, 2019
Contractor Scan & Index, Contractor research and update index fields for existing records	Ongoing	Start date 2019
Project complete	–	Unknown

Responsible Parties

- Lincoln County Register of Deeds Department

Estimated Budget Information

- Overall project completion of re-indexing the entire system is roughly \$350,000 to \$400,000.

Project #3: RPL LTE Position – Gaps, Overlaps, and ROW Research

Project Description/Goal

- This position will be offered at 29 hours per week for a length of 46 weeks.
- This position will assist the Real Property Lister with research to improve land records in Lincoln County. The primary focus of this position will be to help identify ownership for gaps, overlaps and ROW parcel features.
- This project may incur costs not directly associated with this request for Strategic Grant Money. Funds of this nature would be drawn from the WLIP Base budget or retained fees. An example of this might be a request to the State for research and or copies of Rail-ROW plats.
- Improve data quality and integrity of data submission for Benchmark 3, continuation of Parcel Fabric completion.
- **Land Info Spending Category:** Digital Parcel Mapping

Business Drivers

- Lincoln County Land Services Department has completed its parcel mapping county-wide. From this mapping, the county has identified many areas with unknown ownership due to gaps, overlaps, and unknown ROW ownership. Because of these issues, the county regularly spends large amounts of research time.
- Public inquiries of ownership in areas with gaps, overlaps, and ROW problems.

Objectives/Measure of Success

- Identification and cleanup of gap, overlap, and ROW ownership
- Improved customer service.
- Improved tax records and GIS mapping.
- Improved data quality and integrity of data submission for Benchmark 3.

Project Timeframes

- Unknown

Timeline – Project Plan for Web Development – Single Use Maps		
Milestone	Duration	Date
Project start	–	Jan 1, 2019
Timely response to public inquires and cleanup of known errors	NA	NA
Project complete	–	2022

Responsible Parties

- Lincoln County Land Services Department

Estimated Budget Information

- See table at the end of the chapter.

Project #4: GIS LTE Position – ROW Project Completion and WLIP Project Support

Project Description/Goal

- This position will be offered at 29 hours per week for a length of 46 weeks.
- The focus of this position will be to complete the existing ROW project tasks and to continue ROW research to support gap, overlap, and ROW remapping. For phase 1 of this project, Lincoln County contracted with a vendor to index, organize, geo-register and rectify existing state and county ROW plat scans maintained by the Highway Department. Phase 2 of the project then used an LTE to research, scan, and inventory all hard copy state and federal ROW plat mapping that was in the Land Services Department. This data was then compared to the phase 1 product allowing the documentation of duplicates, higher quality existing scans, missing pages, and new ROW plat scans. Phase 2 data will need to be finalized by integrating it into the phase 1 product. From this end product, Lincoln County will be able to identify ROW boundaries and assimilate this information into its base parcel mapping.
- Research municipal town records and inventory road right of way information.
- This position will offer support in completion of the goals of the WLIP.
- Improve data quality and integrity of data submission for Benchmark 3, continuation of Parcel Fabric completion.
- **Land Info Spending Category:** Digital Parcel Mapping

Business Drivers

- Lincoln County does not maintain a separate road right-of-way dataset. This data will allow Lincoln County to more easily identify ROW boundaries and assimilate this information into its base parcel mapping.
- Better ROW information to support ownership research in parcel mapping.
- This position has been instrumental in achieving WLIP goals in the past including but not limited to Public Land Survey Corner inventorying and documentation, ROW research and indexing, Hydrography layer updates, PIN/PLSS conflation, vendor deliverable reviews, metadata research and updates, Land Information Plan support, and other layer upkeep.

Objectives/Measure of Success

- The production of a mapping website which displays the georeferenced location of all ROW plats in the county while allowing spatial and attribute query abilities along with download capabilities.
- Integration/verification of ROW boundaries mapped in the county's parcel base mapping
- Continued completion and support of the Wisconsin Land Information Plan goals and requirements.
- Completion of the county ROW mapping project to inventory and index state and federal ROW plat maps.
- Inventory of ROW resources available at the municipal towns.
- Improved data quality and integrity of data submission for Benchmark 3.

Project Timeframes

- This is an ongoing position to support WLIP projects.

Responsible Parties

- Lincoln County Land Services Department

Estimated Budget Information

- See table at the end of this chapter.

Project #5: Orthoimagery

Project Description/Goal

- Obtain orthophotos with a minimum 6 inch resolution of Lincoln County in the spring of 2020.
- **Land Info Spending Category:** Orthoimagery

Business Drivers

- Lincoln County relies on orthophotography as a backdrop to numerous mapping projects. In addition, the imagery is used on public facing websites and by most county departments. The orthophotography is also commonly shared with local officials, state and federal agencies, and private businesses.
- Lincoln County is on a 5 year flight cycle for obtaining new orthophotography and, since the last flight was performed in 2015, the county is due for the next flight in 2020.

Objectives/Measure of Success

- New imagery will be reviewed and published to the Lincoln County departments and to the public.

Project Timeframes

Timeline – Project Plan Orthoimagery		
Milestone	Duration	Date
Project start	–	February 1, 2019
Work started	1 year	April-May, 2020
Project complete	–	December 31, 2020

Responsible Parties

- Lincoln County Land Services Department

Estimated Budget Information

- The cost will range from \$75,000 - \$125,000 depending the tile resolution options that are chosen.

Project #6: Web Server - Website Upgrades

Project Description/Goal

- Update GIS web server hardware and operating system.
- Migrate ArcGIS Enterprise Server software from 10.5.1 to 10.6.x
- Re-write the existing land records GIS website using new software technology.
- New website to function on phones, tablets, and other computer devices.
- **Land Info Spending Category:** Website Development/Hosting Services

Business Drivers

- Current and future land records users must be provided with a website that has the ability to function on any device.
- The need for an updated site with support is also vital since the current website's support life cycle has timed out from ESRI.

Objectives/Measure of Success

- Publication of Secure (https) services for all data layers
- A full integration of existing Lincoln County ArcGIS Services (data) with a query ability for parcels, lakes, and transportation features.

Project Timeframes

- This is to be completed as soon as possible

Timeline – Project Plan for Web Development – Mobile Site		
Milestone	Duration	Date
Project start	–	Jan 1, 2019
In-House	6 months	
Project complete	–	December 31, 2019

Responsible Parties

- Lincoln County Land Services Department

Estimated Budget Information

- This work will be accomplished by Lincoln County's LIO and, therefore, associated costs will be included in the salary.

Project #7: ArcGIS Open Data – ArcGIS HUB

Project Description/Goal

- This project's goal is for Lincoln County to utilize a new data dissemination practice that ESRI has developed called ArcGIS HUB. This HUB is an open data web software application which supports users in publishing their data and making the data searchable and downloadable to both internal staff and general internet users.
- **Land Info Spending Category:** Website Development/Hosting Services

Business Drivers

- This project is necessary to fulfill the open data policy, public transparency, data dissemination, and metadata publication. Open data in this format will also provide Lincoln County department staff with additional research accessibility.

Objectives/Measure of Success

- Development of an open data site for Lincoln County.

Project Timeframes

-

Timeline – Project Plan for Field Survey Digital Conversion		
Milestone	Duration	Date
Project start	–	January 1, 2020
In-House	NA	NA
Project complete	–	January 1, 2022

Responsible Parties

- Lincoln County Land Services Department

Estimated Budget Information

- This project will be performed by Lincoln County staff and costs will be included with their salaries.

Project #8: Web Development – Create Single Purpose Websites

Project Description/Goal

- This project includes the production of several unique websites that allow users direct and quick access to their desired information.
- The following are the single purpose websites that will be incrementally developed as time permits.
 - Public Land Survey
 - ROW Plats
 - Voting
 - Solid Waste and Recycling
- **Land Info Spending Category:** Website Development/Hosting Services

Business Drivers

- Public research into county data will benefit from the simplification of mapping resources used on the websites. Additionally, this will assist many County Departments with information dissemination to the public.
- Public access to these sites will be easier and quicker for non-broadband users.

Objectives/Measure of Success

- The production of single purpose websites that are accessible through the mapping portal.

Project Timeframes

- As time permits

Timeline – Project Plan for Web Development – Single Use Maps		
Milestone	Duration	Date
Project start	-	Unknown
In-House	NA	NA
Project complete	-	2022

Responsible Parties

- Lincoln County Land Services Department

Estimated Budget Information

- This work will be accomplished in-house and costs will be included with the salary of the LIO.

Project #9: Historic Aerial Photo Ortho Rectification

Project Description/Goal

- The goal of this project is to ortho-rectify historic aerial photos for use by the Lincoln County staff and by the public.
- The primary goal will be to capture either the 1965 or 1972 ortho series.
- **Land Info Spending Category:** Orthoimagery

Business Drivers

- This will assist the county's Land Services staff in day to day work of tracing out historic parcel lines and performing research.

Objectives/Measure of Success

- Publication of the data to internal staff and the public.

Project Timeframes

- This project will be undertaken if funding exists

Timeline – Project Plan for Historic Aerial Photo Ortho Rectification		
Milestone	Duration	Date
Project start	1 Year	Jan. 20, 2019
Acceptance of new orthophotography Project complete	-	Dec. 31, 2019

Responsible Parties

- Lincoln County Land Services Department

Estimated Budget Information

- An initial quote of \$15,000 was obtained from Ayres Associates for this project.

Ongoing costs not associated with a specific project

Funding for the Land Information Program Manager Position

Fees retained from the Register of Deeds by participating in the WLIP pay for roughly half the salary of the Lincoln County Land Information Program Manager in the Land Services Department. Remaining WLIP funds and grants are used to pay for projects identified in the Land Information Plan. The Land Information Program Manager works to modernize the county's land records by performing the following:

- Supervises and directs the activities and work of the County Surveyor, Surveyor/GIS Specialist, and Real Property Lister.
- Administration of GIS software/service packs and maintenance of GIS servers and programs.
- Administrates ESRI Licenses and License Manager-Server for all county departments.
- Administrates ArcGIS Server Mapping Sites for the county.
- Administrates Land Records Portal and Data Downloads Website.
- Administrates ArcGIS ArcSDE (Arc Spatial Data Engine), SQL Server RDBMS software used for County Production data storage and maintenance.
- Administrates the Rural Addressing system in Lincoln County by administering the Rural Roads and Address Ordinance.
- Administrates the Wisconsin Land Information Program.
- Implements, maintains, and updates the projects and goals outlined in the Lincoln County Land Records Modernization Plan in accordance with State Statutes.
- Assists in administration of the county's E911 dispatching software.
- Coordinates, communicates, and acts as the technical liaison with end users of the address system including but not limited to fire departments, sheriff's departments, ambulance providers, 9-1-1 Tele-communicators, Census, voter registration, and others.
- Leads development and administers policies, procedures, and standards related to the development and maintenance of the GIS including standards for data integration, data retrieval, map registration, and data entry functions.
- Develops and maintains organizational structure of the GIS data based on industry and software standards and in cooperation with other GIS users.
- Develops project goals and supervises land records projects such as parcel mapping, orthophotography, census, plat book development, etc.
- Coordinates and assists other county departments in the implementation of land records modernization activities including GIS and spatial data for their needs. Develops procedures within the County that support both Land Records Modernization and county-wide geographic systems.
- Coordinates with other departments in planning, developing, maintaining and effectively utilizing GIS and relational databases.
- Develops operational methodologies and quality control standards for computerized mapping projects plus related data retrieval, map registration, and data entry functions.
- Writes and/or reviews Request for Proposals for projects.
- Completes quality assurance checks on project data and processes.
- Researches/recommends the purchases of GIS related hardware and software.
- Coordinates the acquisition of land record information from public and private sources
- Provides technical assistance for GIS users and the public in the operation of software, troubleshooting problems, and in the development of specialized applications.
- Trains, and supports county staff in the use of Global Positioning Systems (GPS) equipment and assists in usage of collected data.
- Prepares and maintains user and system documentation, including metadata, for all data entry and GIS information.
- Participates in activities that promote and contribute to GIS development in the county.
- Completes interpretations and field verifications of aerial photography and other remote sensing data.

- Assists the public in the search of geographic information and other land records data.
- Advises the Lincoln County board and departments on state and county programs and legislation that are relevant to land records modernization and GIS.
- Attends conferences, seminars, meetings, and educational training to maintain competency and awareness of trends, legislation, and technology related to GIS and Land Information Systems.
- Performs other duties as assigned.

Completed Projects from 2015 to 2018

- Project Title: Migrated ESRI platforms for ArcGIS Desktop, Webserver and ArcSDE from version 9.2 to ArcGIS 10.5.1
- Project Title: Server installs/upgrades for ArcGIS Server and ArcSDE
- Project Title: Creation of a New County GIS Public Access Website
- Project Title: Online Mapping Portal webpage creation
- Project Title: Online Data Downloads Portal webpage creation
- Project Title: Internal Broadband Analysis Websites
- Project Title: Internal PLSS Analysis Websites (multiple)
- Project Title: ArcGIS Online integration and initial portal setup
- Project Title: County-wide Parcel Map Completion – Updates to the parcel fabric for bench mark 3 continue
- Project Title: Production Geodatabase Redesign and Migration
- Project Title: Publication Geodatabase Redesign and Migration
- Project Title: Projection and Consolidation of orthophoto imagery to WISCRCS
- Project Title: GPS Hardware Upgrades for County Surveyor and resource grade receiver for staff
- Project Title: Hardware Upgrade – Servers, PCs and Printer Plotters
- Project Title: Inventory and index PLSS Corner Monument Sheets
- Project Title: Inventory and index PLSS Corner control XY coordinates from County Surveyor
- Project Title: Inventory and index PLSS Corner control data received from contractors
- Project Title: Conversion of PLSS Corner Tie sheet records and migration to Wisconsin Point ID System
- Project Title: PLSS Remonumentation - Ongoing
- Project Title: PLSS Geodatabase redesign and corner management system implementation
- Project Title: Addressing system updates - Ongoing
- Project Title: Purchase and migration to a new Real Property and Tax Management System
- Project Title: Index and Georeference of Right of Way Plats from Highway Department
- Project Title: LiDAR Flight completion and integration of data
- Project Title: County-wide 2 foot Contour generation from LiDAR
- Project Title: County-wide creation of LiDAR derivatives, DEM, DTM, DTM, Bare-Earth
- Project Title: Topological integration of multiple data layers to satisfy LTSB mandates
- Project Title: 1938, 1955, 2015 years Orthos rectified and published
- Project Title: Hydrography layer creation, and value added mapping

Estimated Budget Information (All Projects)

Estimated Budget Information

Project Title	Item	Unit Cost/Cost	Land Info Plan Citations Page # or section ref.	Project Total
1) Plan for PLSS (Benchmark 4)	In-house - Staff	In-house staff	Page 38	-
				In-house staff
2) Scan and Index Register of Deeds Documents	Contractor	350,000-400,000	Page 39	-
				400,000
3) RPL LTE Position – Gaps, Overlaps, and ROW research	In-house	\$20,010/per year	Page 40	-
				\$60,030
4) GIS LTE Position – ROW Project Completion and WLIP Projects Support	In-house	\$20,010/per year	Page 41	-
				\$60,030
5) Orthoimagery	WROC Consortium	\$75,000	Page 41	-
				\$75,000
6) Web Server - Website Upgrades	In-house - LIO	LIO Salary \$45,000	Page 42	-
				Included in LIO Salary
7) ArcGIS Open Data – ArcGIS HUB	In-house - LIO	LIO Salary \$45,000	Page 43	-
				Included in LIO Salary
8) Web Development – Create Single Purpose Websites	In-house - LIO	LIO Salary \$45,000	Page 43	-
				\$135,000
9) Historic Aerial Photo Ortho Rectification	Ayres Associates	\$15,000	Page 44	-
				\$15,000
10) Ongoing Costs Not Associated with a Specific Project	In-house - LIO	LIO Salary \$45,000	Page 45	-
				Included in LIO Salary
GRAND TOTAL				\$745,060

Note. These estimates are provided for planning purposes only. Budget is subject to change.

****DELETE THIS FROM THE FINAL DOCUMENT****

****END OF DOCUMENT****

1. Save your work.
2. Update the *Table of Contents* on page 2
3. Save document as a PDF file—with working hyperlinks if possible.
 - a. If Acrobat plug-in is enabled in Word, make sure you go to "Preferences" and check "**Add Links**"
 - b. File ► Print ► Select "Adobe PDF" as your printer ► Check for working links
 - c. File ► Save as Adobe PDF ► Check for working links
4. Submit the final plan.
 - a. Upload at www.sco.wisc.edu/parcels/upload
(This is the alternative upload page for the Wisconsin Statewide Parcel Map Initiative. This is where you should upload your plan.)
5. Plan to do a voluntary review of two peer's plans when they are made available to you. Wait for an email from DOA with details.
6. Allow one month for DOA grant administrator to review your plan.
7. Implement revisions from DOA, and your peers as deemed appropriate.
8. Secure county Land Information Council approval.
 - a. Often this takes the form of a vote at a **council meeting** (which you may need to **schedule in advance**).
 - b. Attach either:
 - the meeting minutes and/or
 - any resolution adopted/approved
 - you may wish include them as an appendix to the final plan PDF
(or email them to DOA separately)
 - c. County board approval is encouraged but not required
9. Submit the final plans with documentation of county land information council approval by December 31, 2018.

