

**LINCOLN COUNTY, WI  
LAND INFORMATION PLAN  
2022-2024**



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# EXECUTIVE SUMMARY

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## 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 2021, Lincoln County was awarded \$88,384 in WLIP grants and retained a total of \$59,944 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 this large system, a vital and up-to-date addressing system is provided and used for emergency E911/dispatch, permitting, voting, mailing/deliveries and census.

In addition to addressing, the land information system supports taxation, zoning, forestry applications, economic development, emergency planning and response, hard copy map production services for Towns, Fire Departments, First Responders and a host of other citizen services all of which are utilized by federal, state, local, and private organizations.

Lincoln County provides online resources for all its mapping, land information and permitting services.

## 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.
- The Land Information Office will provide efficient and high-quality services to its residents and county departments by maintaining land records in an efficient manner, adopting standards to streamline the use of GIS data across departments, and provide services such as a more user-friendly web mapping service.
- Lincoln County's Land Information Office will provide geospatial data for the county's comprehensive planning process, inform future land use decision making, partner with county departments to integrate land records, and improve public access to land records online.

## **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. Scan and Index Register of Deeds Documents
2. PLSS Monument Maintenance Program
3. Land Information RPL LTE
4. Land Information GIS LTE
5. NG911 Data Migration Support
6. ArcGIS Parcel Fabric review and possible migration
7. Web Server – Website Upgrades
8. GIS Office Equipment
9. Historical Aerial Photo Ortho Rectification
10. Ongoing costs not associated with a specific project (LIO – Salary)

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, 2015 and 2019. Since the inception of the program in 1990, Lincoln County has been involved in numerous land records projects and updates. 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 2022-2024 plan, completed at the end of 2021, is the third post-Act 20 required update.

### County Land Information Plan Timeline

- DOA release of finalized instructions by March 31, 2021.
- April–September 2021: Counties work on land info plans.
- Draft plans due to DOA by September 30, 2021 (but sooner is advised).
- Final plans with county land info council approval due by December 31st, 2021.

### 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	sarah.koss@co.lincoln.wi.us	715-539-1065
+ Robbin Gigl	Treasurer	Lincoln County Treasurer	robbin.gigl@co.lincoln.wi.us	715-539-1068
+ Sandy Toburen	Real Property Lister	Lincoln County Land Services	sandy.toburen@co.lincoln.wi.us	715-539-1055

<b>+ Christopher Heller</b>	County Board Member	Lincoln County Board	christopher.heller@co.lincoln.wi.us	715-351-1500
<b>+ Norm Bushor</b>	Land Information Program Manager	Land Information Officer	norm.bushor@co.lincoln.wi.us	715-539-1058
<b>+ Mike Huth</b>	Land Services Administrator	Land Services Administer	mike.huth@co.lincoln.wi.us	715-539-1089
<b>+ Jackie Leonard</b>	Broker/Owner	Northwoods Community Realty, LLC	jackie@choosejackie.com	715-612-2673
<b>+ September Murphy</b>	Emergency Management Director	Lincoln County Emergency Management	september.murphy@co.lincoln.wi.us	715-536-6228
<b>+ Tony Dallman</b>	County Surveyor	Lincoln County Land Services	tony.dallman@co.lincoln.wi.us	715-539-1059
<b>Cate Wylie</b>	Administrative Coordinator	Lincoln County	cate.wylie@co.lincoln.wi.us	715-539-2501
<b>Alexandra Peacock</b>	GIS Specialist	Lincoln County Land Services	alexandra.peacock@co.lincoln.wi.us	715-539-1053
<b>Dean Bowe</b>	Forestry, Land, and Parks Administrator	Lincoln County Forestry, Land, and Parks	dean.bowe@co.lincoln.wi.us	715-539-1035
<b>+ Dan Miller</b>	Solid Waste Director	Lincoln County Solid Waste/Landfill	dan.miller@co.lincoln.wi.us	715-536-0424
<b>+ Art Lersch</b>	Community Development Agent	UW-Extension	akostman@co.lincoln.wi.us	715-539-1072
<b>+ John Hanz</b>	Highway Commissioner	Lincoln County Highway	john.hanz@co.lincoln.wi.us	715-536-2554
<b>+ Ken Schneider</b>	Sheriff	Lincoln County Sheriff's Office	ken.schneider@co.incoln.wi.us	715-536-6274
<b>+ Chris Marlowe</b>	County Clerk	Lincoln County Clerk	chris.marlowe@co.lincoln.wi.us	715-539-1020
<b>+ William Bialecki</b>	Economic Development Director	Lincoln County Economic Development	william.bialecki@co.lincoln.wi.us	715-539-8055
<b>+ Travis Spoehr</b>	Information Technology Director	Lincoln County	travis.sphoehr@co.lincoln.wi.us	715-539-1048

+ Land Information Council Members designated by the plus symbol

Website: [www.co.lincoln.wi.us](http://www.co.lincoln.wi.us)

# 2 FOUNDATIONAL ELEMENTS

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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) <b>set in original government survey</b> that can be remonumented in your county	<ul style="list-style-type: none"> <li>2761 - Approximated, many corners are now under water in flowages and have multiple new meanders set. This number represents what we can recreate of the original survey and is our total count for maintenance purposes. Does not include corners in water, or interior corners in Lincoln County Forest Land.</li> </ul>
Number of PLSS corners capable of being remonumented in your county that <b>have been remonumented</b>	<ul style="list-style-type: none"> <li>2638</li> </ul>
Number of remonumented PLSS corners with survey grade coordinates (see below for definition) <ul style="list-style-type: none"> <li>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</li> <li>SUB-METER – point precision of 1 meter or better</li> <li>APPROXIMATE – point precision within 5 meters or coordinates derived from public records or other relevant information</li> </ul>	<ul style="list-style-type: none"> <li>2623</li> </ul>
Number of survey grade PLSS corners integrated into county digital parcel layer	<ul style="list-style-type: none"> <li>2623</li> </ul>
Number of non-survey grade PLSS corners integrated into county digital parcel layer	<ul style="list-style-type: none"> <li>15</li> </ul>
Tie sheets available online?	<ul style="list-style-type: none"> <li>Yes, <a href="http://www.co.lincoln.wi.us/land_survey/">http://www.co.lincoln.wi.us/land_survey/</a> <a href="https://maps.sco.wisc.edu/surveycontrolfinder/#10/45.3415/-89.9636/PLSS/terrain">https://maps.sco.wisc.edu/surveycontrolfinder/#10/45.3415/-89.9636/PLSS/terrain</a></li> </ul>
Percentage of remonumented PLSS corners that have tie sheets available online (whether or not they have corresponding coordinate values)	<ul style="list-style-type: none"> <li>100%</li> </ul>
Percentage of remonumented PLSS corners that have tie sheets available online (whether or not they have corresponding coordinate values) <b>and a corresponding URL path/hyperlink value</b> in the PLSS geodatabase	<ul style="list-style-type: none"> <li>100%</li> </ul>
PLSS corners believed to be remonumented based on filed tie-sheets or surveys, but do not have coordinate values	<ul style="list-style-type: none"> <li>0</li> </ul>
Approximate number of PLSS corners believed to be lost or obliterated	<ul style="list-style-type: none"> <li>0</li> </ul>
Which system(s) for <b>corner point identification/ numbering</b> 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)?	<ul style="list-style-type: none"> <li>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.</li> </ul>
Does the county contain any <b>non-PLSS areas</b> (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?	<ul style="list-style-type: none"> <li>No</li> </ul>
Total number of PLSS corners along each bordering county	<ul style="list-style-type: none"> <li>Langlade 50 ; Oneida 78 ; Price 25 ; Taylor 37 ; Marathon 61</li> </ul>
Number of PLSS corners remonumented along each county boundary	<ul style="list-style-type: none"> <li>Langlade 46, Oneida 78, Price 24, Taylor 37, Marathon 59</li> </ul>
Number of remonumented PLSS corners along each county boundary with survey grade coordinates	<ul style="list-style-type: none"> <li>Langlade 46 , Oneida 78, Price 25, Taylor 37, Marathon 61</li> </ul>
In what ways does your county collaborate with or plan to collaborate with neighboring counties for PLSS updates on shared county borders?	<ul style="list-style-type: none"> <li>Lincoln County is working with adjoining counties by sharing tie sheets and other appropriate survey information.</li> </ul>

### Custodian

- Lincoln County Land Services Department

## Maintenance

- Lincoln County Surveyor
- Continue maintenance on PLSS corners including USPLSS records and GPS observations. New USPLSS tie sheets are being appended to the original tie sheet to maintain a chain of record for the occupation or maintenance of the corner.

## 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.
- **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.
- **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 information available through tax record searches about a property, person or address. A few examples are recorded documents, owner's names, addresses, descriptions, taxes, and values. The County's GIS viewer regularly downloads and integrates a small set of Tax Record attributes with the parcel geometry. Each record also has a direct link the County's public tax viewer where more detailed information can be accessed such as permits, taxes, assessments, history and legal information.

#### 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. Splits and combines are forwarded to the GIS Mapping person(s) to be entered using coordinate geometry and esri software.

#### Standards

- **Data Dictionary:**
  - Within the dataset's metadata, there are definitions for each attribute maintained by the county mappers. 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 and are something the County is working on to integrate into its update workflow.

## 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 Workflo**
  - 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

### 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), Hydro-Enforced DEMs, 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

- 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

- 2' Contour Elevation Data Layer Complete

### Custodian

- Lincoln County Land Services Department

### Maintenance

- Static dataset

### 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.

## Orthoimagery

### Orthoimagery

#### Layer Status

- Orthoimagery Layer Complete
- **Most recent acquisition year:** 2020
- **Resolution:** 6 inch
- **Contractor's standard:** WROC Standards
- **Next planned acquisition year:** 2025, 5 year updates

#### Custodian

- Lincoln County Land Services Department

#### Maintenance

- Static dataset

#### Standards

- WROC standards

## Historic Orthoimagery

#### Layer Status

- 2015 Orthoimagery Layer Complete
- 2015 Flight – 6 inch resolution

#### 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

- 1970 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

- 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) 2019 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



**Layer Status**

- National Agriculture Imagery Program (NAIP) 2017 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

**Layer Status**

- National Agriculture Imagery Program (NAIP) 2015 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

**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

**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

**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, USPS, 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.
- 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 has developed a ROW polygon index layer. This layer represents a buffered polygon around each ROW centerline extent. The polygons are geospatial significant since each ROW's centerline and extent has been digitized in County Coordinates. This information is presented to the public in the form of an interactive webmap that allow the user to drill or query each of the polygons areas to retrieve attributes such as year, version, project plan name, and other information including a full PDF scan of the ROW project.

#### **Custodian**

- Lincoln County Land Services Department

#### **Maintenance**

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

#### **Standards**

- Standards for development included attribute and map tag information capture, spatially accurate to centerlines on the 2015 orthophotos.

## **Trails**

**e.g., Recreational Trails, Snowmobile 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 Department

#### **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

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

### Custodian

- Lincoln County Land Services 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

- The County does maintain a GIS representation of county shoreland zoning boundaries.

### Custodian

- Lincoln County Zoning Department

### Maintenance

- Updated as needed

### 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
- **Year of certification:** N/A

## 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.
  - The County maintains a representation of the layer as produced by Engineers hired by each Airport

## **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.

## **Emergency Service Boundary – Law/Fire/EMS**

### **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 Answering Points (PSAP) Boundary**

### **Layer Status**

- Same as County Boundary



### **Custodian**

- Lincoln County Land Services Department

### **Maintenance**

- As needed

### **Standards**

- Integrated with PLSS and Civil Boundary layers

## **Provisioning Boundary**

### **Layer Status**

- Same as County Boundary

### **Custodian**

- Lincoln County Land Services Department

### **Maintenance**

- As needed

### **Standards**

- Integrated with PLSS and Civil Boundary layers

## **Other 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.

## **Other 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.

## **Other 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

## **Other 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**

- 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**

e.g., Hydrography maintained separately from DNR or value-added, such as adjusted to orthos;  
Elevation-Derived Hydrography

### **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

### **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

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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.

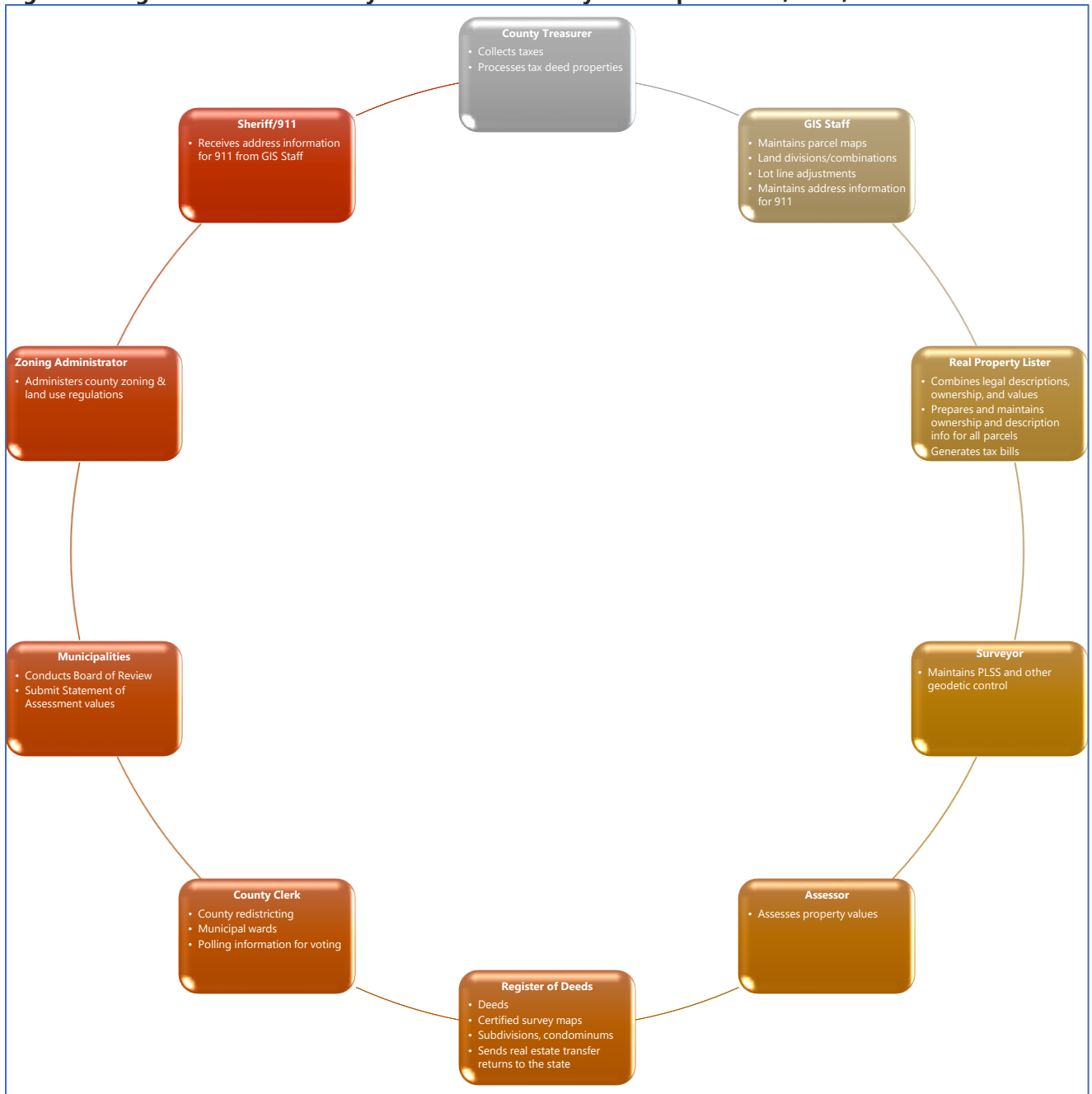
This chapter describes the design of the county land information system, with focus on how data related to land features and data describing land rights are integrated and made publicly available.

## 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**

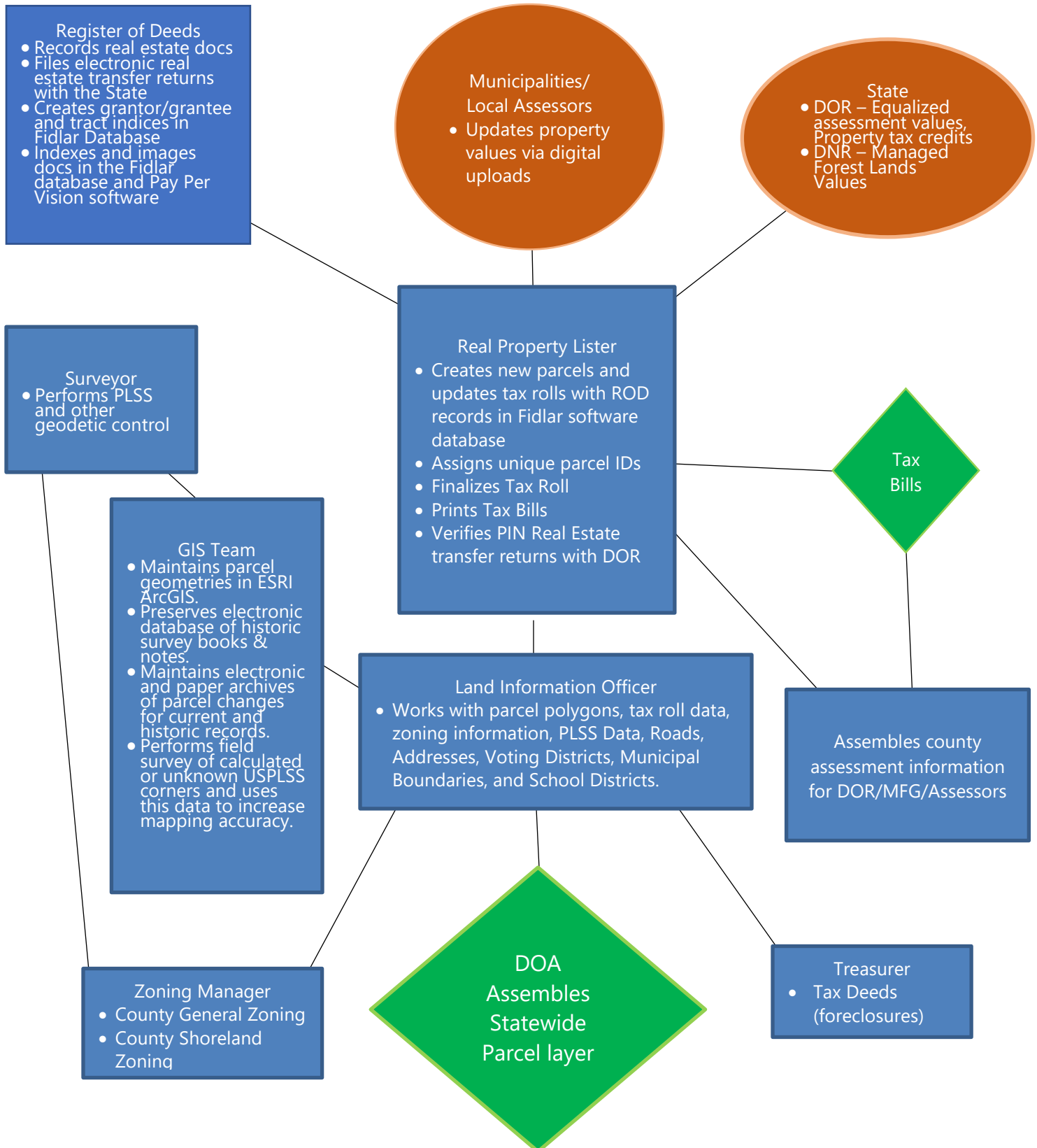




## County Parcel Data Workflow Diagram

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 10.7.1
  - 3 ArcGIS Desktop Standard, Concurrent Use License, Version 10.7.1
  - 5 ArcGIS Desktop Basic, Single Use License, Version 10.7.1
  - 1 ArcView GIS 3.1 US, Version 3.1
  - 1 ArcGIS 3D Analyst for Desktop Concurrent Use License, Version 10.7.1
  - 5 ArcSDE SQL Server Read Write Server Connection License, Version 10.7.1
  - 1 ArcGIS for Server Enterprise Basic (Windows), Up to Four Cores License Migrated from ArcSDE 9.1 License, Version 10.7.1
  - 1 ArcGIS for Server Enterprise Standard (Windows), Up to Four Cores License Migrated from 9.1 License, Version 10.7.1
  - 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
- County primarily using ArcGIS Pro in its production environment.
- County currently uses ArcGIS Pro: Yes

### 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

<https://maps.co.lincoln.wi.us/GISViewer/>

##### GIS Download Link - URL

<https://maps.co.lincoln.wi.us/GISPortal/>

##### 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

<https://maps.co.lincoln.wi.us/GISPortal/>

#### Web Services/REST End Points

##### URL

<https://maps.co.lincoln.wi.us/arcgis/rest/services/>

#### 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://www.cityoftomahawkwi.com/>

## **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.

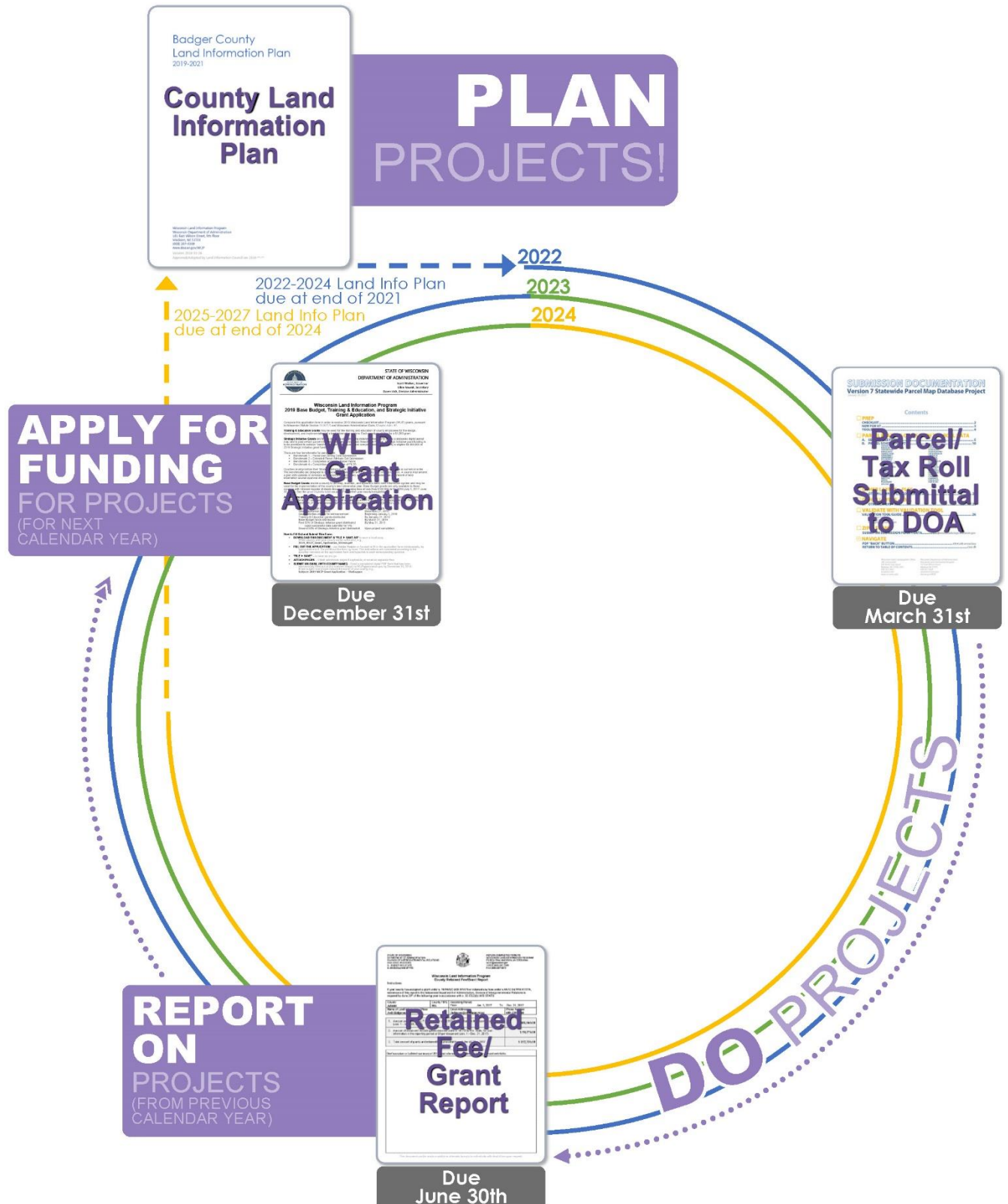


Figure 1. The WLIP Land Information Plan/Grant Project Cycle

# Project #1: Scan and Index Register of Deeds Documents

## Project Description/Goal

- This project will focus on re-indexing the past 60 years of the Register of Deeds (ROD) indexing system.
- **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 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	2021
Contractor Scan & Index, Contractor research and update index fields for existing records	Ongoing	
Project complete	Ongoing	Unknown

## Responsible Parties

- Lincoln County Register of Deeds Department

## Estimated Budget Information

- Re-indexing 60 years back \$350,000 to \$500,000.

# Project #2: PLSS Monument Maintenance Program

## Project Description/Goal

- Develop a work program that identifies corners that have not been visited in over 20 years
- Create RFPs for private contractors to perform remonumentation services

## Business Drivers

- PLSS standard maintenance for corners in Lincoln County
- Outdated old observations on current monuments
- Increased accuracy on coordinates resulting in better control for GIS layers including parcels

## Objectives/Measure of Success

- Updated coordinates and records for PLSS corners that have aged
- Increased accuracy on coordinates resulting in better control for GIS layers including parcels

## Project Timeframes

-

Timeline – Project Plan for Web Development – Mobile Site		
Milestone	Duration	Date
Project start	–	2022
Project complete	–Ongoing/Yearly	December 31, 2024

### Responsible Parties

- Lincoln County Land Services Department

### Estimated Budget Information

- \$25,000 annually

## Project #3: Land Information RPL LTE

### 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, in addition to Managed Forest Land (MFL) updates.
- Improve data quality and integrity of data submission for Benchmark 3.
- 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.
- MFL cleanup
- Site address updates and clean up
- 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	46 weeks	2022
Project complete		2024

- This is an ongoing position to support WLIP projects.

### Responsible Parties

- Lincoln County Land Services Department

### Estimated Budget Information

- \$21,000 annually



## Project #4: Land Information GIS LTE

### 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 help support the update of Address Points, Ranges, and other layers to meet NG911 standards.
- **Land Info Spending Category:** Address Points/Street Centerlines

### Business Drivers

- NG911 Data standards

### Objectives/Measure of Success

- Production data updates that support NG911 data migration.

### Project Timeframes

- Unknown

Timeline – Project Plan for Web Development – Single Use Maps		
Milestone	Duration	Date
Project start	46 weeks	2022
Project complete		2024

- This is an ongoing position to support WLIP projects.

### Responsible Parties

- Lincoln County Land Services Department

### Estimated Budget Information

- \$21,000 annually

## Project #5: NG911 Data Migration Support

### Project Description/Goal

- This project will focus on help with migration to the state centerline and address point model to support NG911.
- Support may include data migration, custom software purchase, tools and script development.
- **Land Info Spending Category:** Address Points/Street Centerlines

### Business Drivers

- NG911 Data standards

### Objectives/Measure of Success

- Geodatabase migration for Street centerlines, Address Points, Fire Districts, EMS - First Responder Boundaries, and Law enforcement boundaries.

### Project Timeframes

- Unknown

Timeline – Project Plan for Web Development – Single Use Maps		
Milestone	Duration	Date
Project start	Unsure	2023
Project complete		2024

### Responsible Parties

- Lincoln County Land Services Department

## Estimated Budget Information

- Unsure/Variable -depends on available grants for NG911

## Project #6: ArcGIS Parcel Fabric review and possible migration

### Project Description/Goal

- Review of Parcel Fabric data model and workflows
- Possible migration to ESRI Parcel Fabric
- Training
- **Land Info Spending Category:** Digital Parcel Mapping

### Business Drivers

- Improved efficiency for parcel mapping and other associated layers.
- Improved integration with PLSS Corner data and other recorded and unrecorded survey data.

### Objectives/Measure of Success

- Migration of current Production Parcel mapping database that manages, Parcels, ROW features, recorded and unrecorded Plats, Zoning, and Land Use to Parcel Fabric Geodatabase Model.
- Migrated workflows and more efficient parcel mapping and data management.

### Project Timeframes

- 

Timeline – Project Plan for Web Development – Mobile Site		
Milestone	Duration	Date
Project start	Unknown	2022
Project complete		unknown

### Responsible Parties

- Lincoln County Land Services Department

### Estimated Budget Information

- This work will be accomplished by Lincoln County's LIO and if needed contracted services.

## Project #7: Web Server - Website Upgrades

### Project Description/Goal

- Update GIS web server hardware and operating system.
- Migrate ArcGIS Enterprise Server software from 10.7.1 to 10.x.x
- Re-write the existing land records GIS website update tools to Py3.
- **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.
- Keep site current and up to date with technology

### 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

- 

Timeline – Project Plan for Website Upgrades		
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Milestone	Duration	Date
Project start	Ongoing	2022
Project complete	Ongoing	2024

### 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 #8: GIS Office Equipment

### Project Description/Goal

- Purchase Office chairs, lighting, poster boards and map rails to support Land Information activities
- Land Info Spending Category:** Other

### Business Drivers

- Current office chairs are over 20 years old and are in need of updates
- Office poster/map hanging hardware are needed for proper review of printed hardcopy maps, and for display of maps while working with County and Public users

### Objectives/Measure of Success

- Places to hang maps for review and display
- Chairs with arms that do not fall off or have seats that wobble

### Project Timeframes

Timeline – Project Plan for Web Development – Mobile Site		
Milestone	Duration	Date
Project start		2022
In-House		
Project complete		2022

### Responsible Parties

- Lincoln County Land Services Department

### Estimated Budget Information

- \$1,000

## 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 1980 Orthophoto 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	2022
Acceptance of new orthophotography	-	Dec. 31, 2022
Project complete	-	Dec. 31, 2022

## Responsible Parties

- Lincoln County Land Services Department

## Estimated Budget Information

- \$21,000

## 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:

- Administrates the Wisconsin Land Information Program.
- Administrates the Rural Addressing Program in Lincoln County by administering the Rural Roads and Address Ordinance.
- Supervises and directs the activities and work of the County Surveyor, GIS Specialist, and Real Property Lister.
- Administration of GIS software/service packs and maintenance of GIS servers and programs in use at the County.
- 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.
- Implements, maintains, and updates the projects and goals outlined in the Lincoln County Land Information 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, Town officials 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, address mapping, survey record management, website development, 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 GIS Mapping and 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 2019 to 2021

- Project Title: Migrated ESRI platforms for ArcGIS Desktop, Webserver and ArcSDE from version 10.5.1 to ArcGIS 10.7.1
- Project Title: Windows Server migrations
- Project Title: Server installs/upgrades for ArcGIS Server and ArcSDE
- Project Title: Creation and migration to a new public GIS Viewer website
- Project Title: Creation of an internal GIS data access site
- Project Title: Public Online Mapping Portal webpage updates
- Project Title: Public Online Data Downloads page updates
- Project Title: Internal PLSS Analysis Websites (multiple)
- Project Title: External PLSS Control Mapping Website to support RFPs
- Project Title: Public ROW finder website creation that supports searching/display/download ROW Plat information
- Project Title: Creation of internal website to support Act 184 Sexually Violent Predator locating
- Project Title: Production Geodatabase Redesign and Migration
- Project Title: Publication Geodatabase Redesign and Migration
- Project Title: Hardware Upgrade – Servers, PCs and Printer Plotters
- Project Title: PLSS Remonumentation - Ongoing
- Project Title: PLSS Geodatabase redesign and corner management system maintenance
- Project Title: Addressing system(Points, centerlines, Emergency responder layers) updates - Ongoing
- Project Title: Purchase and migration to a new Real Property and Tax Management System
- Project Title: Orthophoto Capture 2020 – 6 inch countywide
- Project Title: 1970 years Orthos rectified and published
- Project Title: Hydrography layer creation, and value added mapping
- Project Title: Plat research and remapping to new control, parcel boundary adjustments