



City of Superior's Enterprise Geographic Information System (GIS)

August 1, 2023

What is GIS?

Geographic Information Systems (GIS)

- An integrated collection of computer software and data used to view and manage information about geographic places, analyze spatial relationships, and model spatial processes. A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.

GIS is more than just maps, it is:

- Data
- Hardware
- Software
- People
- Methods



City/County GIS Staff

Superior GIS Staff (2)

- GIS Coordinator
- GIS Technician (Douglas County WLIP Grant Fabric Maintenance 50%)

Douglas County Land Information Office Staff (2)

- Two GIS Technicians

Additional

- 1 Land Information Officer
- 1 County Surveyor

1 GIS Consultant

1 Database Consultant

GIS Infrastructure

GIS Infrastructure

11 - GIS SERVERS

- 5 are web servers also
- 500+ Data Sets

150+ internal users

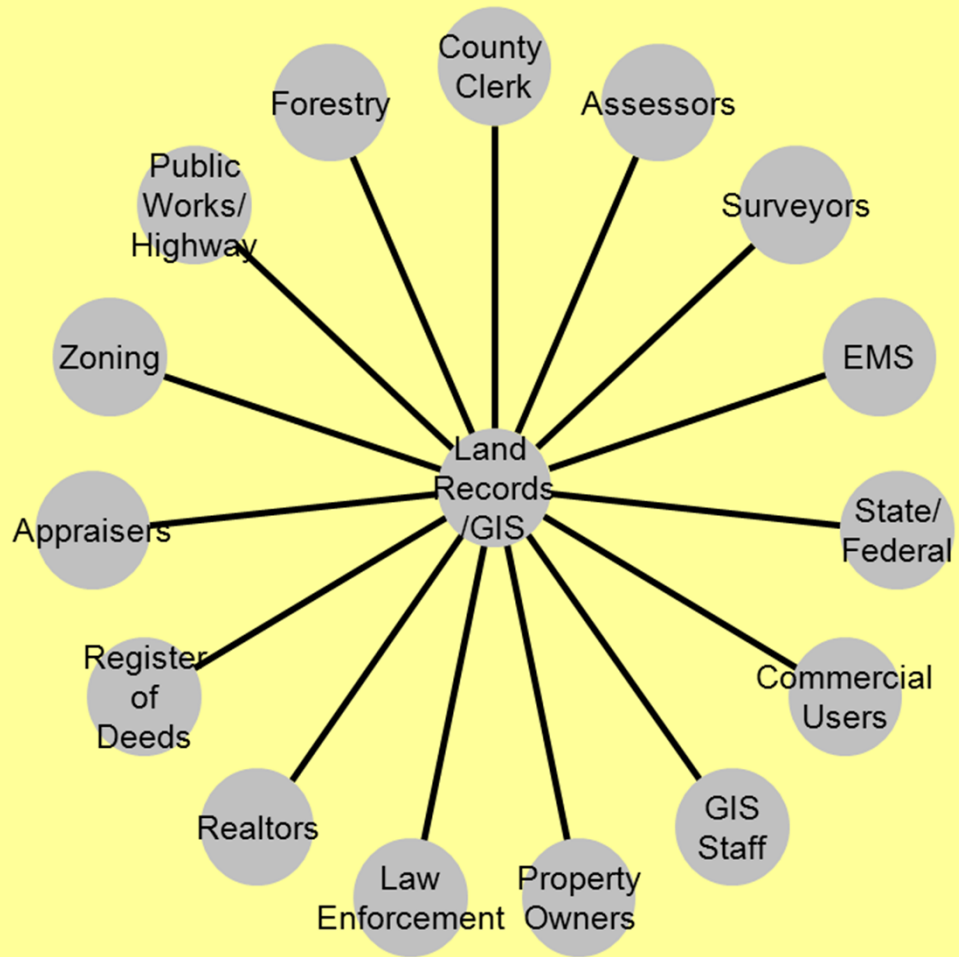
- City/County ESRI ELA Licensing Agreement – Cost savings

City/County GIS Online Site – 50,000 hits per year

- Douglas County COVID Cases Site – 100,000+ hits during its run

GIS Timeline

- Early 1990's - Douglas County Parcel layer converted from AutoCAD to ESRI GIS
- 1998, 2009 – City of Superior/Douglas County enter into a cooperative agreement for GIS Services
- 2001-2002 - Redistricting
- 2003-2007 – GIS mapping web site brought online
- 2005-2006 - Switched from AS400 based ownership data system to Windows Based GCS system
- 2009 - ESRI ELA for City and County
- 2010 – GIS Data Available for download (FREE)
- 2010 - WLIA Award
- 2011-2012 - Redistricting
- 2012 - Parcel Fabric Migration
- 2014 - Act 20
- 2020 – Tyler Permitting and Portal Development
- 2021 – Redistricting
- 2022-2024 Server Upgrades



GIS Support

Enterprise GIS

Departmental Support
Training

Make the software & data available to the departments for them to access and maintain the data as needed

GIS data requests and downloads

Mapping Websites and apps

City/County Relationship

City of Superior/Douglas County

- Joint Cooperation Agreement for GIS
- IT/GIS integrated between City and County

Cost savings by doing this

Also a strong relationship with St. Louis County and other surrounding counties, the data doesn't stop at the borders

WI Statewide Parcel Initiative

Act 20



WISCONSIN DEPARTMENT OF
ADMINISTRATION

SCOTT WALKER
GOVERNOR
MIKE HUEBSCH
SECRETARY

Wisconsin Land Information Program
Post Office Box 8944
Madison, WI 53708-8944
Voice (608) 267-3369
WLIP@wisconsin.gov
www.doa.state.wi.us/WLIP

Act 20 and the Wisconsin Land Information Program

Act 20, the biennial state budget for state fiscal years 2014 and 2015, has wide-ranging implications for the Wisconsin Land Information Program (WLIP). Changes to the WLIP generated by Act 20 fall under five broad categories:

- Initiative to Create a Statewide Digital Parcel Map
- Increase in Base Budget and Training & Education Grant Eligibility
- Increase in Land Information Fund Revenue
- Update Frequency for County Land Information Plans
- Penalties and Deadlines

Some of these changes, such as increased grant eligibility, take effect in the near term, while other measures, such as an increase in Land Information Fund revenue, will be implemented over the course of the next few years.

One of the most novel provisions of Act 20 affecting the WLIP is the directive for DOA to create an implementation plan for a statewide digital parcel map, which will be a collaborative effort with local governments. A complete, accurate, and continuously maintained digital parcel map would protect and grow Wisconsin's \$460 billion in taxable real estate assets, improve governmental services, and enhance the state's economic competitiveness.

Initiative to Create a Statewide Digital Parcel Map

Section 186.¹ Act 20 directs DOA to create an implementation plan for a statewide parcel map and directs counties to coordinate their digital parcel mapping with the state. The implementation planning process will define the end product envisioned for a five-year process of statewide digital parcel map development—a geographic information system (GIS) that meets end users' business needs, whether at the state or local levels of government, as well as those of the private sector.

¹ SECTION 186.16.967 (3) (h) of the statutes is created to read:

16.967 (3) (h) Establish an implementation plan for a statewide digital parcel map.

SECTION 186k.16.967 (7) (a) 2m. of the statutes is created to read:

16.967 (7) (a) 2m. In coordination with the department, the creation, maintenance, or updating of a digital parcel map.

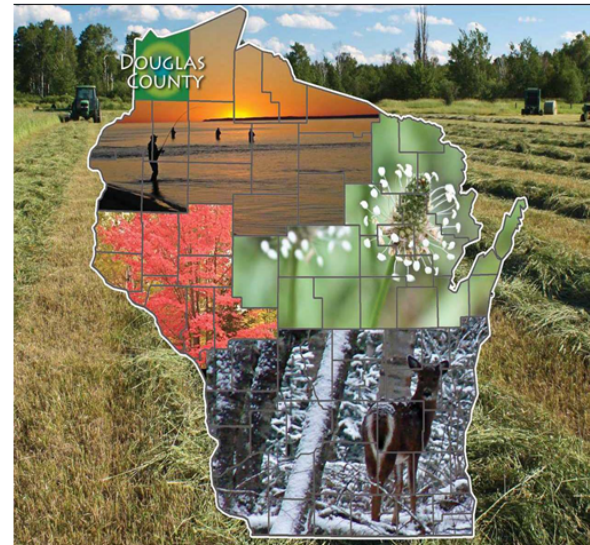
Land Information Plan

Douglas County Land Information Plan 2022-2024

Submitted 12/31/2021

Douglas County

LAND RECORDS MODERNIZATION PLAN
2022 - 2024



Version Date 12/10/2021
Approved/Adopted by Land Information Council on: 12/20/2021

**Wisconsin Land Information Program
Wisconsin Department of Administration
101 East Wilson Street, 9th Floor
Madison, WI 53703
(608) 267-3369
www.doa.wi.gov/WLIP

WI Statewide Parcel Initiative

Data Submitted

Parcels
Zoning
Floodplain

PLSS Corners
Roads
Addresses
Hydrography

CBAS Submitted twice a year

- Wards
- Supervisor Districts
- Annexations

WI Statewide Parcel Initiative

ACTION REQUIRED TO MEET STATEWIDE SCHEMA

PARCEL FEATURE CLASS

WITH TAX ROLL DATA

✓ PARCELID	
✓ TAXPARCELID	
✓ PARCELDATE	
✓ TAXROLLYEAR	
♦ OWNERNAME1	• OWNERNAME1: See comment below in AUXCLASS regarding owner names for government-owned tax exempt lands.
♦ OWNERNAME2	
* PSTLADDRESS	• PSTLADDRESS: Approximately 4 records with partial mailing address values containing only city, state, and zip—such as "SUPERIOR, WI 54880". Mailing address values should not be incomplete. Clean these records by entering a complete mailing address in the PSTLADDRESS field, or enter <Null> for parcels without a "complete" mailing address.
✓ SITEADDRESS	
✓ ADDNUMPREFIX	
✓ ADDNUM	
✓ ADDNUMSUFFIX	
✓ PREFIX – with standardized domains	
✓ STREETNAME	
✓ STREETTYPE – with standardized domains	
✓ SUFFIX – with standardized domains	
✓ LANDMARKNAME	
✓ UNITYTYPE	
✓ UNITID	
✓ PLACENAME	
✓ ZIPCODE	
✓ ZIP4	
✓ STATE	
✓ SCHOOLDIST – with standardized domains	
✓ SCHOOLDISTNO – with standardized domains	
✓ CNTASSDVALUE	
✓ LNDVALUE	
✓ IMPVALUE	
✓ MFLVALUE	
✓ ESTFMKVALUE	
✓ NETPRPTA	
✓ GRSRPTA	
* PROPCLASS – with standardized domains	• PROPCLASS: Some records with PROPCLASS = 3 (Manufacturing) were either "0" or missing values in the tax roll-specific fields, such as CNTASSDVALUE, IMPVALUE, and LANDVALUE. These values seem to indicate a problem with the data export. This could be because the county populated these attributes with the 2021 work roll values instead of the 2020 "final tax roll" values, as the initial version of the GCS extract module was mistakenly programmed to do. Check your values in tax roll fields—perhaps with RPL—and ensure accuracy of values for future data submissions.
♦ AUXCLASS – with standardized domains	• AUXCLASS: Per schema specs, for publicly owned parcels (AUXCLASS = X1-X4), the same owner should be designated the same way if they own multiple parcels (e.g., not "STATE OF WISCONSIN (DEPARTMENT OF NATURAL RESOURCES)", "WISCONSIN DEPARTMENT OF NATURAL RESOURCES" and "STATE OF WISCONSIN DNR," which all occur in the county dataset). In other words, standardize owner names for public parcels to the extent possible/permissible by recording document policy.
✓ ASSDACRES	
✓ DEEDACRES	
✓ GISACRES	
✓ CONAME – with standardized domains	
✓ PARCELFIPO – with standardized domains	
✓ PARCELSRC – with standardized domains	
✓ –Projection met statewide schema	
✓ –County parcel fabric was complete (lacked gaps)	
✓ –Condo modeling met statewide schema	
OTHER LAYERS – PLSS	
✓ PLSS – PLSS corner data was submitted	
OTHER LAYERS – RML	
♦ Zoning: County general – with DESCRIPTION/LINK	• (Unchanged from previous year, not submitted)
♦ Zoning: Shoreland – with DESCRIPTION/LINK	• (Unchanged from previous year, not submitted)
♦ Zoning: Airport protection – with DESCRIPTION/LINK	• (Unchanged from previous year, not submitted)
✓ Other Layers – with standardized file names	
SUBMISSION FORM & PACKAGE	
✓ Provided .ini submission form + data	
MISCELLANEOUS	
<ul style="list-style-type: none"> • The comments provided in this V7 Observation Report describe deviations from the statewide schema that require your attention. In order for your county to meet the Searchable Format requirement listed under state statute 59.72(2)(a), you will need to make the corrections noted on this report—as well as the V1-V6 Observation Reports—and ensure that the datasets submitted in the future exactly match DOA's schema specifications. • Feedback on the annual parcel data submission process is welcome to DOA/SCO at any time. • Thanks for your work to prepare your submission. You can read user testimonials in the forthcoming V7 Final Report and the V6 Final Report. There are a lot of happy end-users of the statewide parcel layer who appreciate your efforts to make the county's data available in a standardized format! 	

Background Information on Parcels and Ownership Data

Parcel Editing Process

- Currently every 24 hours parcels Ownership is updated and replicated from GCS, Parcels are updated in groups of edits once every week

2022 – 8284 Edits

2021 - 6337 Edits

2020 – 7541 Edits

2019 – 6875 Edits

2018 – 3725 Edits

Ownership data and parcels are the most critical data the City and County Maintain. It is used by all departments for Various purposes.

Wisconsin Point Adjustment

Yellow = Before Adjustment
Red = After Adjustment



V9 Benchmark Status for PLSS Corner Integration

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 Douglas County	• 4393
Number of PLSS corners capable of being remonumented in your county that have been remonumented	2671
Number 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 	<ul style="list-style-type: none"> • 2407, (Survey Grade) • 31, (Sub-meter) • 233, (Approximate)
Number of survey grade PLSS corner coordinates integrated into county digital parcel layer	1185
Number of non-survey grade PLSS corner coordinates integrated into county digital parcel layer	945
Tie sheets available online?	YES https://douglascowi.wgxtreme.com/
Percentage of remonumented PLSS corners that have tie sheets available online (whether or not they have corresponding coordinate values)	100% (2671)
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% (2671)
PLSS corners believed to be remonumented based on filed tie-sheets or surveys, but do not have coordinate values	• 662
Approximate number of PLSS corners believed to be lost or obliterated	• 1678
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)?	Romportl Point Numbering System
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	Burnett = 30 Washburn= 53 Bayfield= 87 WI/MN State Line= 72
Number of PLSS corners remonumented along each county boundary	Burnett = 30 Washburn= 53 Bayfield= 87 WI/MN State Line= 72
Number of remonumented PLSS corners along each county boundary with survey grade coordinates	Burnett = 30 Washburn= 53 Bayfield= 87 WI/MN State Line= 72
In what ways does your county collaborate with or plan to collaborate with neighboring counties for PLSS updates on shared county borders?	Burnett = 30 (100%) Washburn= 53 (100%) Bayfield= 52 (60%) WI/MN State Line= 25 (34%) Douglas County has worked with neighboring counties and states on shared PLSS updates and plans to continue to do so in the future

PLISS Monuments



Survey Documents Inventory

Georeferenced Survey Documents Inventory

5314 Total Documents

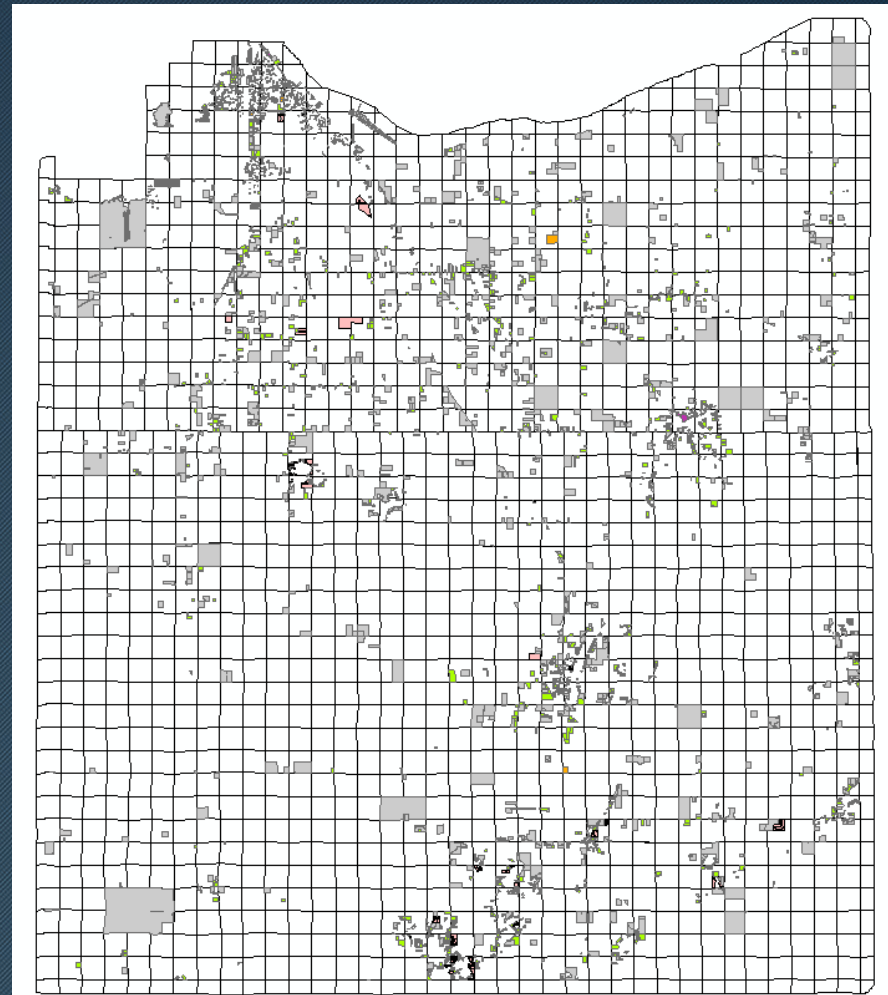
ALTA = 51

Certified Survey Maps = 1604

Site Plans = 226

Maps of Survey = 3382

Plats = 48





Land Information Office's NextGen911 Activities in 2022

NextGen911 (NG911) is a Federally required upgrade to the CAD/911 systems throughout the nation. Wisconsin is developing standards and requirements for County systems to meet. NG911 is a fully GIS integrated system with stringent requirements that must be met.

Douglas County NG911 Activities include:

- CAD911/GIS data assessment in 2020
- Budgeting for GIS staff assistance
- Continued monitoring of the State's NG911 recommendations and needed response
- Implementation of GIS data changes as required by the State and Federal governments

Challenges for LIO in NG911

- Address system used by Douglas County
- Migration of current data to required schema
- Future maintenance needs and costs

City/County Aerial Photos

City/County Aerial Photos

2023 – Pictometry (Coming Soon)

2022 - Pictometry

2019 - Pictometry

2016 - Pictometry

2013 - Pictometry

2009 - Pictometry

2006

1999

1986

1973

1962

1958 – Coming Soon

1948

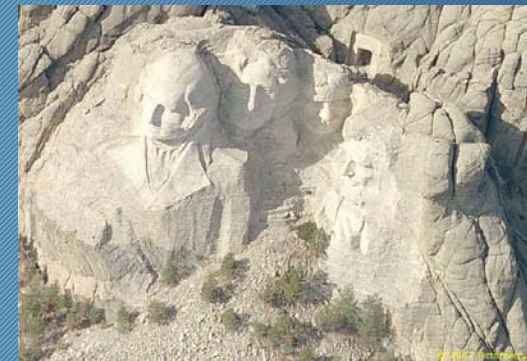
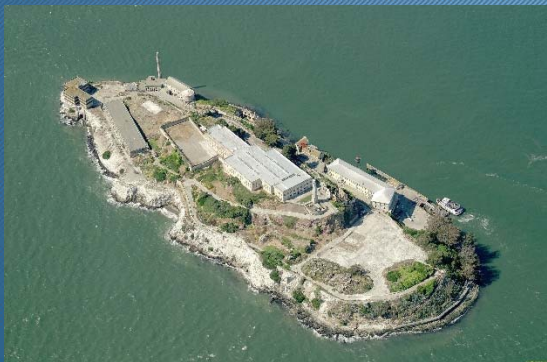
1938

What is Pictometry?

Pictometry - has been described as “geometry on images” but that description only captures one aspect of Pictometry.

Pictometry technologies are widely used by county GIS, planning and assessing professionals around the country and a growing number of commercial businesses including those in insurance, utilities, real estate, construction, and more.

Unlike traditional geospatial information systems that rely on only an **orthogonal**, or top-down view of an area, Pictometry captures images **obliquely**, or from an angle, and create a more natural three-dimensional view so that users can see land features and structures clearly and in their entirety.



Why Pictometry?

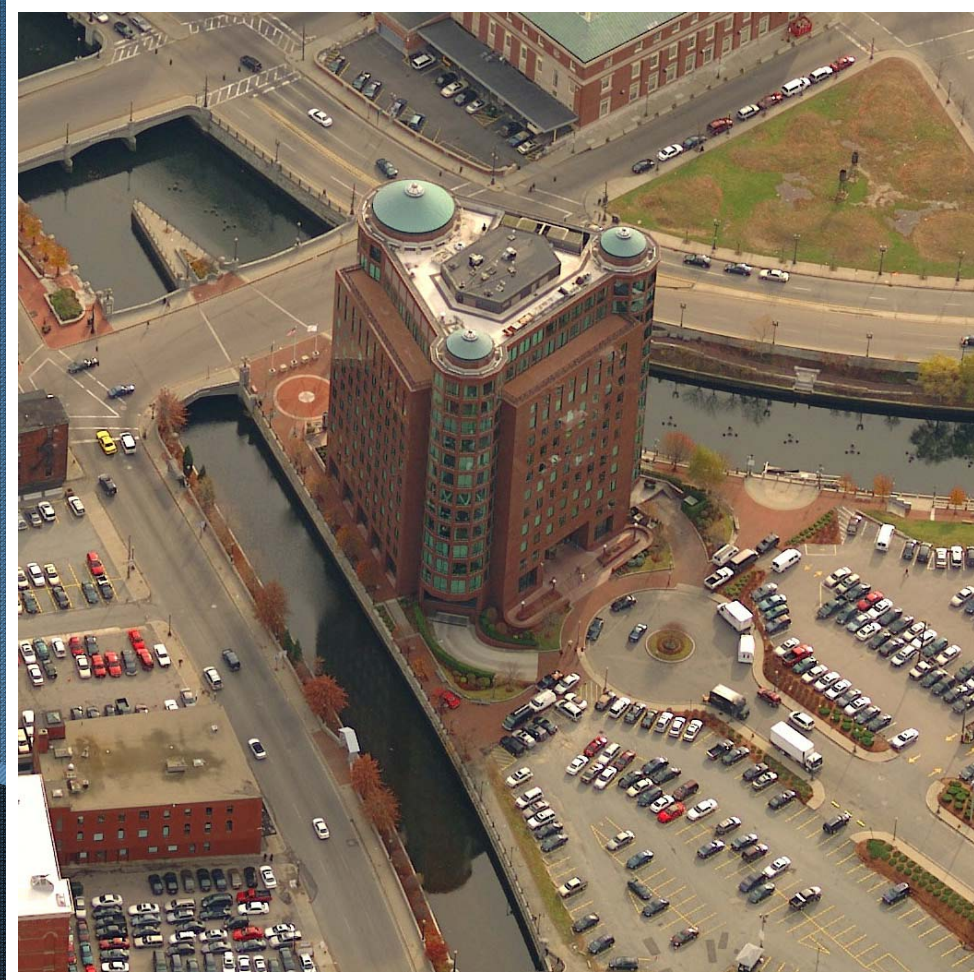
Pictometry (now Eagleview) is based out of Rochester New York

Why Not Google or satelittes?

- Control of the data
- Know the dates
- Resolution and Obliques
- Cost, \$8317/year
- Timeliness of Access to Photos
- What about Drones?

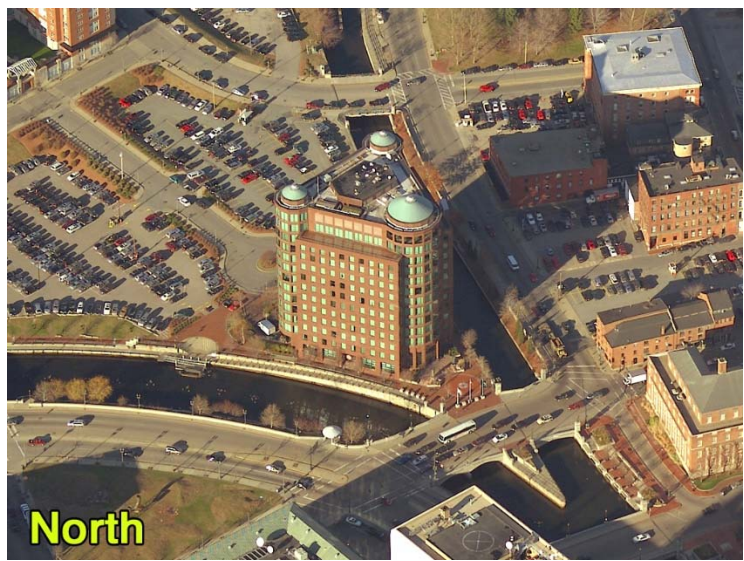


Tradition with a Modern Edge



Providence, Rhode Island

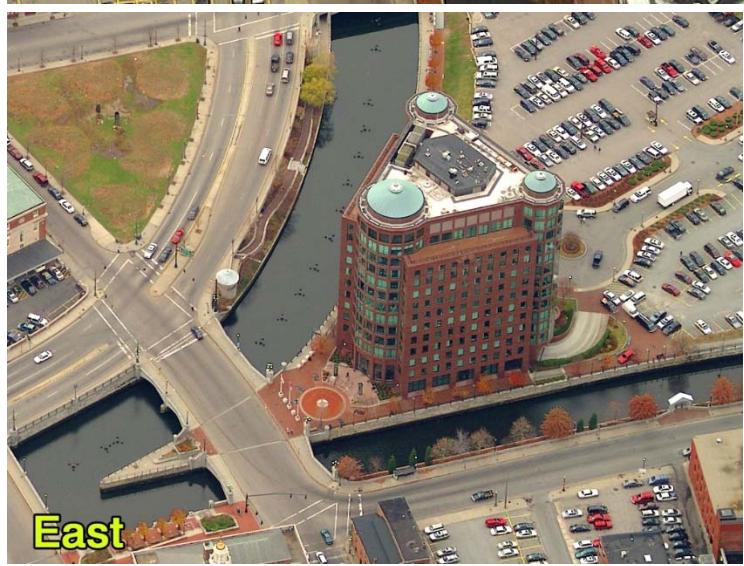
So In Addition To This...



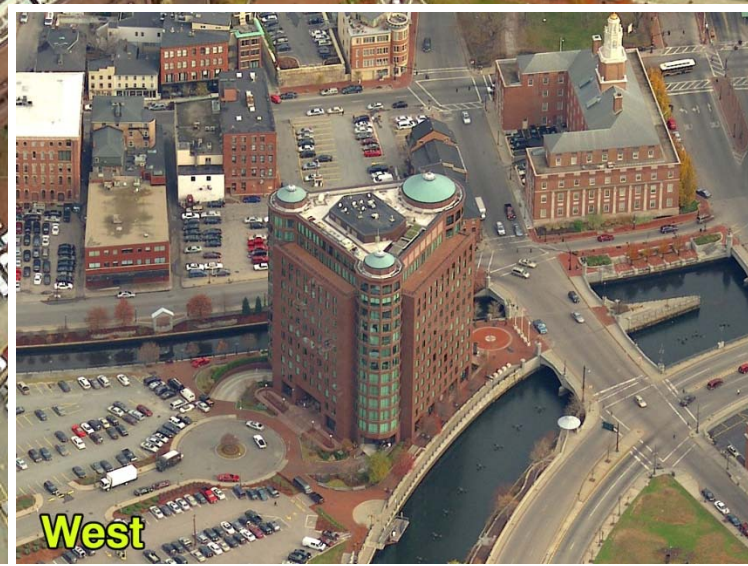
North



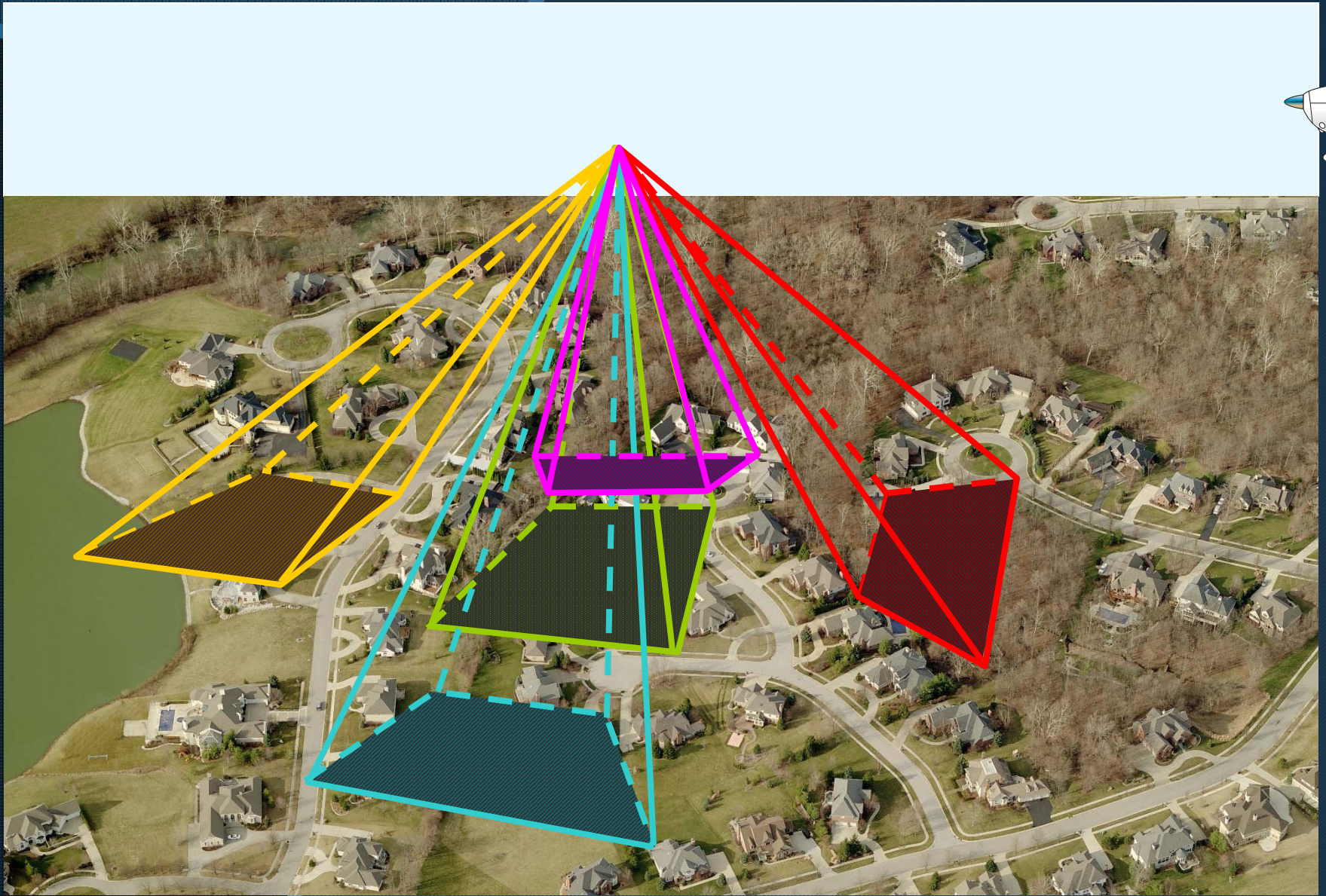
South



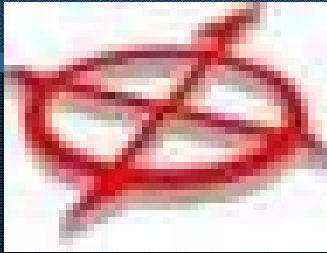
East



West







Pictometry

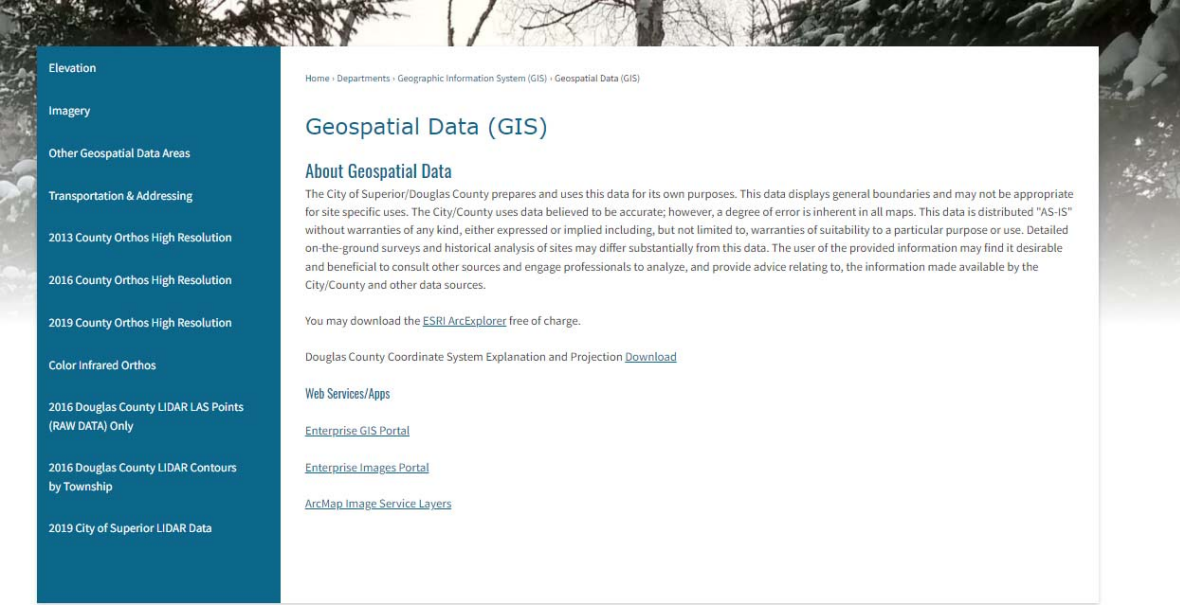
Methodology

- ▶ Color, Digital Imagery
- ▶ Natural Perspective in Height & Scale
- ▶ Accurate Measurements can be Obtained
- ▶ Overlay GIS Data on Imagery
- ▶ Obliques and Orthos in One Flight!
- ▶ Quick Delivery of Photos

Geospatial Data Downloads

The City/County LIO currently has nearly all it's GIS data available for download (free)it's been in place since 2010, our public data model has been studied by 2 university's on the East Coast

<http://www.ci.superior.wi.us/474/Geospatial-Data-GIS>



Elevation

Imagery

Other Geospatial Data Areas

Transportation & Addressing

2013 County Orthos High Resolution

2016 County Orthos High Resolution

2019 County Orthos High Resolution

Color Infrared Orthos

2016 Douglas County LIDAR LAS Points (RAW DATA) Only

2016 Douglas County LIDAR Contours by Township

2019 City of Superior LIDAR Data

Home » Departments » Geographic Information System (GIS) » Geospatial Data (GIS)

Geospatial Data (GIS)

About Geospatial Data

The City of Superior/Douglas County prepares and uses this data for its own purposes. This data displays general boundaries and may not be appropriate for site specific uses. The City/County uses data believed to be accurate; however, a degree of error is inherent in all maps. This data is distributed "AS-IS" without warranties of any kind, either expressed or implied including, but not limited to, warranties of suitability to a particular purpose or use. Detailed on-the-ground surveys and historical analysis of sites may differ substantially from this data. The user of the provided information may find it desirable and beneficial to consult other sources and engage professionals to analyze, and provide advice relating to, the information made available by the City/County and other data sources.

You may download the [ESRI ArcExplorer](#) free of charge.

Douglas County Coordinate System Explanation and Projection [Download](#)

Web Services/Apps

[Enterprise GIS Portal](#)

[Enterprise Images Portal](#)

[ArcMap Image Service Layers](#)

Land Information
Office's Mobile
/online Presence

City/County Portal Servers in 2020-2022

- City/County COSDC Enterprise Server
 - <https://portal.superiordcgis.org/portal>



Currently working on permissions and training
for 2023



City Polling Locations Lookup

City Poll Site Lookup

<https://portal.superiordcgis.org/portal/apps/webappviewer/index.html?id=b2eeeb1a43124ffbb0e0db2ad2a3f65b>

Views = ~3300



Land Information
Office's Mobile
/online Presence

City/County Map Services

<https://portal.superiordcgis.org/portal/apps/webappviewer/index.html?id=cccdec273dc342828351bc3bca1e49ee>



Current Projects

Current Projects

- 8 GIS Server migrations
 - 3 in 2022
 - 3 in 2023
 - 2 in 2024
- Mobile GIS Implementation and Roll out
- GIS Training for users
- NextGen 911 – Migration & Compliance
- Survey Documents App and Management System
- ADC to SchneiderGIS Mapping Site Change
- Connect Superior Fiber Project
- Parcel Fabric Upgrade to newest data model
- Ongoing Support for the departments and public users

GIS Resources

GIS Resources

- City/County Mapping Site
<https://douglascowi.wgxtreme.com/>
- Superior Land Information App
<https://portal.superiordcgis.org/portal/apps/webappviewer/index.html?id=574539dc6b1b43fcbdf359ec0e9f340d>
- Polling Site Lookup
<https://portal.superiordcgis.org/portal/apps/webappviewer/index.html?id=b2eeeb1a43124ffbb0e0db2ad2a3f65b>
- City/County GIS Downloads
<http://www.ci.superior.wi.us/474/Geospatial-Data-GIS>
- City/County Survey Site
<https://cosdc.superiordcgis.org/surveyors/>

Any Questions?

Questions ?

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