Final Report
Version 5 Statewide Parcel Map Database Project
September 30, 2019 | *Appendix B Updated: September 3, 2020

CONTENTS

END

⊙ NAVIGATE

OVERVIEW

The **Version 5 Statewide Parcel Map Database Project** (V5 Project) was a joint effort between the Wisconsin Department of Administration (DOA) Division of Intergovernmental Relations and the Wisconsin State Cartographer's Office (SCO). This document describes the V5 Project, which ran from January 2019 to December 2019 as part of the Statewide Parcel Map Initiative established by Act 20 of 2013.

Project Objectives Achieved

- Create an updated statewide parcel database and map layer by integrating county-level datasets.
- Provide for download of parcel database and display map layer online.
- Continue implementation of standard for parcel data known as the "Searchable Format," which is tied to Wisconsin Land Information Program grant funding for local governments.
- Assess and communicate county progress in achieving the Searchable Format.

The V5 Project successfully aggregated all known digital parcel datasets within the state, resulting in a statewide GIS parcel layer of **3.50 million parcels**. The statewide data was standardized to meet the Searchable Format and made publicly available online on June 30, 2019. The V5 Project represents another successful step in the Statewide Parcel Map Initiative, an effort important for improving the quality of Wisconsin's real estate information, economic development, emergency planning and response, and other necessary citizen services.

PROJECT BACKGROUND

The V5 Project was another phase in the incremental approach toward the Parcel Initiative—improving the statewide parcel map with each annual iteration. The V5 Project builds upon the experience of the LinkWISCONSIN and V1-V4 Projects. V5 was the fourth round of implementing standards for data submissions—the Searchable Format—which the legislature directed the Department of Administration to create in coordination with counties as part of Act 20 of 2013. In the Searchable Format, county data submittal is ready for immediate aggregation into the statewide parcel layer. Counties are to achieve the Searchable Format for parcel and tax roll data each year by March 31st.

TECHNICAL APPROACH

The technical approach taken by SCO staff involved several steps, including preparation and ingest, local-level processing, aggregation, state-level processing, and quality assurance/ quality control. To support counties in achieving the Searchable Format, SCO developed a tool called the Validation Tool that counties are required to run in order to validate their data against the schema, as well as a suite of other geoprocessing tools. Once the statewide layer was created, data was distributed in several formats via a custom website and a web-based

V5 Statewide Parcel Layer - 2019
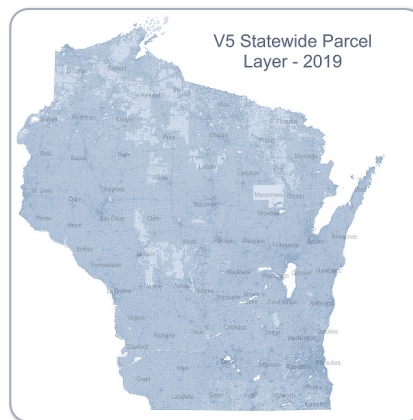
mapping application. The web app allows someone without GIS software to view and search the statewide parcel map.

BENCHMARK PROGRESS ASSESSMENT

The final V5 layer represents a total increase of roughly 210 square miles of geometric coverage over the V4 statewide layer. Four counties have yet to complete their digital parcel mapping—Buffalo, Burnett, Crawford, and Vernon—notable progress, as that figure is down from 12 counties in 2014. Notes from assessment and analysis of county data were communicated to counties through individualized documents called V5 Observation Reports, which describe what must still be done for a county to meet the Searchable Format. The majority of counties came close to

meeting the Searchable Format in their V5 parcel data submissions. Very few met the Searchable Format exactly, with only 20%, or 15 of 72 counties, submitting data that did not require additional processing to meet all Searchable Format requirements. The remaining 80% of counties either required follow-up to obtain missing data, or had processing steps performed on their behalf to get the data into the Searchable Format.

In addition to parcels, several other GIS data layers were collected as part of a collaboration with the UW-Madison Robinson Map Library. For V5, 382 new county datasets were cataloged, archived, and made available through the data portal GeoData@Wisconsin.

RECOMMENDATIONS

Recommendations to improve and achieve better efficiency, accuracy, and final products include strengthening the logic of the Validation Tool, changing the definition and name of the FORESTVALUE field to yield more usable data, adding some minor clarifications to the schema documentation, and planning for future aggregation efforts through workflow documentation and attention to obstacles to county-level data standardization and automation. These recommendations are designed to be minimally disruptive for counties, yet ultimately lead to a statewide parcel layer that continues to improve with each annual iteration. ■

1 PROJECT BACKGROUND

1.1 Background

The **Version 5 Statewide Parcel Map Database Project** (V5 Project) was a joint effort between the Wisconsin Department of Administration (DOA) Division of Intergovernmental Relations and the State Cartographer's Office (SCO) that ran between January 1, 2019 and December 31, 2019.

Wisconsin Act 20 of 2013 created statutory directives through s. 59.72 and s. 16.967 for the state and local governments to coordinate on the development of a statewide digital parcel map, which is referred to as the Statewide Parcel Map Initiative, or Parcel Initiative. One of the statutory requirements was for DOA to determine a "**Searchable Format**" for parcel data and for all county data to be posted online in this standard. V5 is the fourth round of requesting that counties submit local data in the Searchable Format.

The V5 Project followed successful collaboration between DOA and SCO on similar efforts. In the past, DOA and SCO have partnered on a project to create statewide parcel and address point layers for the LinkWISCONSIN Address Point and Parcel Mapping Project (2013-2014), the Version 1 (V1) Project (2015), the Version 2 (V2) Project (2016), the Version 3 (V3) Project (2017) and the Version 4 (V4) Project (2018).[1]

The V5 Project continued the approach of improving with each annual iteration through a process that allows for much involvement and collaboration with data contributors, who are primarily county land information offices, and data users—a wide array of persons from state agencies, private companies, and other entities and individuals.

1.1.1 V5 Project Goals

As part of the implementation planning for the statewide digital parcel map, the goals of the V5 Project were established in a memorandum of understanding (MOU) between DOA and SCO.

- **Tracking progress.** The statewide parcel layer is built in an iterative fashion. V5 will continue to track progress made with investments to local governments, specifically on benchmarks for parcel dataset development instituted with the 2016 WLIP grant application and continued in the 2017 and 2018 grant applications.

- **Incremental improvement.** Improvement of the statewide parcel layer itself, as well as workflow and methods for each step in the aggregation process, with each new version of the layer. As with the database, the hosting and display should keep pace with current technology and be continually improved to meet users' needs. Intake and aggregation process should become more efficient with time, facilitating other improvements and/or opportunities for value-added products.

- **Four A's – Authoritative Automated Asynchronous Aggregation.** A long-term goal is to achieve these "four A's" so county data stewards can submit datasets at any time or interval by automatically merging the local data with the most current statewide database. The objective for this project is to move toward a more efficient, automated process for data aggregation which would require fewer state resources be dedicated to the aggregation process and thereby reduce state costs for sustaining the statewide digital parcel map.

- **Moving to a contributor model of aggregation.** A long-term goal is to move toward a more efficient, automated process for data aggregation (the end of a continuum where the locus of standardization labor is on the data contributors, known as a "contributor model"), rather than an aggregator model requires which requires more state resources be dedicated to the aggregation process. The contributor model should require fewer staff resources and thereby reduce state costs for sustaining the statewide digital parcel map.

- **Outreach and technical assistance to counties.** This may take the form of further development of existing technical tools or the creation of new tools for counties and municipalities to use. It could also involve site visits and direct assistance.

- **Lean government principles.** The V5 Project should seek to create and realize efficiencies in general, eliminate waste, and integrate or collaborate with other state GIS services where possible.

- **Responsiveness to public needs and economic development goals**. Evaluate parcel layer user suggestions and implement improvements where feasible.

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[1] See V4 Final Report (2018 November); V3 Final Report (2017 November); V2 Final Report (2016 November); V1 Interim Report (2016 June); V1 Final Report (2015 November); and Final Report: LinkWISCONSIN Address Point and Parcel Mapping Project (2014 September).

1.1.2 Project Timeline and Milestones

V5 Statewide Parcel Map Database Project Milestones	
Date	**Version 5 Project Milestone**
01/01/19	V5 Project start
03/31/19	V5 Data submissions due
06/30/19	V5 Parcel map available online
09/30/19	V5 Final report
12/31/19	Final PLSS Version 1 deliverable due with final report addendum

1.1.3 Project Team

V5 Statewide Parcel Map Database Project Team	
Howard Veregin, Project Co-Lead	Wisconsin State Cartographer's Office
Peter Herreid, Project Co-Lead	Wisconsin Department of Administration
Brenda Hemstead	Wisconsin State Cartographer's Office
Codie See	Wisconsin State Cartographer's Office (through July 2019)
David Vogel	Wisconsin State Cartographer's Office
Ana Wells	Wisconsin State Cartographer's Office
Hayden Elza	Wisconsin State Cartographer's Office
Alexander Campbell	Wisconsin State Cartographer's Office (student)
Clayton Groth	Wisconsin State Cartographer's Office (student)
Davita Veselenak	Wisconsin Department of Administration

1.1.4 Outreach

V5 Conference Presentations and Outreach To-Date	
70th Wisconsin Society of Land Surveyors Annual Institute January 2019	Recipient of the 2019 "Friend of Wisconsin Land Surveying Award" from Wisconsin County Surveyors Association
Wisconsin Land Information Association (WLIA) Annual Conference March 2019	Exploring the Users and Uses of Wisconsin's Statewide Parcel Database
This Land Is Your Land: PLSS/Parcel Forum April 2019	5th Annual PLSS/Parcel Forum (Lafayette County)

1.2 Documentation and Communication of Standards

The Submission Documentation set forth the required data submission standards for the V5 Project. There are four benchmarks listed by the WLIP Strategic Initiative grant application:

Figure 1. V5 Submission Documentation and Data Submission Checklist

- Benchmark 1 – Parcel and Zoning Data Submission
- Benchmark 2 – Extended Parcel Attribute Set Submission
- Benchmark 3 – Completion of County Parcel Fabric
- Benchmark 4 – Completion and Integration of PLSS
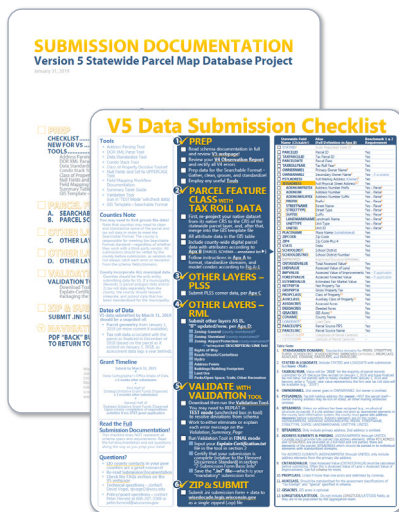
Together, Benchmark 1 and 2 make up the Searchable Format. The Searchable Format is detailed in the Submission Documentation.

1.2.1 New for V5

The data counties were asked to submit for V5 was remarkably similar to the V4 data, as the V5 schema was not different in any substantive way. However, there were some clarifications and a few other changes for V5. The changes for V5 were highlighted at the beginning of the Submission Documentation.

- **Validation Tool.** Our project partners at the State Cartographer's Office have updated the Validation Tool that counties are required to run in order to validate their data against the schema. Submitters must run the tool in FINAL mode before they can submit.

- **Submit PLSS Corner Data.** To maximize return on investment on expenditures related to PLSS, DOA is collecting PLSS corner data, to be shared with SCO for the library associated with Survey Control Finder, and for a new sub-project to create an initial version of a statewide PLSS database.

- **IMPROVED Attribute Now Optional.** The IMPROVED attribute is optional for V5, as it is being phased out and will not be included in the V5 statewide parcel database.

- **AUXCLASS May be Used for "Assessed With" Parcels.** AUXCLASS remains the field for tax exempt and special status property class domains, but has expanded for V5 to accommodate values representing parcels that have been "assessed with" others. In the AUXCLASS field, a value of "**AW**" or "**AWO**" may be entered for a parcel that has been assessed with another parcel.

- **ESTFMKVALUE for Ag/Undeveloped/Agricultural Forest Parcels.** While most properties are assessed at full market value, some classes of property—specifically 4, 5, and 5M—are not. The V5 documentation has been revised to request that counties null out ESTFMKVALUE (Estimated Fair Market Value) for parcels that are wholly or partially PROPCLASS 4, 5, or 5M. These property classes are assessed at either "use value" (Agricultural), or 50% of full market value (Undeveloped/Agricultural Forest), which complicates the calculation of estimated fair market value. In order to avoid populating the statewide parcel map database with inaccurate/misleading information, counties are asked to null out ESTFMKVLAUE for parcels containing class of property codes 4, 5, and 5M.

- **Other Layers – Submit Updated/New Only.** DOA is continuing to combine the V5 data request with a request that has been separate in the past—that of Jaime Martindale of the UW-Madison Robinson Map Library (RML). Therefore, we are requesting a few other layers, in addition to parcels with tax roll attributes.

- **Zoning Data Submission Requirements.** For V5, counties only need to submit three layers of county-maintained zoning data: 1) General, 2) Shoreland, and 3) Airport Protection. These layers may be submitted AS IS, except for the requirement that the zoning layers shall be complete. "Complete" means the GIS file should include either a DESCRIPTION or LINK field.
    DESCRIPTION: A field with a DESCRIPTION of the class name for each zoning feature, or
    LINK: A field or metadata populated with a LINK to a valid webpage or web document that contains authoritative/official descriptions of the specific zoning class or all zoning classes within the jurisdiction.

- **Clarified Documentation.** The V5 documentation has been revised. Some attribute definitions have been clarified.

1.3 Call for Data

The official V5 data request was sent to each county land information officer on January 31, 2019 via email, and appears as Figure 2. It included a link to the Submission Documentation, which serves as a manual detailing the requirements of the Searchable Format.

Dear LIO,

On behalf of the Department of Administration, I am writing to request a subset of your GIS data. The data acquired through this request will be used to develop a statewide parcel layer for the next version of the Statewide Parcel Map Database Project, Version 5.

All counties must submit parcel data in the Searchable Format standard no later than March 31, 2019. Submissions falling significantly short of the specs for the Searchable Format will not be processed. A successful data submittal adhering to the Searchable Format is necessary in order to execute your county's 2019 Strategic Initiative grant agreement and receive the first payment.

SUBMISSION DOCUMENTATION & V5 WEBPAGE
The V5 checklist summarizes the data we are asking you to submit. The digital PDF checklist contains hyperlinks to attribute definitions and links to the full schema. Although the schema remains the same, a page titled New for V5 summarizes what's new. You'll want to read the Submission Documentation in full, in order to understand the details of the V5 request.

In addition, the V5 webpage contains all the necessary submission information, and links to several tools to help you format your data.

SUBMIT PLSS + OTHER LAYERS
Again for V5, all counties must **also submit PLSS corner data** (per Appendix C), and **additional GIS layers** (Appendix D), which are being requested in order to aid in analysis of the statewide layer and as part of a collaborative effort with the UW-Madison Robinson Map Library.

Note that this DOA request is distinct from the LTSB request for ward-level GIS data, which was due to LTSB on January 18th.

VALIDATE WITH VALIDATION TOOL
Like last year, there is a tool you must run before you submit your data called the Validation Tool. The tool can check your data for deviations from the schema, and it is also required to create the mandatory Submission Form.

SUBMIT DATA THROUGH WISE-DECADE
After prepping your data and running the tool to create your Submission Form, submit your data to the WISE-Decade platform. Log in with the user information you received on January 2nd from the Legislative Technology Services Bureau.

Please submit your data by **March 31, 2019**.

FEEDBACK AND HELP
You may have questions about making your data align with the statewide schema. Your peer counties are a great resource, as is the FAQs section on the V5 webpage.

For technical questions, you can contact David Vogel at djvogel2@wisc.edu or 608-890-3793. Feel free to contact me with general questions as well.

We know that it could take a considerable amount of work to get your data into the statewide schema. Strategic Initiative grants were designed to aid in this task. We sincerely appreciate your efforts to help make V5 a success.

Thank you,

Peter Herreid
608-267-3369
Grant Administrator
Wisconsin Land Information Program

Figure 2. V5 Call for Data

2 TECHNICAL APPROACH

This chapter describes the strategy or a high-level version of the approach employed by the technical team in processing and aggregating local-level data for inclusion in the V5 final deliverable and statewide parcel map.

2.1 Tool Development

2.1.1 Updated Validation Tool
V5 featured an updated tool built by the State Cartographer's Office that counties were required to use before submitting data. The Validation Tool checked data for deviations from the schema, and was also required to create the mandatory Submission Form.

Data submitters could run the tool in test mode to flag potential errors in the data. The tool was run again in final mode in order to create the ".ini" Submission Form, a required part of the submission package.

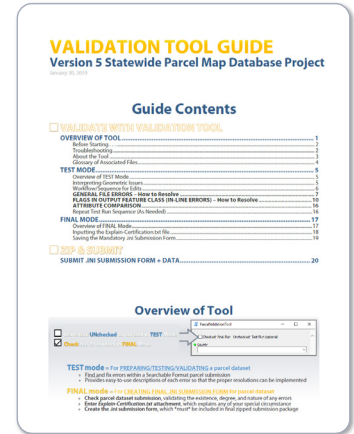For more details or to download the tool, see the Validation Tool Guide.

Figure 3. Validation Tool Guide

Revamped Validation Summary Page
The Validation Tool was updated for V5 to display validation test results in a browser-displayed page called the "Validation Summary Page." The Validation Summary page is a an html file with a summary of Validation results that allows the user to visualize the potential errors observed in the dataset. This file opens automatically in a user's web browser upon completion of running the Validation Tool.

The Validation Summary Page provides a general overview of the condition of the dataset. It summarizes error status for "GENERAL FILE ERRORS" and for "FLAGS IN OUTPUT FEATURE CLASS (IN-LINE ERRORS)." The parcel data is ready for submission upon completion of an error-free Validation Tool test mode run and a corresponding Validation Summary Page file that says no errors have been found.

Figure 4. Validation Summary Page (example). This displays in full "GENERAL FILE ERRORS" and summarizes error status for "FLAGS IN OUTPUT FEATURE CLASS."

2.1.2 Geoprocessing Tool Development

To support counties in achieving efficient and accurate adherence to the standards in the Submission Documentation, the SCO developed a suite of publicly available geoprocessing tools using the ArcGIS ArcPy Module, Python 2.7, and open source libraries. In total, seven tools were created, and made publicly available through the data submission webpage.

The tools were supported under ArcGIS version 10.3 through version 10.6. Each of these tools were designed to enable efficient solutions to the most common and time-consuming problems related to preparing parcel and tax roll data to be submitted in the statewide schema. Accompanying the tools were user guides that documented how to prepare the data, run the tool, and troubleshoot if necessary.

Figure 5. V5 Data Submission Webpage with Links to Schema and Tools

- **Address Parsing Tool.** Allows the user to parse site addresses from one long string into sub-address elements. Data submitters might use this tool if SITEADRESS data is not available as fully parsed address elements as required by the Searchable Format.

- **DOR XML Parse Tool.** Allows the user to translate Department of Revenue Tax Roll XML into a GIS table. For tax roll data in XML format that is to be used for parcel submission.

- **Data Standardize Tool.** Allows the user to standardize file geodatabase feature class data via the creation of a lookup table through a two-tool sequence. The first tool is used to create a summary table of a field. This table is edited and subsequently used as input to the secondary tool. The output of the second tool includes all original field domains as well as newly standardized domains in a new field.

- **Condo Stack Tool.** Allows the user to model condominiums by stacking condo parcel geometries by owner. A data submitter might use this tool to model condo parcel geometries to match tax roll records with a 1:1 relationship.

- **Class of Property Dissolve Toolset.** Allows the user to format class of property data to statewide schema definitions. This suite of tools may be helpful if a submitter wishes to reformat their class of property information so as to meet the requirements of the schema definitions of PROPCLASS and AUXCLASS. This tool also handles various common formats that class of property exists as and may be helpful if the submitters data exists in one of these formats.

- **Null Fields And Set To Uppercase Tool.** Allows the user to format all attributes within a feature class to <Null> and UPPERCASE. This tool may be helpful to a submitter if they wish to format their blank fields or fields annotated with a specific string to a true SQL <Null> or if they wish to set all fields to UPPERCASE alpha characters.

- **Field Mapping Workflow Documentation.** Allows a user to map parcel or zoning attributes to the statewide schema. This is not a tool but rather a guide that may be useful to a submitter if they have PARCEL or ZONING data formatted to the schema specifications of the V5 Project but the fields do not have the appropriate FIELD NAME, ALIAS NAME, DATA TYPE, or PRECISION.

- **Summary Table Guide.** Not a tool but a guide for GIS software summary tables, to examine data in preparation for submitting searchable format data. This guide is of particular use for cleaning, validating, and standardizing data.
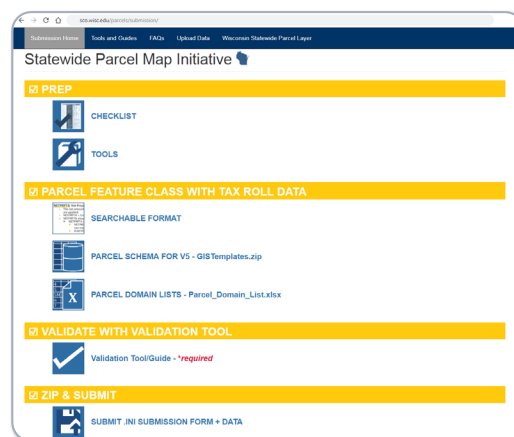
The following table displays the number of downloads for each of the respective tools:

Tool Download Stats					
	# of Downloads V1 (2015)	# of Downloads V2 (2016)	# of Downloads V3 (2017)	# of Downloads V4 (2018)	# of Downloads V5 (2019)
Validation Tool	Not applicable	Not applicable	108	118	84
Address Parsing Tool	Not available	Not available	48	46	36
DOR XML Parse Tool	Not available	Not available	24	36	17
Data Standardize Tool	Not available	Not available	28	27	22
Condo Stack Tool	Not available	Not available	21	19	9
Class of Property Dissolve Toolset	Not available	Not available	20	19	13
Null Fields and Set to UPPERCASE Tool	Not available	Not available	51	59	52
Field Mapping Workflow Documentation	Not available	Not available	36	34	21
Summary Table Guide	Not available	Not available	13	11	11

Note. Source of data is Google Analytics. Numbers represent unique downloads. Validation Tool began with V3 in 2016.

2.1.3 Preparation and Ingest

In the data request, land information officers were asked to submit data to the Legislative Technology Services Bureau (LTSB) of the Wisconsin State Legislature, through their WISE-Decade platform. WISE-Decade is LTSB's suite of mapping tools designed to assist counties and municipalities with legislative and legal requirements as required by state statute. Some file uploads were also accommodated using UW-Madison's enterprise Box.com account through an alternative upload widget.

The ingest phase began after the call for data. An automated email notification was sent to the project team any time a data submission to the WISE-Decade platform occurred. Once notified, the technical team would download the data via FTP login through Windows Explorer. After download, the data underwent a brief inspection, was documented as submitted, and then classified within the project's file directory. Depending on the amount of data submitted at any given time, the new data would either be assessed immediately or be queued for assessment according to the date the data was received. Also upon receipt of data, the county data directory was backed-up locally, while additional data backups were routinely made to an external drive throughout the development phases.

Robinson Map Library and Other GIS Data

For other, non-parcel GIS layers, the Robinson Map Library (RML) also completed an intake assessment of submitted GIS datasets. For V5, **382 other layers datasets were added to GeoData@Wisconsin** (amounting to 492 feature classes total)—comprised of rights-of-way; roads/streets/centerlines; hydrography; address points; buildings/building footprints; land use and parks/open space; trails; and other recreation data. By the fall of 2019, RML staff and students had completed ingest and written metadata for all of the data layers and made them available for download on GeoData@Wisconsin.

2.1.4 Intake Assessment

Once data was copied to local directories, the required .ini Submission Form was automatically ingested into the technical team's master intake spreadsheet. This .ini file played an important role in cataloging the data submitted. Information obtained from the .ini file included feature class names, condo modeling format, submitter name and email address, generic error counts, completeness relative to V4 data, and a section that allowed contributors to explain unsolvable errors, missing data, and other known issues present within the data submitted.

Next, the team recorded general notes related to attribute quality and completeness, geometric location, and other issues observed. The focus of this assessment was to determine if data met the submission requirements and establish what processing steps would need to be performed to get the data into the Searchable Format for aggregation, as the majority of counties did not submit data that exactly matched the Searchable Format.

Showstop, Re-Approach, and Resubmit Requests

If, upon internal team discussion, it was determined that data was missing or incomplete, the county was re-approached and asked to resubmit corrected data or provide justification for the missing data. Roughly 24 counties had to be re-approached to obtain data missing from initial submission, to get clarification on peculiar data observations, and for the correction of erroneous data. In total, **more than 24 emails were sent to resolve issues related to the fitness of data submissions**—down from 60 from the previous year. In a few cases, up to four follow-up emails were required to an individual county before their data submission could be deemed complete and proceed past the initial assessment phase.

V5 Versus V4 Re-Submits and Clarifications				
	V3 (2017)	**V4 (2018)**	**V5 (2019)**	**Change**
# of counties that had to be re-approached	29 counties (40%)	38 counties (53%)	**19** counties (26%)	↘ **–19** fewer counties
# of emails sent to resolve issues	83 emails	60 emails	**24** emails	↘ **–36** fewer emails

In a semi-automated process added for V5, the any intake issues that required county follow-up were entered into an online form to be sent to DOA so that a follow-up email could be sent—either for missing data, questions to counties, or clarifications on the data submission.

After it was determined that the data submitted could be efficiently manipulated and processed, detailed processing steps were written and recorded in a Microsoft OneNote notebook. These steps provided the team with the information needed to massage the data into the final format and prepare it for the aggregation phase.

2.1.5 Geometric Gap Analysis

To identify gaps in the statewide parcel coverage where digital parcels do not exist, a manual inspection was performed on every dataset. It is the responsibility of the county to integrate all available parcel datasets into their parcel data submission, even if the municipal jurisdiction (city, village) is the data steward for the parcel dataset.

The geometric incompleteness of the V5 statewide parcel layer and the **4 counties yet to complete county-wide digital parcel mapping** are summarized in the table below.

V5 Gaps Summary		
County	**Number of Munis with Gaps**	**Municipalities with Gaps in Parcel Coverage**
Buffalo	2	Part of: Alma (C), Cochrane (V)
Burnett	6	Part of: Swiss (T), Oakland (T), Union (T), West Marshland (T), Grantsburg (T), Anderson (T)
Crawford	5	Part of: Eastman (V), Eastman (T), Lynxville (V), Wauzeka (T), Wauzeka (V)
Vernon	6	Entirety of: Genoa (V) Part of: Bergen (T), Genoa (T), Harmony (T), Stoddard (V), Sterling (T)

For V5, there was no missing geometric data in the form of gaps where parcel data is maintained by a municipality but not aggregated to county-level parcels. However, some tax roll data that is maintained by municipalities independent of counties presented some challenges.

V5 Tax Roll Gaps Summary / Independent Municipalities	
County	**Municipalities with Independent Tax Roll Data and/or Independent Parcel Geometries**
Ashland	City of Ashland
Dane	City of Madison
Douglas	City of Superior (performs export for Douglas County)
Eau Claire	City of Eau Claire
Fond du Lac	City of Fond du Lac
Langlade	City of Antigo
Manitowoc	City of Manitowoc (Transcendent Technologies), City of Two Rivers (Patriot Properties, Inc.)
Milwaukee	City of Milwaukee, City of Wauwatosa, and all other municipalities
Racine	City of Racine
Rock	City of Beloit, City of Janesville
Rusk	City of Ladysmith
Washington	City of West Bend

Note.   * This list is <u>not</u> exhaustive. Other municipalities that maintain parcel and/or tax roll data independently of the county may exist.
        • The fact that a county is listed here does <u>not</u> necessarily indicate that the county submission was incomplete—rather, it shows that extra effort was required by either the county and/or the project team to acquire and/or format the municipal data.
        • DOA seeks information on additional independent municipalities. Please send information to WLIP@wisconsin.gov.

2.1.6 Aggregation

The process of aggregating individual county datasets began upon the completion of all required processing tasks for each county. After verifying these tasks were complete and ensuring that data was in the Searchable Format, the finalized feature class for each individual county was identified and the full path was documented to allow the technical team to run a batch processing tool for aggregation.

Next, a new statewide working database was created that contained a merged feature class consisting of all 72 individual county parcel datasets.

Statewide logic

Statewide logic was tweaked for V5. For V5, the following adjustments were made:
- Updates to domain standardization lists
- Inclusion of function to check values in ESTFMKVALUE field, particularly for special class of property parcels
- Miscellaneous minor function modifications

State-level processing was performed on the resulting feature class. This processing included steps such as: casting select fields from string to double, construction of the STATEID attribute for all records, creation of LATITUDE and LONGITUDE fields (populated with values for the inside centroid of each parcel polygon), and general data cleaning tasks (e.g., removal of leading/trailing whitespace, converting empty strings to <Null>, setting all attributes to UPPERCASE).

2.1.7 Quality Assurance/Quality Control

Beginning with the V2 call for data in the year 2016, data submitted has been required to meet certain documented standards, which make up the Searchable Format. These attribute field standards, attribute domain standards, and geometric representation standards were assessed as part of the QA/QC phase. Maintaining high quality datasets from one version to the next is of paramount importance to the Parcel Initiative. A variety of QA/QC methods were used throughout the project, including manually-focused techniques, as well as more automated techniques that allowed for visualization across the entire state.

Manual cleanup techniques and tasks were performed across many of the datasets submitted. These included: address element standardization, mailing address cleanup, address number cleanup, miscellaneous street name element parsing, excess field removal, etc. Often, the tasks were completed during the processing phase, prior to aggregation into the statewide feature class.

The automated QA/QC techniques were most often performed after the statewide feature class had been aggregated. With 3.50 million parcels, it was not feasible to manually inspect every record. For this reason, summary tables and a variety of maps were created during this process.

Summary tables were created as a byproduct of the state-level processing and provided a discrete set of domains that existed for a particular attribute field. These tables are particularly valuable for fields such as PREFIX, STREETTYPE, SUFFIX, and PROPCLASS, which have specific attribute domain standards. These tables, used in conjunction with the Data Standardize Tool, allowed for corrections to be made efficiently and accurately. Maps were produced, typically using a choropleth scheme, allowing the visualization of spatial trends within individual municipalities, counties, and statewide. These trends could be hard to observe from the tabular data alone. Maps provided another valuable tool for discovering errors and issues that existed in the data and allowed for corrections to be made.

2.1.8 Final Deliverables

The final parcel layer totaled 3.50 million parcels shown in Map 1 on the following page.

Geometric Coverage

Continued progress is being made in completing the digitization of parcels across the Wisconsin landscape, as indicated by the statistics below.

V1-V3 Versus V5 Spatial Coverage							
	V1	V2	V3	V4	V5	Additional Coverage in V5	Percent Additional Coverage in V5
Number of features	3,434,149	3,466,359	3,486,200	3,491,037	3,504,785	**13,748 features**	**0.39%**
Coverage (in square miles)	53,656	55,280	56,060	56,193	56,403	**210 square miles**	**0.37%**

Note. The coverage in square miles calculation does not represent a true 1:1 comparison between the actual area of the state in square miles and total parcel coverage in square miles. In instances where condo parcels are stacked, the square mileage value is inflated.

V5 Statewide Parcel Layer - 2019
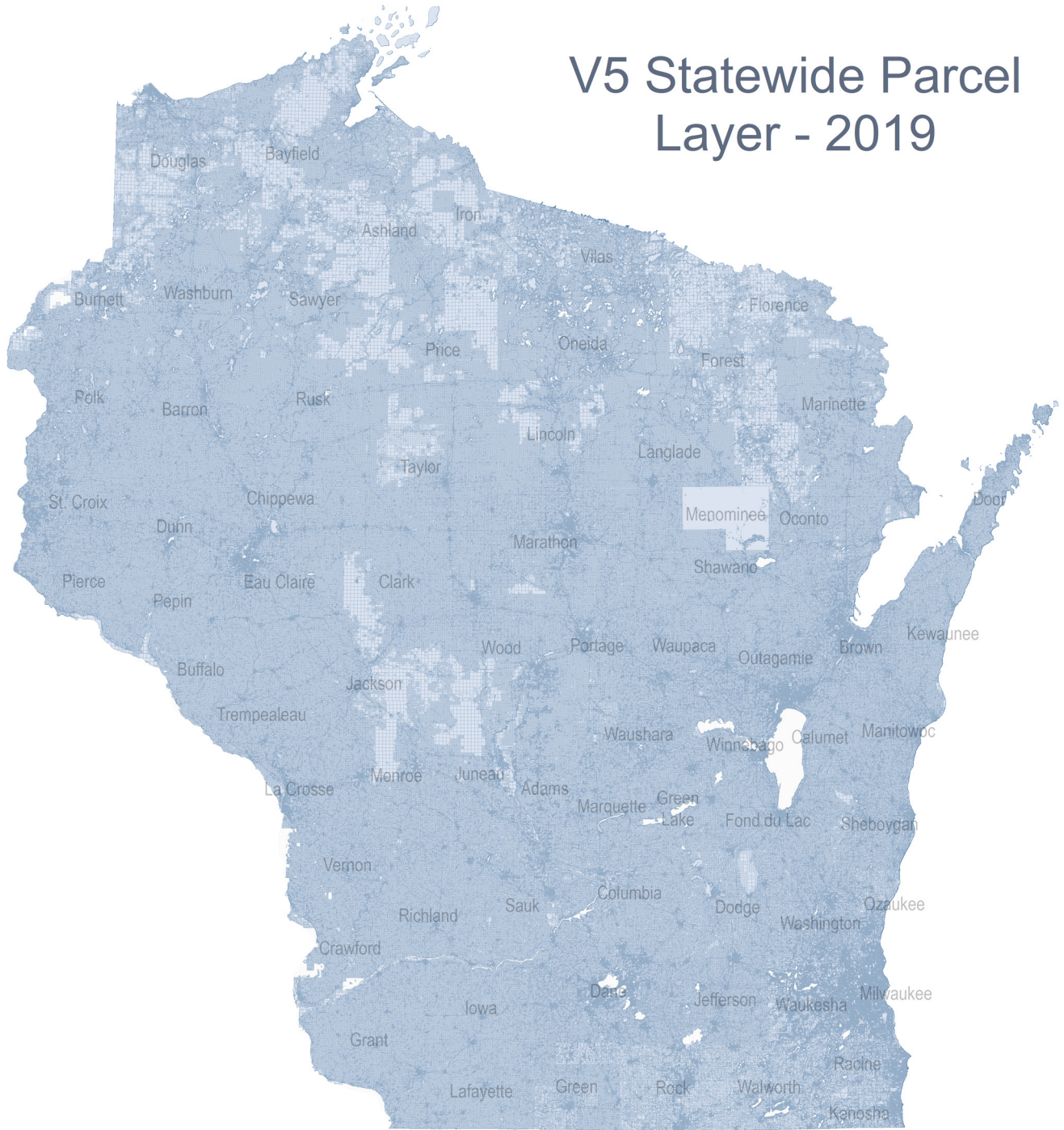
Map 1. Version 5 Statewide Parcel Layer Completed in June 2019

2.1.9 Note on Zoning

Although five publicly available Wisconsin county-administered zoning layers were aggregated as part of the Statewide Parcel Map Initiative for V3 and V2 (in 2017 and 2016), zoning data was **not aggregated** at the statewide level for V4 in 2018, nor for V5 in 2019.

However, three zoning types were collected for V5—county **general zoning**, **shoreland**, and **airport protection**.

The Searchable Format for V5 zoning data entails inclusion of **DESCRIPTION/LINK** information with the submission, in order to provide the user with definitions of the zoning classes.

The table below summarizes the zoning data collection between V2 and V5.

V2-V5 Zoning Data Submitted				
Zoning Type	V2 Number of Datasets Collected (and number with errors)	V3 Number of Datasets Collected (and number with errors)	V4 Number of Datasets Collected (and number with errors)	V5 Number of Datasets Collected (and number with errors)
County General Zoning	14 / 49	21 / 56	7 /54	4 /**53**
Farmland Preservation	16 / 29	12 / 38	not collected	not collected
Shoreland Zoning	16 / 33	18 / 45	4 /24	0 /**27**
Floodplain	15 / 29	17 / 41	not collected	not collected
Airport Protection Zoning	9 / 16	5 / 23	1 /12	0 /**13**
Total errors/**TOTAL SUBMITTED**	(45%) 70 /**156**	(36%) 73 /**203**	(13%) 12 /**90**	(5%) 4 / **93**

Note. In some cases, zoning datasets are only submitted if they differ from the previous year.

Individual county datasets are publicly available through UW-Madison Robinson Map Library's geospatial data portal, GeoData@Wisconsin. All zoning types are bundled as a single feature class and are indexed on page 19 of the V5_Wisconsin_Statewide_Parcels_Schema_Documentation.

For the most current county zoning data, consult the individual county's land records websites.

Units of local government can also exercise zoning in Wisconsin, in which case end users might consult municipal/town web mapping sites for municipal-level zoning GIS data. It is generally best to contact the authoritative jurisdiction for the most complete zoning data.

For information regarding the statewide zoning layers from 2016-2017, please see the Parcel Project Zoning Change Log and page 5 of the V3_Wisconsin_Statewide_Parcels_Schema_Documentation.

2.2 Data Distribution

2.2.1 Database Download Webpage

The data was distributed via two primary means: a website with download links and a web-based mapping application. The V5 database was formally released to the general public on July 1, 2019, through the DOA land information email listserv and the data page.
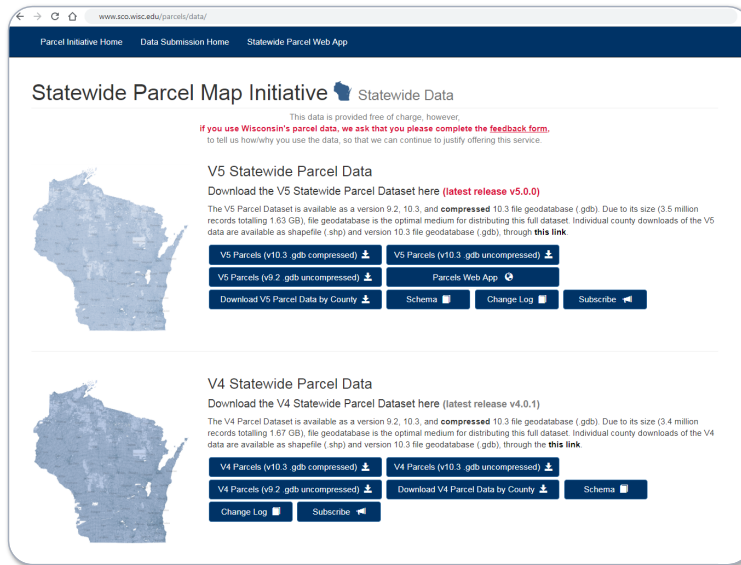
Figure 6. V5 Data Page

The custom webpage for data distribution was built and hosted by SCO, with the aim of flexibility. The site supports desktop, mobile, and tablet devices.

2.2.2 Web Application

Development of the web application for V5 followed suit with the technology used in developing the V1-V3 web applications—Web AppBuilder, the ArcGIS API for JavaScript, and feature services hosted by Wisconsin's LTSB. The V5 app design reflected the elements of the V4 app with the addition of some enhancements added through custom code to target functionality not supported through Web AppBuilder.

As a GIS layer and application covering the entire state of Wisconsin, functionality for displaying and querying parcel data at statewide and regional levels—in addition to county and neighborhood levels—was important. The sheer amount of data in the parcel layer requires a unique strategy be employed to provide users with a fluid and seamless experience at all scale levels.
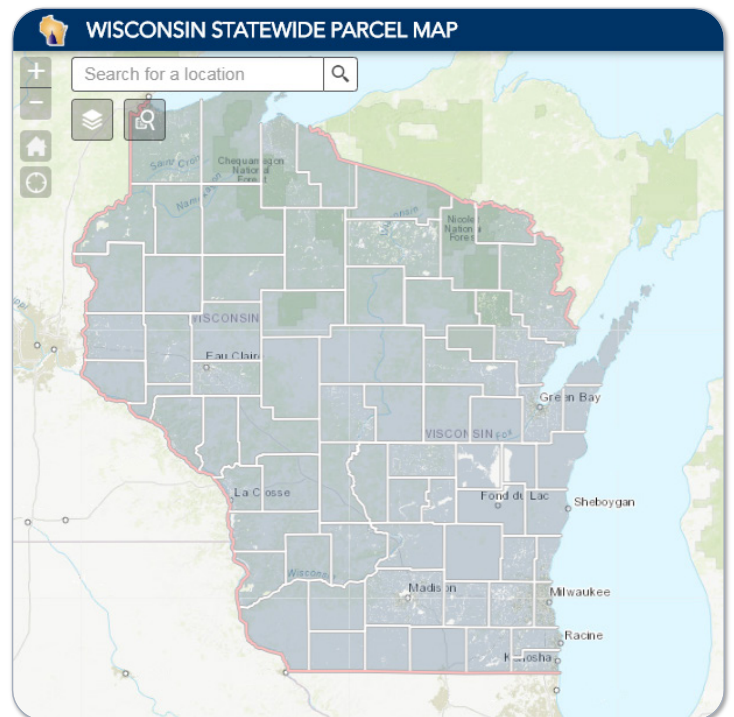
Figure 7. V5 Web App

Improvements to the V5 Web App

- **Removal of V1-V3 parcel data feature layers.** At the time of the release of the V5 statewide layer, only the impending V5 and V4 feature layers were included in the app at maps.sco.wisc.edu/Parcels. However, users can still download a historic copy of the data at sco.wisc.edu/parcels/data and from the Robinson Map Library.

- **Updates to supporting text/links and User Feedback Form.** All of the supporting text and links associated with the parcel application including, the Statewide Parcel Map splash screen, *About* section, *Search Tips*, and data download links were updated. Updates were also made to the user feedback form (shown in Figure 8) and land information county contacts page, which directs users to Wisconsin's county-maintained land information websites.

- **Standardized site address field for searching.** By way of the LTSB feature service, the V5 parcel application includes a field called "**STAND_SITEADD**," which facilitates a simplified, more streamlined search of parcels by site address.

  - In the file geodatabase for the statewide layer, the site address field—SITEADRESS—appears "as is," with the physical street address of the parcel appearing exactly as it is provided by the county.

  - As a result of the differences in formatting for site address data at the county level, an end-user might need to perform multiple iterations of a search in order to find one desired address.

  - Particularly for the PREFIX and STREETTYPE fields, variations in spelling and abbreviations can be found in the SITEADRESS field.

  - The standardized site address field, STAND_SITEADD, is created by:
    ❶ **Concatenating the elements that make up SITEADRESS**, which counties are to submit as individual address elements:

ADDNUMPREFIX	ADDNUM	ADDNUMSUFFIX	PREFIX	STREETNAME	STREETTYPE	SUFFIX	UNITTYPE	UNITID

    ❷ **Further refining the PREFIX field**, so that it is standardized to a select number of domains:

CTH	STH	USH	INTERSTATE
N CTH	N STH	N USH	
E CTH	E STH	E USH	
S CTH	S STH	S USH	
W CTH	W STH	W USH	

- **Improvements to End User Schema Documentation.** The V5 end user schema (V5_Wisconsin_Statewide_Parcels_Schema_Documentation) was also updated for V5, with some clarifying notes designed to aid in end user understanding of the V5 database.

Figure 8. V5 User Feedback Form

2.2.3 Data Access and Download Statistics

Across the various formats that are offered, the statewide parcel database has received large numbers of downloads and access via web mapping services.

V2 received a total of over 4,000 downloads and nearly 1.8 million hits on web services in the year following the V2 release date. V3 received a total of over 3,070 downloads and nearly 2.6 million hits on web services in the year following its release date. **V4 received a total of over 5,346 downloads and nearly 4.5 million hits on web services in the year following its release date.** Download and web app statistics appear on the following page.

Statewide Parcel Layer Download and Access Statistics

V1 V1 Parcels	Downloads	Hits on Services or App Views/Requests
V1 Parcels (during V1 year; no statewide zoning data was produced for V1)	**3,625** Total	unknown

V2 V2 Parcels and V2 Zoning

	Downloads	Hits on Services or App Views/Requests
V1 Parcels (during V2 year)	131	451,374
V2 Parcels (during V2 year; all formats)	859	1,341,401
V2 Individual County Parcels, all 72 counties combined (all formats)	3,248	NA
	4,238 Total	**1,792,775** Total
V2 Zoning		
Wisconsin_Zoning_2016 - All 5 zoning layers in one database	128-174	NA
Airport	19-36	3,524
Farmland	39-56	3,837
Floodplain	26-44	4,448
General	61-80	8,138
Shoreland	27-47	4,469
	300-437 Total	**24,416** Total

V3 V3 Parcels and V3 Zoning

	Downloads	Hits on Services or App Views/Requests
V3 Parcels (during year after release; all formats)	868	unknown
V3 Individual County Parcels, all 72 counties combined (all formats)	2,203	unknown
	3,071 Total	
V3 Zoning (during year after release)		
Wisconsin_Zoning_2017 - All 5 zoning layers in one database	127	unknown
Airport	17	unknown
Farmland	37	unknown
Floodplain	27	unknown
General	65	unknown
Shoreland	28	unknown
	301 Total	

V4 V4 Parcels and V4 Zoning

	Downloads	Hits on Services or App Views/Requests
V4 Parcels (during year after release; all formats)	1,142	4,453,517
V4 Individual County Parcels, all 72 counties combined (all formats)	4,204	NA
	5,346 Total	**4,453,517** Total
V4 Zoning		
Zoning (all types combined; from January 2019–Sep 2019)	165	NA
	165 Total	

Note.
- Data that is not available is denoted with "unknown."
- The source for V2 data is Google Analytic events (through July 31, 2017), as well as Box access statistics.
- Numbers are approximate. For V2 download figures, an error in the Google Analytics code for the first month caused issues with segmenting the numbers. Downloads from this period are supplemented with Box stats to arrive at the above totals.
- For V2 hits figures, LTSB's server was switched during the early portion of V2, therefore, figures for V2 hits are approximate, and may not include hits prior to the server change.
- V2 zoning figures appear as a range (e.g., 128-174) due to differences in Google Analytics versus Box access statistics.
- "**Hits**" numbers are subject to variation in definition. Here, hits may be "transactions." For ArcGIS server, a transaction is defined as any time the server or services is hit or pinged. Therefore, the number of hits is not an indicator of the number of unique users. A transaction is counted each time that a user makes a request to the service and data is returned.
  - For example, each of these actions within the parcel web app would be counted as a transaction:
    a) searching the web app on owner name, parcel ID or site address;
    b) panning the map to an uncashed area when viewing the map at neighborhood level (large scale); and
    c) clicking on the map to procure the parcel attribute information of an area.

Statewide Parcel Layer Web Mapping Application Statistics

	Sessions	Users	Pageviews
V1 App (July 31, 2015 – Oct 16, 2016)	Data not available	Data not available	Data not available
V2 App (Oct 17, 2016 – Sep 6, 2017)	9,788	4,271	16,402
V3 App (Sep 7, 2017 – July 30, 2018)	31,013	15,602	56,423
V4 App (July 31, 2018 – June 30, 2019)	75,815	42,258	117,338
V5 App (June 30, 2019 – August 2019 – ~2 months only)	12,287	6,938	17,444

Note.
- The first date in the date range represents the public release date for the web app.
- Data source is SCO's implementation of Google Analytics.

3 BENCHMARK PROGRESS ASSESSMENT

3.1 Observation Reports

The notes from the V5 Statewide Parcel Map Database Project intake process and assessment were communicated to counties through documents called the V5 Observation Reports. The reports were individualized for each county, and contained observations related to the data submitted, with focus on how local data compared to the statewide schema. The V5 Observation Reports showed precisely how local data compared to the benchmarks for parcel data laid out in the WLIP grant application and the Submission Documentation, evaluating how close counties came to the Searchable Format for submission of parcel data.

SCO staff documented what must be done yet to achieve the Searchable Format and thus meet Benchmarks 1 and 2. The intention is that the action items from the V5 Observation Report be used as a checklist to help develop and groom the county's data to meet the Searchable Format in the future.

Figure 9 shows an example of a V5 Observation Report.

Figure 9. V5 Observation Report (Example)

3.1.1 OWNERNME1 – Redaction of Owner Names

V5 Owner Name Redaction		
County	**Scope**	**Percent Redacted**
Kenosha	**Entire county dataset**	**100.00**
Barron	Partial	0.73
Columbia	Partial	0.27
Dane	Partial	7.88
Jackson	Partial	0.68
Oneida	Partial	≤ 0.01
Sauk	Partial	0.10
Sheboygan	Partial	0.18
Vilas	Partial	0.23

For the owner name attribute, some counties redacted owner names. Partial owner name redaction was conducted by eight counties for V3, although some counties redacted only a very small number of records. An additional county—Kenosha—withheld all owner names, consistent with a local county board resolution. Notably, since V3, Outagamie and Waukesha Counties and the City of Appleton have stopped redacting owner names.

Over time, this represents an improvement compared to the V1 database, in which 22 counties did not permit owner name display in the V1 statewide layer.

3.2 Benchmark 1 & 2 Progress Assessment

Benchmarks 1-4 were initially defined in detail within the V1 Interim Report:

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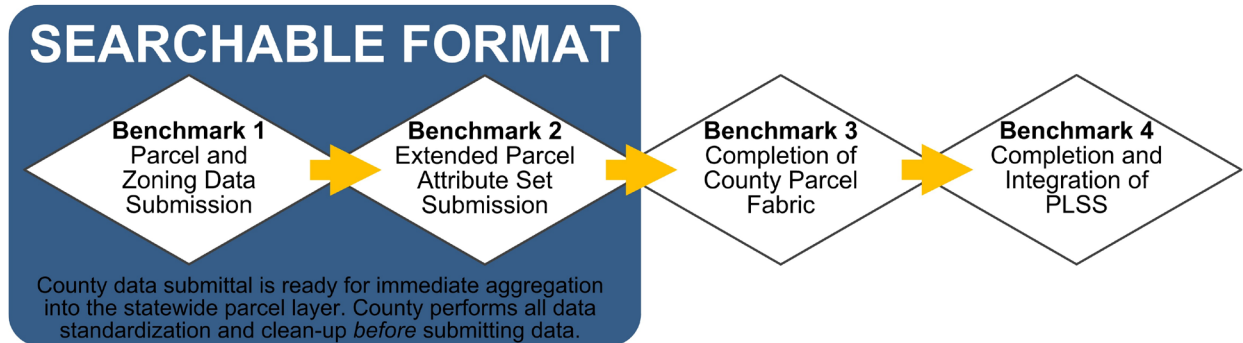- Benchmark 4 – Completion and Integration of PLSS

SEARCHABLE FORMAT

Benchmark 1
Parcel and Zoning Data Submission

Benchmark 2
Extended Parcel Attribute Set Submission

Benchmark 3
Completion of County Parcel Fabric

Benchmark 4
Completion and Integration of PLSS

County data submittal is ready for immediate aggregation into the statewide parcel layer. County performs all data standardization and clean-up *before* submitting data.

Figure 10. Searchable Format with Benchmarks

Benchmark 1 and 2 are explored below for the purpose of assessing progress between V2 and V5. For both of these benchmarks, progress between the successive projects is captured in comparing the individual V2 Observation Reports, V3 Observation Reports, V4 Observation Reports, and V5 Observation Reports.

3.2.1 Benchmark 1 & 2 – Parcel/Zoning Data Submission & Extended Parcel Attribute Set Submission

Benchmark 1 and 2 were satisfied by submitting parcel, tax roll, and relevant zoning information using the required standards detailed in the Submission Documentation. Because Benchmark 1 and 2 are closely related and go hand-in-hand, they are often discussed together. The main distinction is that for Benchmark 2, counties must submit parsed address components with their parcel data.

For parcel and tax roll data submitted for V1, V2, and V3, there were two submission format options—the Export Format and the Searchable Format. For V4 and V5, the Searchable Format was the only submission option.

The Searchable Format is a format that directly meets the data model requirements of the final statewide parcel layer. This format is not expected to change in the foreseeable future and is intended that only essential modifications be made for future iterations of the statewide parcel database. The Searchable Format is the format that all counties will be expected to use for future versions of the project.

The "Export Format" was a format for data exchange. Data received in this format—from 2016-2017—was processed by the parcel aggregation team to meet the data model requirements of the final statewide parcel layer. This format was acceptable for counties to use for submitting parcel and tax roll data for the V1, V2, and V3 projects, but the Export Format was phased out for the V4 Project, when it was no longer accepted. The Export format is not compatible with the intended asynchronous update model and is a major obstacle to achieving the objective of automation and efficiency in statewide parcel aggregation. It was originally devised to accommodate variations in local data and allow counties time to gradually adjust to the submission requirements of the Searchable Format.

Parcel Data Evaluated Against Benchmark 1 & 2

Assessing progress in county achievement of the Searchable Format—equivalent to attaining Benchmark 1 and 2—can be performed by referencing the V2, V3, V4, and V5 Observation Reports. The reports track all substantial manipulation that needed to be performed on each county parcel data submission, on a per attribute basis. The table below summarizes the progress between V2 and V5.

Benchmark 1 and 2 Progress Assessment				
Attributes	**V2** Attribute Errors	**V3** Attribute Errors	**V4** Attribute Errors	**V5** Attribute Errors
PARCELID	3	0	4	4
TAXPARCELID	1	30	4	2
PARCELDATE	40	8	4	4
TAXROLLYEAR	7	1	2	5
OWNERNME1	1	1	1	0
OWNERNME2	0	6	6	0
PSTLADRESS	31	42	30	**24**
SITEADRESS	19	3	1	2
ADDNUMPREFIX	12	4	5	0
ADDNUM	35	8	8	**11**
ADDNUMSUFFIX	17	10	8	**12**
PREFIX	19	5	11	**15**
STREETNAME	34	21	32	**17**
STREETTYPE	37	5	5	7
SUFFIX	15	3	2	1
LANDMARKNAME	8	0	0	0
UNITTYPE	16	1	1	3
UNITID	22	4	2	6
PLACENAME	11	1	0	1
ZIPCODE	59	1	3	2
ZIP4	8	1	1	0
STATE	11	1	1	0
SCHOOLDIST	8	11	4	3
SCHOOLDISTNO	19	1	2	1
IMPROVED	18	0	3	0
CNTASSDVALUE	7	0	4	3
LNDVALUE	3	0	2	0
IMPVALUE	3	0	2	0
FORESTVALUE	4	0	0	0
ESTFMKVALUE	7	2	50	0
NETPRPTA	7	2	2	1
GRSPRPTA	6	1	1	0
PROPCLASS	4	4	6	8
AUXCLASS	20	3	6	**11**
ASSDACRES	2	0	2	2
DEEDACRES	2	0	0	0
GISACRES	1	1	1	0
CONAME	7	2	2	0
PARCELFIPS	6	3	2	0
PARCELSRC	7	3	2	0
PROJECTION	19	5	2	0
NET TOTAL	**556**	⬊ **194**	⬈ **218**	⬊ **141**

The vast majority of counties came close to meeting the Searchable Format in their initial V5 parcel data submissions. Given the complexity and size of the local data, not all counties submit "perfect" Searchable Format submissions on their first attempt. Few counties met the standard for parcel data exactly with their initial data submission.

- Met Searchable Format for V5 parcel data submission on initial data submission: ~15 counties (20%)
- Missed Searchable Format for V5 parcel data submission by one attribute: ~14 counties

3.3 Benchmark 3 and Benchmark 4 Progress Assessment

Data for Benchmark 3—Completion of County Parcel Fabric—collected via the 2019 WLIP grant application (at the end of calendar year 2018) is summarized below, as well as data for Benchmark 4—Completion and Integration of PLSS. These are the four counties who have yet to complete county-wide digital parcel mapping and 47 of 72 have PLSS remonumentation work remaining.

Benchmark 3 Progress		
As of 2018	**Counties with Incomplete Parcel Fabric**	**Estimated Year of Parcel Fabric Completion**
	Buffalo	2020
	Burnett	2022
	Crawford	2022
	Vernon	2019

Benchmark 4 Progress		
As of 2018	**Counties with Incomplete PLSS** (Self-Reported; 47 of 72 counties)	**Estimated Year of PLSS Network Completion**
	Adams	2020
	Ashland	2035
	Bayfield	2040
	Brown	2019
	Buffalo	2027
	Burnett	2022
	Chippewa	2020
	Clark	2023
	Columbia	2020
	Crawford	2022
	Dane	2024
	Door	2019
	Douglas	2030
	Dunn	2030
	Eau Claire	2025
	Florence	2035
	Forest	2035
	Grant	2050
	Green	2030
	Green Lake	2025
	Iowa	2021
	Iron	2030
	Jackson	2029
	Lafayette	2030
	Langlade	2030
	Lincoln	2022
	Marathon	2021
	Marinette	2050
	Marquette	2025
	Menominee	2021
	Monroe	2024
	Oconto	2031
	Oneida	2025
	Outagamie	2019
	Portage	2022
	Price	2030
	Richland	2020
	Rock	2020
	Rusk	2030
	Sauk	2030
	Sawyer	2035
	St. Croix	2021
	Taylor	2024
	Vilas	2030
	Walworth	2020
	Waupaca	2023
	Waushara	2030

3.4 E1 PLSS Sub-Project

As part of V4, a pilot statewide Public Land Survey System (PLSS) layer, Edition 0, was created. As part of V5, a full statewide Public Land Survey System (PLSS) layer, Edition 1, was created and reported on separately. For background information on PLSS in Wisconsin, see the State Cartographer's Office webpage on Land Surveying and PLSS Topics.

4 RECOMMENDATIONS

Several opportunities for improvement became apparent during the V5 Project, which help to inform potential recommendations for V6 or subsequent projects. While some of the recommendations are simple changes that have little effect on the project workflow, data contributors, or public consumers, others have certain and significant impact and should be weighed accordingly.

Recommendations fall into the following subcategories:

- Technology and Tools
- Schema and Submission Documentation
- General Themes, the Four A's, Workflow, and Sustainability

4.1 Parcel Recommendations

Technology and Tools

1. **Work toward getting counties to interoperable versions of software & research ArcGIS Pro migration impacts**
   - Counties vary in terms of what server and software packages they utilize, which can be problematic.
   - On the old software end, for V5, **Monroe County** was using Esri's ArcGIS 10.1 and **Green County** ArcGIS 10.2. Because the Validation Tool no longer accommodates 10.1-10.2, SCO had to run the data through the tool on behalf of Monroe County. Green County ended up running the old tool, and in the end had to submit twice.
   - With respect to new software versions, ESRI's continued focus on ArcGIS Pro warrants consideration if and when counties may be considering making the shift to ArcGIS Pro in the future. The most immediate impact a shift to Pro would have relates to the tools that have been made available for preparing data. ArcGIS Pro uses Python 3.x, as opposed to Python 2.7, which is used by ArcMap.
   - The 2019-2021 county land information plans available at the time of writing indicate that no counties exclusively use ArcGIS Pro. Approximately seven counties are using <u>both</u> ArcGIS Desktop and ArcGIS Pro: Ashland, Buffalo, Rock, Washington, Waukesha, Waupaca, and Winnebago.
   - One of these counties—Rock—is the only one with a plan to remove ArcMap from all county machines, which is targeted for the date of November 2020.
     - ▶ Work toward getting counties to the same version of desktop (and not necessarily server) software.
     - ▶ Ask DOA's Ceotrid Gilbert to share an updated version of the *Esri Software Spend Report*, and contact counties who are not utilizing the state contract to ensure they are aware of that option.
     - ▶ Provide V5 Observation Report comments to Monroe and Green County regarding the need for upgrade.
     - ▶ Regarding ArcGIS Pro, discuss the implications of counties making the switch to Pro and the timelines for such a transition.
     - ▶ Research Tool migration from 10.x to ArcGIS Pro: Test preparation and validation tools to port code from python 2.7 to 3.6, and determine which tools will present the most complexity in updating/upgrading so that efficient planning of tasks can occur.

2. **Validation Tool upgrades**
   - The creation of the Validation Tool has aided counties in identifying possible deficiencies in their data prior to submission. Identifying potential problems ahead of time allows counties to assess the flagged records, make corrections as needed, and overall, reduce the amount back-and-forth communication required to resolve issues that are observed during the assessment phase. While this tool has helped ensure that data more closely resemble the requirements of the statewide schema, there are further improvements that can be made.
     - ▶ Further strengthen the logic of the Validation Tool to help flag records that could contain deficient data including:
       - ▶ **ESTFMKVALUE:** Flag records with value different from <Null> when PROPCLASS has value of 4, 5, or 5M.
       - ▶ **CNTASSDVALUE:** Flag records with value of '0' (zero) or <Null> when AUXCLASS field has <Null> value to correct CNTASSDVALUE field value or provide an explanation on why the records do not have AUXCLASS value.
       - ▶ **TAXROLLYEAR:** Check that records with splits or parcels annotated with future tax roll years do not contain values in the tax roll-specific attribute fields: CNTASSDVALUE, LNDVALUE, IMPVALUE, ESTFMKVALUE, NETPRPTA, GRSPRPTA, PROPCLASS, AUXCLASS, and ASSDACRES.
       - ▶ **PREFIX:** Strengthen PREFIX check and its associated high numeric decrease flag in the Validation Summary Page to correct PREFIX field.
       - ▶ **PLACENAME:** Improve *CheckDomainString* function for PLACENAME field and flag atypically large number of instances of <Null> values in this field.
       - ▶ **ATTRIBUTE COMPARISON:** Flag fields that have more than 50% of decrease/increase in values with respect to the previous year to correct or provide an explanation on the attribute discrepancy.
       - ▶ Update flag messages as necessary to provide additional information to users.
       - ▶ Update and add further modifications to Validation Tool based on potential modifications to the Schema for V6.
       - ▶ Update county-specific lists and tools with additions from V5 (e.g., PIN skips list for non-parcel features, STREETNAME list for each county, and legitimate standard exceptions for each county).

Schema and Submission Documentation

3. **PARCELID - Research format differences and ensure that PARCELID or TAXPARCELID can be used to access more info on county websites**
   - Parcel ID formats vary across the state. Some are a continuous line of numerical digits and others have letters, dashes, spaces, forward or backslashes, and/or periods.
   - Ideally, a statewide parcel database user should be able to enter the PARCELID or TAXPARCELID in a county property search tool to access more current and comprehensive information about the parcel, such as a copy of the tax bill.
   - During a test of all 72 county websites in July 2019, on four county websites the property search tool could not be located or did not function with the V5 PARCELID or TAXPARCELID used. Of the four, Menominee County does not have an interactive map or property search tool; LaCrosse County takes out the 3,4,7,8th digits of its Tax Parcel ID; and for Walworth and Door, Parcel ID worked in the interactive map search to zoom in on the parcel, but the links to assessment and tax bills timed out before displaying anything.
     ▸ Analyze whether conformity to a parcel identification number formatting standard would have statewide benefits.
     ▸ Analyze whether a standard exists that would be appropriate to enforce.
     ▸ Provide V5 Observation Report comments to LaCrosse stating the issue with the inability to use TAXPARCELID to access more info on the county website, and Walworth and Door for their timeout issue.
     ▸ Research and make a decision on inclusion of instructions and/or end user notes on the three-digit municipal code that sometimes appears with a parcel identification number.
     ▸ Include the following new language below (in orange) or similar language in the attribute definition.
       ▹ Have this language reviewed internally (DOA/SCO staff) and externally by stakeholders.

   ### PARCELID (Parcel ID)
   - Unique number or identifier assigned to a parcel by the local ~~GIS~~ authority.
   - PARCELID is the *primary* identifier for each record in the statewide database.
   - The PARCELID may be specific to GIS functionality and may serve~~s~~ as the primary key to GIS joins or relationships.
   - In some cases, PARCELID is populated with a TAXPARCELID value.
   - Either the value in PARCELID or TAXPARCELID must function in the county's online property search tool(s) to look up more information on the parcel that may be available—such as to download a digital copy of the tax bill, find assessment and zoning information, and obtain copies of permits and deeds.
   - In the statewide database, PARCELID can be formatted with special characters like dashes, periods, forward or backslashes, and spaces. To locate a particular parcel on county land information websites or in the Wisconsin Department of Revenue's Real Estate Transfer Return (RETR) database, end users may need to either use the PARCELID <u>or</u> TAXPARCELID and include <u>or</u> exclude special characters like dashes.

4. **CNTASSDVALUE – Add clarification language to definition**
   - Taxable Wisconsin real property (non-exempt) is assessed at full market value according to s. 70.32, with some notable exceptions included below.
   - Portions of a parcel participating in the Managed Forest Law or Forest Crop Law programs are not included in the CNTASSDVALUE calculation.
     ▸ Research the possibility of alluding to "market value" somewhere in the definition of CNTASSDVALUE.
     ▸ Include the following new language in the LNDVALUE definition.
       ▹ Have this language reviewed internally (DOA/SCO staff) and externally by stakeholders.
     ▸ In November of 2019, DOA notify the counties that included FORESTVALUE in their calculation of CNTASSDVALUE.

   ### CNTASSDVALUE (Total Assessed Value)
   - The total assessed value of the parcel, in US dollars.
   - Assessed values are the property values determined by local assessors for individual parcels of real property.
   - CNTASSDVALUE is equal to Assessed Value of Land (LNDVALUE) plus Assessed Value of Improvements (IMPVALUE), or:
     ▸ <LNDVALUE>* + <IMPVALUE>
   - The CNTASSDVALUE is an approximation of full market value, with some notable exceptions:
     ▸ **Undeveloped/Agricultural Forest parcels** – parcels/portions of parcels that are Undeveloped (PROPCLASS = 5) or Agricultural Forest (PROPCLASS= 5M) are assessed at 50% of full market value.
     ▸ **Agricultural parcels** – parcels/portions of parcels that are Agricultural (PROPCLASS = 4) are assessed at "use value"
   - CNTASSDVALUE should never include **MFLVALUE** (or the former "FORESTVALUE"). This is because land enrolled in MFL/FCL programs is taxed by acreage instead of the regular (ad valorem) property tax.

5. **LNDVALUE – Add clarification language to LNDVALUE definition**
   - Taxable Wisconsin real property (non-exempt) is assessed at market value according to s. 70.32, with some notable exceptions included below. Portions of a parcel participating in the Managed Forest Law or Forest Crop Law programs are not included in the LNDVALUE calculation.
     ▶ Include the following new language in the LNDVALUE definition.
       ▷ Have this language reviewed internally (DOA/SCO staff) and externally by stakeholders.

   <u>LNDVALUE</u> (Assessed Value of Land)
   - The total assessed value of land, without improvements, in US dollars.
   - LNDVALUE is an approximation of full market value, with some notable exceptions:
     ▶ **Undeveloped/Agricultural Forest parcels** – parcels/portions of parcels that are Undeveloped (PROPCLASS = 5) or Agricultural Forest (PROPCLASS= 5M) are assessed at 50% of full market value.
     ▶ **Agricultural parcels** – parcels/portions of parcels that are Agricultural (PROPCLASS = 4) are assessed at "use value."
       ▶ The value in the final tax roll for Assessed Value of Land for these special parcels should already reflect these considerations (as such special calculations occur at the level of the municipal assessor).
   - LNDVALUE does <u>not</u> include **MFLVALUE** (formerly "FORESTVALUE"). This is because land enrolled in MFL/FCL programs is taxed by acreage instead of the regular (ad valorem) property tax.

6. **FORESTVALUE – Rename and redefine FORESTVALUE field to become "MFLVALUE"**
   - The FORESTVALUE field has not be consistently populated in V1-V5. Previous directions instructed counties not to populate this field unless "forest value" was included as a part of the formula that totals the amount of CNTASSDVALUE. Counties were allowed the choice to include it or not include it in CNTASSDVALUE.
   - For V6, there should be a standard definition for CNTASSDVALUE, which has implications for the former "FORESTVALUE" field.
     ▶ Modify the FORESTVALUE as below (to become MFLVALUE).
       ▷ Have this language reviewed internally (DOA/SCO staff) and externally by stakeholders.
     ▶ In November 2019, DOA notify counties of any change(s) to FORESTVALUE, especially those who will need to change their export routine to populate it differently than they have in the past.

   OLD DEFINITION OF "FORESTVALUE"
   <u>FORESTVALUE</u> (Assessed Forest Value)
   - *If* part of the CNTASSDVALUE (Total Assessed Value) equation.
   - The total value of forested land (assessed land value of forested land), in US dollars.
   - This field is <u>not</u> applicable to most counties, as values in this field are to be provided only in cases where counties have a "forest value" included as a part of the formula that totals the amount of CNTASSDVALUE.
   - A county **MUST** populate this field <u>IF</u> Assessed Forest Value is a variable within the Total Assessed Value formula (CNTASSDVALUE), otherwise FORESTVALUE should not be included.
     ▶ e.g., Assessed Value of Land + Assessed Value of Improvements **+ Assessed Forest Value** = Total Assessed Value

   PROPOSED DEFINITION OF "MFLVALUE" (TO REPLACE "FORESTVALUE")
   <u>MFLVALUE</u> (Assessed Value of MFL/FCL Land)
   - The total assessed value of private land enrolled in either the Managed Forest Law (MFL) or Forest Crop Law programs (FCL), in US dollars.
   - The MFLVALUE field exists to hold the assessed value of enrolled land, in case of withdrawal from the MFL/FCL program for calculation of the withdrawal tax.
   - To have a value present in MFLVALUE, parcels/portions of parcels must have an AUXCLASS designation **W1-W3** or **W5-W9.**
     ▶ MFLVALUE does <u>not</u> include properties with AUXCLASS value of W4 (County Forest Land), because County Forest Land is county-owned and tax exempt.
   - A similar field was formerly called "FORESTVALUE" (Assessed Forest Value) in the statewide parcel map database versions V1-V5, but MFLVALUE has a distinct definition.
     ▶ MFLVALUE is <u>not </u>included in or any part of the calculation for the LNDVALUE or the CNTASSDVALUE fields. This is because land enrolled in MFL/FCL programs is taxed by acreage instead of the regular (ad valorem) property tax.
     ▶ For parcels not enrolled in the Managed Forest Law or Forest Crop Law programs this field will be <Null>

Property Tax Bill (Sample)

ASSESSED VALUE LAND	ASSESSED VALUE IMPROVEMENTS	TOTAL ASSESSED VALUE
4,500 Managed Frs	69,500	74,000 103,400

ESTIMATED FAIR MARKET VALUE LAND	ESTIMATED FAIR MARKET VALUE IMPROVEMENTS	TOTAL ESTIMATED FAIR MARKET VALUE
4,800 Managed Frs	73,800	78,600 109,800

Property Tax Bill Translated Into Statewide Parcel Schema

Figure 11. Proposed new MFLVALUE field (to replace "FORESTVALUE")

7. **ESTFMKVALUE – Modify the ESTFMKVALUE definition to null out additional classifications**
   - ESTFMKVALUE (Estimated Fair Market Value) is calculated by dividing the CNTASSDVALUE by the Assessment Ratio provided by the Wisconsin Department of Revenue. The intention is to adjust the property valuation to arrive at a more accurate sum of property value across an entire municipality. Therefore, it is to correct for individual assessors' bias towards valuations that are too high or too low.
   - The field label, Estimated Fair Market Value, implies that the monetary value listed is an estimate of fair market value. However, in order for this to be true, the CNTASSDVALUE the properties must be assessed at full market value.
   - As shown in the proposed LNDVALUE definition (one component of CNTASSDVALUE), this is not true for several special property classes.
   - Therefore, ESTFMKVALUE should be nulled out for property classes in which CNTASSDVALUE is not assessed at full market value.
     ▶ Modify the ESTFMKVALUE field as below.
       ▷ Have this language reviewed internally (DOA/SCO staff) and externally by stakeholders.
       ▷ Have the description and reasoning fact-checked.

   ESTFMKVALUE (Estimated Fair Market Value)
   - The estimated fair market value, in US dollars.
   - Sometimes referred to as "equalized value," because local levels of assessment are equalized with current estimated Assessment Ratios provided by the WI Department of Revenue.
   - ESTFMKVALUE = CNTASSDVALUE (Total Assessed Value) divided by Assessment Ratio
   - ESTFMKVALUE should be populated for: PROPCLASS 1, 2, 3, 6, 7
   - ESTFMKVALUE should not be populated for: PROPCLASS 4, 5, 5M; AUXCLASS W1-W9.
   - Note that in the ESTFMKVALUE equation, CNTASSDVALUE does not include MFLVALUE.
     ▶ The estimated fair market values for Managed Forest Lands/Forest Croplands are not included in ESTFMKVALUE (on the tax bill they are shown separately in a distinct field for MFL estimated fair market value, which is a value not required anywhere by the statewide parcel schema).
       ▶ Null out ESTFMKVALUE values for parcels with AUXCLASS W1-W9.
     ▶ Note that there are deviations from this formula.
       ▶ **Agricultural parcels** – parcels/portions of parcels that are Agricultural (PROPCLASS = 4) are assessed at "use value" therefore, ESTFMKVALUE = <Null>
         ▶ Null out ESTFMKVALUE values for parcels that are entirely or contain a portion classified PROPCLASS **4**.
       ▶ **Undeveloped/Agricultural Forest parcels** – parcels/portions of parcels that are Undeveloped (PROPCLASS = 5) or Agricultural Forest (PROPCLASS= 5M) are assessed at 50% of full market value.
         ▶ Null out ESTFMKVALUE values for parcels that are entirely or contain a portion classified PROPCLASS **5** or **5M**
       ▶ **Tax Exempt parcels** – parcels/portions of parcels with an AUXCLASS value of X1-X4 or W4, have exempt property not included in the Total Assessed Value and therefore are not included in the Estimated Fair Market Value calculation.
         ▶ For tax exempt properties, null out ESTFMKVALUE values for parcels that contain any portion classified as AUXCLASS **X1-X4** or **W4**.

8. AUXCLASS –Clarify that W4 is an exempt property and clean up terminology for Forest Lands
   - Parcels with AUXCLASS **W4** designation are owned by a county and are tax exempt properties.
   - W4 properties are County Forest Lands according to the County Forest Law, s. 28.11.
   - The AUXCLASS definition should point this out and require counties to retain this designation, rather than list these properties as a general **X3** (county-owned exempt property).
     ▶ Modify the AUXCLASS definition as below.
       ▷ Have this language reviewed internally (DOA/SCO staff) and externally by stakeholders
     ▶ Change the terminology for lands enrolled in the Forest Crop Law program

AUXCLASS (Auxiliary Class of Property) [Standardized Domains]
AUXCLASS EXEMPT accepted domains and definitions:

X1	Federal
X2	State
X3	County (county exempt lands are **X3** in AUXCLASS, with exception of County Forest Land, which is instead **W4**)
X4	Other exempt

AUXCLASS SPECIAL accepted domains and definitions:

W1	~~PFC Regular Class1~~ - Forest Cropland ~~Enrolled~~ Before 01/01/72
W2	~~PFC Regular Class2~~ - Forest Cropland ~~Enrolled~~ After 01/01/72
W3	~~PFC Special Class~~ - Forest Cropland Special (no longer exists)
W4	County Forest~~Crop~~ Land - Land formally designated as *County Forest Land* according to County Forest Law
W7	MFL Before 2005 Open [was **W5**]
W8	MFL Before 2005 Closed [was **W6**]
W5	MFL After 2004 Open [was **W7**]
W6	MFL After 2004 Closed [was **W8**]
W9	MFL Ferrous Mining

AUXCLASS <NULL>: Non-parcel features in some cases may be null; records containing a value in PROPCLASS field will be null.

9. AUXCLASS – Reduce number of unstandardized values
   - Some counties do not conform to the standardized domains for AUXCLASS. The desire would be to avoid this if the properties can fit under the classifications of the one of the standardized domains.
   - Approximately 18 counties had unstandardized AUXCLASS values, which goes against the principle of statewide standardization and can be opaque and thus of no use to end users.
     ▶ Do analysis of unstandardized AUXCLASS values.
       ▷ Export a summary table from ArcMap, and contact the 18 counties and/or provide V5 Observation Report comments so they can standardize these unusual AUXCLASS values.
     ▶ Strategize for how to eliminate unusual AUXCLASS value, particularly for Calumet County, who had approximately 202 records with unstandardized values in AUXCLASS field (e.g., 'FM6,' 'FM7,' and 'FM8').
     ▶ Evaluate edits for Submission Documentation, such as the language from the end user schema below.

AW or **AWO**	Used to designate parcels "assessed with" other parcels under s. 70.23(2). (An "AW" or "AWO" in AUXCLASS explains why AW/AWO records might lack tax roll data.)
<Unstandardized>	Other classifications not included in the definition of AUXCLASS or PROPCLASS are not permitted, as they should be converted to standard AUXCLASS domains

10. GISACRES – Include values for non-parcel features
   - Values in the field GISACRES values may be of use, especially for non-parcel features, where GISACRES is often blank.
     ▶ Investigate the relationship between GISACRES and Shape_Area, including whether they hold diverging values in the case of any county.
     ▶ Modify GISACRES definition as below, if there are confirmed cases where GISACRES diverges from Shape_Area.
       ▷ Clarify the definition and Submission Documentation page 8, which now seems contradictory.
       ▷ Answer whether GISACRES should be required or should the directions specify to include acres for non-parcel features, if a county decides to populate GISACRES.

GISACRES (GIS Acres)
   - The calculated GIS parcel area, in acres, derived directly from GIS features.
   - GISACRES is optional and may be left <Null>
   - When populated, GISACRES should be included for non-parcel features; do not <Null> out for non-parcel features.

11. PREFIX/STREETNAME – Add examples to Submission Documentation for PREFIX/STREETNAME
   - For V5, a few counties had incorrectly parsed street names for "old," retired highways and county roads.
   - The PREFIX field holds both prefix directionals and street name pre modifiers.
     ▶ Consider adding *Street Name Pre Modifier* examples to Submission Documentation for PREFIX/STREETNAME fields, as well as perhaps STREETTYPE if appropriate.
       ▷ Examples: "OLD" in OLD NORTH CHURCH STREET
       ▷ OLD STATE HIGHWAY 87 ROAD >> STREETNAME = OLD STATE HIGHWAY 87; STREETTYPE = ROAD
       ▷ OLD US HIGHWAY 8 >> STREETNAME = OLD US HIGHWAY 8

12. Remove IMPROVED field from tools and GIS templates
- The IMPROVED attribute was removed for V5 for a few reasons. It was the one and only "calculated" schema attribute and redundant, because it was calculated based on the value in the IMPVALUE field. It was also potentially misleading, specifically in the case of tax-exempt parcels—because it could indicate no structure on a property with a (not taxed) structure.
- The IMPROVED attribute was optional for counties to populate for V5, but was not included in the V5 statewide parcel database. The field remained in the GIS template for V5.
  ‣ Remove the IMPROVED field from the Validation Tool, GIS templates, and any others references to IMPROVED
  ‣ Notify counties that IMPROVED is no longer part of the schema, and that they absolutely must download a new version of the GIS template prior to preparing the V6 data submission.

The Four A's, Workflow, and Sustainability

13. Qualtrics intake form workflow
- In an effort to streamline the workflow for data assessment and grant payment process, for V5, a Qualtrics form was created to efficiently exchange information between SCO and DOA.
- This allowed SCO to alert DOA to missing data, questions that required county clarification, processing steps required to ensure that submitted data met all requirements, and provide confirmation when the assessment was complete and the data deemed adequate.
  ‣ Examine the intake workflow current process and explore ways to streamline the process.
  ‣ Determine if another utility would be more efficient in relaying information between SCO and DOA.
  ‣ Discuss implications on current internal workflow.

14. Evaluate the results of V5's notation for "Assessed With" parcels and make adjustments if needed
- V5 was the first time counties were encouraged to populate AUXCLASS with "AW/AWO" for parcels assessed with others under state statute 70.23(2).
- Some counties adopted this practice, others did not, and still others explained or did not explain Validation Tool flags related to assessed with parcels.
  ‣ Revisit and potentially clarify instructions on utilizing "AW/AWO" in AUXCLASS.
  ‣ DOA research how parcels "assessed with others" under the statute are denoted in the raw assessor/RPL data, including legal description fields.
  ‣ If possible, more strongly encourage a standardized way to denote AW/AWO parcels more comprehensively across the state.

15. Better understand the native data and how the statewide parcel database could be improved
- There are many topics that can be better understood, and perhaps be addressed in the Submission Documentation or schema to offer better, more complete, more accurate, or more useful data to the end user—for data that already exists at the county level in aggregated digital form.
- Topics to research and explore include:
  ‣ Options for how to better attribute parcels with public or private access.
  ‣ Better understand which, if any, central sources there are for recorded easements—especially for rights of way (ROW) and other things the Submission Documentation already touches on explicitly.
  ‣ Revisit and improve, if possible, directions on best practices for condo stacking and one-to-many records.
  ‣ Research divided interest parcels and parcels where multiple people have a fractional ownership, including but not limited to otherwise public roads, condo common areas, shared waterfronts, et cetera.
  ‣ Research utility special districts/use tax, communication/telco tax, and lottery credits sections, as well as manufacturing parcels section(s).
  ‣ Better understand which fields municipal assessors *must* populate and which are allowed to be null and why/under what circumstances (beyond acres >1 acre, assessed with parcels, and tax exempt parcel. Consider where it might be appropriate to dialog with assessors/PRLs on when to enter a distinct "0" in a field like DEEDACRES, as opposed to a blank, or a false Null.
  ‣ Revisit and clarify if needed Submission Documentation instructions (including page 8) on fields required for new parcels/splits (where ideally TAXROLLYEAR holds a future year value), such as owner name.
  ‣ Be mindful of end-user business use cases, and follow-up on potentially missing data as appropriate. For example, if more than one end user comments expresses a desire for PARCELDATE data, follow up to learn more and whether any local-level improvements are feasible.
  ‣ Revisit V5 Observation Reports for patterns and lessons learned to inform V6.
  ‣ Continue to learn more about how parcel site address information is stored by local government data stewards and how end users employ address data for their business use cases.[2]

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[2] In the V4 Final Report, the history behind the statewide schema requirements for SITEADRESS and parsing of site address elements was explored in some detail on page 29, with particular attention paid to the justification for the requirement to fully spell out values in STREETTYPE rather than abbreviate them on pages 6-7.

16. Make improvements to the way county websites and DOA offer county land records hyperlinks

- Sometimes it takes a bit of searching on a county website to find the property search tool, in which you can enter the county's parcel ID or tax parcel ID to look up more information on the parcel, such as a copy of the tax bill or more information on assessments, permits, zoning, etc.
- For most counties using the "GIS Webmapping Application(s) Link" brings users to a property search tool, often alongside the interactive map.
- For a significant number of counties, a user must go to the "Real Property Lister Link." For a smaller group of counties, users have to search around the county website, such as by visiting the County Treasurer, Land Information Office, or Register of Deeds webpages.
- Of 32 counties tested in summer of 2019, the "GIS Webmapping Application(s) Link" on the County Contacts and Websites online table led to property search tool (typically part of the interactive map) for 28 counties.
- For the others, a property search tool could be found through a Google search or looking around the county website.
- Some county land information websites and pages are not linked or navigable from each other. This makes the table of County Contacts and Websites complex, when it could be a table with only 72 links instead of hundreds.
- Sheboygan County has a button icon link to the V5 Statewide Parcel Map Database. This would probably clue users in to the existence of the Statewide Parcel Map Database.
  - ▶ Create links in "County Contacts and Websites" table **directly to property search tool**.
    - ▷ Discuss whether it is worth it to add links direct to county property search tools based on analysis of ease of access to those tools, and whether to replace "RPL" column title and most of the links.
  - ▶ Discuss the feasibility of making an unenforced recommendation that all counties have a **single landing page** webpage with the county parcel search tool prominently linked, ideally under a suggested standardized name, and links back to all other county land records pages from the single landing page.
    - ▷ Consider highlighting good examples of hyperlink best practices and including them in a communication to counties.

17. As a general theme, seek to approximate the tax bill

- The property tax bill is a source document issued by municipalities and counties that includes most of the attributes in the schema for the statewide parcel map database (the Searchable Format), as well as some additional attributes (e.g., summary legal description, net assessed value rate, et cetera).
- The property tax bill, as prescribed by s. 74.09(3), contains some of the most relevant information to a parcel—where is it, who owns it, how much is it worth, and how much is it taxed.
- A copy of the tax bill is accessible on most county websites.
- While the property record card (PA-500) used by assessors also has more detail, especially about improvements on the property (e.g., square footage, number of units, number of bedrooms, et cetera), the detailed information on property record cards is generally not held in county land information systems, and therefore exceedingly difficult for DOA to obtain.
  - ▶ Continue to make the Searchable Format schema generally consistent with the property tax bill as it is printed across the dominant majority of counties.

18. As a general theme, get to the root of present and future issues more

- Some problems with the data submission process or statewide database have roots beyond the GIS data submitter.
  - ▶ Strive to get to the *root* of issues more—whether it be assessors, municipalities, RPLs, or other entities.
  - ▶ DOA talk more with the leadership of Wisconsin assessor associations/professional organizations to better understand their workflow, especially in cases where one or two vendors of a particular software are dominant. Ask for their key documents containing of tips/instructions and how-to manuals.
  - ▶ For Submission Documentation and V6 call for data cover letter, be far more clear and explicit that the submission is a team effort that requires the GIS person and the RPL/treasurer/tax bill expert to work together. Because many data errors are tax roll errors, GIS techs need support on-hand to make a complete and accurate submittal. Ideally, the RPL should first review the tax roll before it is handed over for V6 submittal (especially for issues like using a future tax roll year when appropriate).

19. Explore strategies for county education and outreach to increase data quality

- Over the course of the Parcel Initiative, counties overall have been able to improve how well their parcel data submissions comply with the requirements of the Searchable Format. But problems remain that cause inefficiencies in ingesting county information into the statewide layer. Since counties use different workflows, software, and data formats, it is hard to make generalizations about why these problems occur and harder still to identify solutions. At this time, five years in to the Parcel Initiative, it would be useful to address the issue in a comprehensive and systematic matter.
  - ▶ DOA and SCO have in the past held listening sessions to identify potential workflow improvements. One option is to hold a series of forums pulling in key members of each county's parcel/tax roll land records staff to identify problems and solutions that will allow for more efficient data integration. These forums would take place at locations around the state at different dates over 2020 in an effort to attract as many county land records staff members as possible. Results would then be analyzed and summarized in a report and at a presentation at a statewide conference. The ultimate goal is to make modifications to workflows and best practices at both the county and state level to streamline the data integration process.
  - ▶ Explore avenues to gather information from counties to identify specific parcel/tax roll standardization obstacles, potential workflow improvements, and best practices.

20. Plan for and complete workflow documentation for V6

- The V6 MOU includes a new deliverable in the form of workflow documentation:

  Workflow documentation. Document the data intake and processing workflow in human-readable format in as few files as possible, with attention to differentiating aspects of workflow that are/are not and can/cannot be automated, any conditions in local government data that comprise legitimate data model exceptions (e.g., from prior years' notes, intake notes, county submission form content, qualifying language/examples in Submission Documentation, data validation tool programming, et cetera), and other obstacles in local data conditions that could hinder future efforts at automation.

  ▶ Before V6 data collection begins, discuss a plan for documentation of workflow, including how to build from prior years' workflows (e.g., OneNote tab with *Parcel_Assessment_Workflow*), and a plan for documenting benchmark progress contemporaneously as part of data intake process as stated in V6 MOU.

21. Revisit overall approach and the Four A's, taking actionable steps toward the Four A's

- The V1-V5 Projects have taken the approach that counties do not have to change their native workflow/ databases, but the annual submission requirements from DOA require the native data be re-formatted for export in to meet the submission requirements.
- The formatting of native data to meet the requirements must happen each year. Otherwise, counties would have to maintain the data in the structure of the statewide parcel data model.
- It should be recognized that on the state-end, an external change may be needed before a drastically different approach is viable (e.g., county-wide assessment, a legislative change, DOR XML standard achieved by all counties and independent municipalities, developments facilitated by another state or federal agency).
  ▶ Discuss the **long-term goal of the four A's** (Authoritative Automated Asynchronous Aggregation), evaluate V5 progress on that goal, and what actions might be taken toward further automation and sustainability.
  ▶ DOA/SCO plan for how to achieve the V6 MOU task of documenting **obstacles to automation** during V6.
  ▶ DOA learn more about automation, including automated and server-side data validation and aggregation options.
    ▷ Investigate whether the objectives of the 1) Validation Tool, 2) Validation Tool outputs of Validation Summary Page and feature class in-line error flags, 3) manual intake and assessment observations, and 3) Observation Reports can be further streamlined.
  ▶ Have a neutral third-party review the parcel aggregation workflow and wider Statewide Parcel Map Initiative approach, through V5 and prior to any potential V7 scope of work planning.
  ▶ Be mindful of how county-level needs documented via the Parcel Initiative can inform any potential Department of Military Affairs contractor, who may be tasked with a **GIS gap analysis** or assessing GIS needs for purposes of Next Generation 911.[3]

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[3] Wisconsin Department of Military Affairs. (2019, July 25). Wisconsin Department of Military Affairs, Office of Emergency Communications (OEC) continues to move forward with implementing NextGen 9-1-1. Retrieved from https://dma.wi.gov/DMA/oec-news/oec190725

Appendix
A. V5 MOU Excerpt

Specific V5 Project deliverables: [4]

- **A statewide parcel database and map layer** aggregated from existing county and municipal parcel datasets using a documented update process that, at a minimum, includes the parcel attributes required by s. 59.72(2)(a), those listed in the parcel schema and Searchable Format standard detailed by the *V4 Submission Documentation* and recommended in the *V4 Final Report*, and, if statewide benefits clearly outweigh the costs of implementation, enhanced with additional data fields (i.e., "Searchable Format 2.0").
- **Hosting and display of V5 parcel layers**. Employ a hosting solution for the statewide parcel database and map layer (with the potential for a third-party hosting solution), and publicly display the statewide parcel database and map layer.
- **Download/Export of data and data subset capabilities**, including a clip, zip, and ship, download by filter, or download subset function.
- **Benchmarking data**. Provide data evaluating counties against current benchmarks, with parcel benchmark data to be provided to counties within six weeks after data submission date.
- **Collection and delivery of ancillary data layers to the UW-Madison Arthur H. Robinson Map Library**, including county-maintained zoning layers that are not collected and/or aggregated by another government entity.
- **Collection of PLSS corner data for V5**. Collection of PLSS corner data as part of V5 call for data, with the exception of datasets that have not changed since they were last submitted to PLSSFinder.
- **Version 1 Statewide PLSS database**. Create a Version 1 (V1) statewide PLSS database aggregated from current county datasets using a documented process that, at a minimum, has the following characteristics:
    - Based on accurate county corner coordinate values where available
    - Uses the Wisconsin Department of Natural Resources 1996 PLSS layer (Landnet) corner coordinates where county data is not available
    - Is compatible with the long-term goal of performing automated updates of corner coordinates, including replacement of Landnet coordinates
    - Contains polygons down to the section level at minimum based on best-available corner coordinate data
    - Uses standardized indexing system for corner point identification throughout the state
    - Provides mechanism to separate non-PLSS areas
    - Uses industry-standard format for delivery and distribution, including download capability and web app (with map services potentially hosted by third-party)
    - Integration into parcel web app
    - Based on existing federal PLSS standards tailored to the specific needs of Wisconsin
- **A final project report**, by September 30, 2019, written in collaboration with DOA. At a minimum, the report shall address:
    - Project Background
    - Technical Approach
    - Benchmark Progress Assessment – Assessment of where each county is at in terms of meeting the four benchmarks listed by the *V1 Interim Report* and the requirement for counties to achieve by the V6 call for data deadline of March 31, 2019.
        - Benchmark 1 – Parcel and Zoning Data Submission
        - Benchmark 2 – Extended Parcel Attribute Set Submission
        - Benchmark 3 – Completion of County Parcel Fabric
        - Benchmark 4 – Completion and Integration of PLSS
        - Expanded Benchmark 4 – Specifications for the submission of PLSS corner data
    - Recommendations for V6
- **Final Project Report Addendum**, by December 31, 2019, containing PLSS Evaluation:
    - PLSS Evaluation – Evaluation of PLSS deliverable and progress on the V0 and V1 PLSS databases, along with an outline of steps that would facilitate future updates to PLSS corner data, as well as evaluate the feasibility of:
        - Annual automated updates using new data contributed by counties
        - Enhancements based on outreach to dataset users
        - Begin working with counties and surveying community to resolve county boundary discrepancies, and to implement methods to incorporate PLSS data into parcel maps to improve accuracy
        - Develop visualizations and metrics to portray progress of PLSS and parcel improvements and completion

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[4] From V5 MOU (2018 January). Retrieved from https://doa.wi.gov/DIR/V5_Parcel_Project_MOU.pdf

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Appendix
B. V5 User Feedback

ABOUT V5 USER FEEDBACK

This appendix is a compilation of comments provided by users of the **V5** Wisconsin statewide parcel layer, received via email and by way of the V5 online user feedback form. This data has been cleaned. Questions and comments dealing with technical subject matter have been omitted. Some comments have been omitted due to lack of content, or combined, in the case of multiple comments from the same user. To view user feedback on V1-V4, see the Appendix B of the V4 Final Report.

Legend

Orange text indicates Organization/Affiliation
User responses are broken down into the following sub-groups:

STATE GOVERNMENT
FEDERAL GOVERNMENT
LOCAL GOVERNMENT
NON-PROFIT ORGANIZATIONS
PRIVATE SECTOR
EDUCATIONAL INSTITUTIONS
PRIVATE CITIZENS

Total number of V5 responses that appear below: **254**
Date of last update: **September 3, 2020**

STATE GOVERNMENT USERS

▪ Wisconsin Elections Commission
USES • School and address comparison, as well as ward creation/QC.
BENEFITS • We use the parcels to verify and check election districts.

▪ DOT Division of Transportation Investment Management/Bureau of State Highway Programs/WISLR Local Road Data Program
USES • Geo-referencing, drawing annexations, road right of ways, etc.

▪ [Anonymous]
USES • Driving through Wisconsin and stopping by neighbors where I grew up. Making sure they still own the lot.

▪ Wisconsin Historical Society - Historic Preservation
USES • Landowner info, mapping, analysis.
BENEFITS • Contact info, decision making.

▪ Wisconsin Department of Natural Resources
USES • To help delineate recreational and preservation lands (about 1.6 million acres) managed by the DNR on behalf of the citizens of Wisconsin.
-- To help update the Public Access Lands Atlas, particularly for the locations of county and local parks.
-- To evaluate wetland compensatory mitigation options for the wetland permit applicants.
-- To oversee the cleanup of contaminated properties. Often, an approved clean-up will require and environmental land use control (LUC) on the property; these LUCs are posted on the Internet to alert future owners about the parcel.
-- In the review of construction site plans to make assessments regarding potential water quality impacts. Parcel data is often need to identify responsible or affected neighboring parties, is useful when seeking permission to inspections on private property, or when enforcement actions are involved.
-- In discerning land ownership and ownership of manure storage structures associated with large fish kill events.
-- To help track the locations of rare species and natural communities and to carry out land and species management practices.
BENEFITS • By having statewide parcels available, staff are able to save time in addressing the business needs identified in the "Uses" box above.

- **DNR Bureau of Fish Management**
  USES • I am using the V5 layer to update a database of streambank easement landowners and potential outreach contacts for easements. Our database was originally created using GIS shapefiles from individual county layers.

- **Greater Caribbean Energy and Environment Foundation**
  USES • Looking for neighbors names
  BENEFITS • Finding out who lives around the lots we own. Finding their primary residence addresses.

- **[Anonymous]**
  USES • I used this site to get the postal information for my neighbor. We share a tree that is dead and is a safety hazard. I have tried 3 times to talk face to face with him, but he is avoiding me. In the letter to him I wrote, we could share the cost of a removal. My phone number and address are included. Thank you for this site, it is very useful.

- **Public Service Commission of Wisconsin**
  USES • Identifying owners of specific properties that are associated with potential utility construction projects.
  BENEFITS • When landowners contact staff about specific projects it is another approach of identifying location when physical addresses are unavailable or do not exist. This improves customer service and understanding.

- **Wisconsin Department of Revenue - Equalization Bureau**
  USES • Locating parcels and reviewing land classifications.

- **Wisconsin Department of Revenue**
  USES • Checking for assets to help settle outstanding tax debt.
  BENEFITS • The Department of Revenue can file tax liens against real property to safeguard the interests of the state.

- **DNR Division of Forestry**
  USES • Forestry Landowner work.
  BENEFITS • Very current, and web based means I can use it easily on my phone.

- **WI Department of Health Services/Estate Recovery Program/ Estate Recovery Section**
  USES • The Department of Health Services Estate Recovery Program places lien on properties owned by a deceased Medicaid member in order to repay long term care services that Medicaid paid for on behalf of the member. We place liens when we are notified that a representative of the estate is wanting to transfer the property to their name. We utilize this website to annually verify that the property has not been sold or transferred to another person because at that time our lien would be due. This is a vital service to the Department of Health Services and assists us in recovery Medicaid benefits that keep the program solvent.
  BENEFITS • When we have a reliable source to verify real estate has been sold or transferred we are able to have our Medical Assistance Liens be due and receive funds to repay Medicaid Long Term Care services.

- **Wisconsin Department of Transportation – Transit, Local Roads, Railroads & Harbors Bureau**
  USES • Determine parcel ownership along railroads throughout the state.

- **Wisconsin Housing and Economic Development Authority (WHEDA)**
  USES • Review of current state housing inventory and land use.

- **[Anonymous]**
  USES • Address checks.

- **Wisconsin Department of Natural Resources**
  USES • Statewide environmental regulations.

- **Wisconsin Department of Revenue**
  USES • I am trying to map local parcels, or Alt IDs to the Parcel ID's the WI DOR uses in our iasWorld CAMA data.

- **Wisconsin Department of Revenue**
  USES • Search for landlords.

- **Kickapoo Valley Reserve, with Mississippi Valley Conservancy, Valley Stewardship Network and WI DNR**
  USES • We will use the data to identify land parcels within the Kickapoo-Wildcat IBA [Important Bird Area] for landowner outreach for bird conservation.

- **[Anonymous]**
  USES • Parking disallowance calculation for tax reporting.
  BENEFITS • Understanding parcel acreage.

- **Wisconsin Department of Natural Resources**
  USES • Determining location of land owned in accordance with private well water monitoring.
  BENEFITS • Some locations do not have street addresses and it can be hard to identify where the land parcels are. The site is useful as a cross reference platform to get a more accurate knowledge about locations and who owns them.

- **[Anonymous]**
  USES • Land ownership and price history search.

- **Wisconsin Department of Natural Resources**
  USES • Enforcement, compliance, general reference, etc.
  BENEFITS • Increased efficiency, accuracy, improved customer service.

- **Wisconsin Department of Natural Resources (via Wisconsin Interactive Network)**
  USES • DNR app to capture hunting harvest location for Chronic Wasting Disease tracking.

FEDERAL GOVERNMENT USERS

- **U.S. Fish and Wildlife Service - Marquette Biological Station - Sea Lamprey Control Office**
  USES • Use to define areas of private vs public land for working on streams to survey for sea lamprey. It very helpful on our maps. And we can use the address info to contact landowners. I usually download by county and use in ArcGIS Pro. Thanks for providing this I wish other states would offer this as well.

- **U.S. Fish and Wildlife Service - Upper Mississippi River National Wildlife & Fish Refuge - La Crosse District**
  USES • Map property lines for potential habitat protection and purchase.
  BENEFITS • We can easily find property lines.

- **U.S. Department of Justice – U.S. Attorney's Office for the Eastern District of Wisconsin**
  USES • Finding federal defendants' property value to secure federal tax liens, enforcing judgments.

LOCAL GOVERNMENT USERS

- **Town of La Pointe**
  USES • I intend to look at the Ashland County layer to see if it is a better option than what Ashland County has on their website. We will use it for looking up parcels.

- **Sheboygan County IT Department**
  USES • Looking at the idea of using the REST in Sheboygan County web app. Keep up the great work!
  BENEFITS • Considering using the State REST end point and replacing our local feature service for the public web local feature service for the public web app.

- **Town of Kickapoo Wisconsin**
  USES • We use it when we need to check parcels in our town.
  BENEFITS • Great resource for us to see where each parcel is and how the parcel boundaries line up.

- **County of Rock, Planning and Development**
  USES • Use this product to see parcels in adjacent counties that overlap our project areas. I often use this data in Economic Development where the City of Edgerton crosses over into Dane County. I am also using this data to help the Rock County Drainage District Board visualize parcels in districts that cross over into Green and Rock County.
  BENEFITS • I save time and resources within our department by not having to request and store data for which we aren't the authoritative source.

- **[Anonymous]**
  USES • Drainage district 19 maps and properties outside the district that send water into it.

- **[Anonymous]**
  USES • Updating Drainage District boundaries that cross over into adjacent counties.

- **Village of Birnamwood**
  USES • I have created a mapping system of important Village information. In the past I needed to go to the county to request this information.
  BENEFITS • Easily access the the information to add to my maps.

Dane County Drainage Board
USES • Identifying owners of particular parcels in drainage districts that extend into the neighboring county.
BENEFITS • If the owner is visible it gives a quick reference of ownership to parcels outside the main county of jurisdiction of our drainage board.

[Anonymous]
USES • To check parcel configuration.
BENEFITS • Able to see how the tax parcel is configured.

Town Treasurer
USES • Easily locate the physical location of a parcel a title company is asking for info about.

City of Fountain City
USES • Setting up local DB of parcel data to tie to land owners for mailing and other governmental updates.
BENEFITS • A good idea of land plot sizes, classes of the properties and example data formats.

NON-PROFIT USERS

Gathering Waters: Wisconsin's Alliance for Land Trusts
USES • We use the statewide parcel layer to map protected natural land throughout the state that is either owned or under easement with nonprofit conservation land trusts.
BENEFITS • The statewide parcel layer literally makes our work possible. It is through the peerless work of the development team that we are able to visualize the legal boundaries of the over 1,650 individual properties protected by the state's land trusts, to ident.
The layer is already exceptional, and I see little need to modify it; the schema, tabular information, etc. are all excellently done. It is my hope that the team can continue filling in the few areas of the state where they currently lack data; a process that continued this past year, as I've already observed that substantial gaps in coverage in the data in Crawford and Vernon Counties have been substantially reduced.

Ice Age Trail Alliance – GIS Specialist
USES • We use the statewide parcel layer as a reference to adjust our land ownership data to more accurately reflect parcel boundaries. We also use it to initially see who owns properties in areas the Trail may go.
BENEFITS • Since the Ice Age Trail is a state-wide Trail, it's much easier using one parcel layer than individual parcel layers for each county the Trail goes through. The annual data updates are much appreciated, also. Much more convenient having a "one-stop shop."

Ice Age Trail Alliance – Land Department
USES • -- Landowner information for land protection and neighbor relations.
-- Ice Age Trail route and planning.
BENEFITS • -- We had each county's data but its 1) easier to update a single database and 2) more consistent data.
-- Excellent resource for identifying potential land contacts for acquisitions.

Wisconsin Watch
USES • I'm trying to create a map by merging parcel data with data I already have. Basically what I am trying to do is plot parcel numbers/addresses in the Mt. Pleasant area of people who have sold their homes for a story we are working on.

[Anonymous]
USES • I plan on creating an application for outdoor enthusiasts to layer the data on top of different imagery sources.
BENEFITS • Without this info we couldn't do it at all.

The Prairie Enthusiasts
USES • I use this data to verify parcel boundaries and estimate arceages of restoration sites for the Land Trust that employs me (The Prairie Enthusiasts).
BENEFITS • We use data provided on your site in preliminary applications for various grants.

Northwest Regional Planning Commission - Planning/GIS
USES • We use the data in many of our planning projects.

Golden Sands Resource Conservation & Development (RC&D) Council Inc.
USES • Find contact information for landowners who own land where invasive plant species have been reported. Using the contact information, I can reach the landowners and connect them with control information.
BENEFITS • Some county GIS modules don't work properly. The Wisconsin statewide parcel layer helps us find contact information for landowners in counties without usable GIS modules.

- **Landmark Conservancy**
  USES • The data will be used to target proactive outreach to landowners for land conservation.
  BENEFITS • The data allowed us to use a web map to visually understand how parcel-level data could be used to proactively target landowners for land conservation.

- **Lakeshore Trout Unlimited**
  USES • We use this program to ascertain ownership of lands that encompass trout streams in our chapter's geography in order to assess potential land acquisitions or easement contracts to further the public use of our trout streams.

- **Holy Communion Church**
  USES • In filling out the tax [e]xemption report for 2020, parcel number is required.

PRIVATE SECTOR USERS

- **Courthouse Retrieval System**
  USES • Incorporate the data into a service for a local MLS
  BENEFITS • The benefit isn't directly to the company, the benefit is to the realtors who utilize our service.

- **Lettau Ventures LLC**
  USES • We use it to find the closest neighbors to a target address that meet certain criteria.
  BENEFITS • It's helped us identify potential leads for local businesses based on their current customer base and characteristics.

- **Landmark Conservancy/Hungry Hilll Forestry**
  USES • I perform volunteer GIS work for a conservation non-profit and also do a little forestry consulting on the side. In both capacities I often use the data to identify and map parcels.
  BENEFITS • It is very helpful to have parcel data that are consistent among counties, using the same format and readily available.

- **Continental Properties**
  USES • Site selection for real estate development projects.
  BENEFITS • Allows us to perform analysis and selection of suitable parcels for potential real estate development projects.

- **Virtual Properties, Inc.**
  USES • Validate parcel data from different sources. This is very important given Wisconsin's 1700+ (!) assessment authorities.

- **OMNNI Associates, Inc.**
  USES • GIS basemaps for our environmental and transportation projects. We use the downloaded data in ArcGIS Desktop/I, and the REST Services for our mobile (Collector) applications.
  BENEFITS • It saves us time/cost of obtaining parcel datasets from individual counties, and allows us to have access to parcels in counties that we rarely have contact with. It also saves time having a state-wide layer, as opposed to stitching together multiple counties, and allows us to have access to parcels in counties that we rarely have contact with. It also saves time having a state-wide layer, as opposed to stitching together multiple counties.

- **Assessment Technologies of I, LLC**
  USES • Market Drive CAMA is the most widely used CAMA product by Wisconsin Assessors and Municipalities. We provide a link in our software that allows most users to click once to get to a specific parcel on your map.
  BENEFITS • Assessors can quickly view a large area of parcels, including those that may be in multiple counties.

- **Mid-America Real Estate Group**
  USES • I access the REST API to host in an ArcGIS Online Web to conduct general research regarding parcel ownership, value, etc.
  BENEFITS • It is a big time saver being able to quickly access parcel information across the state. Being able to access the REST API makes the layer available to team members to easily access the information. It also gives me the ability to customize the pop-up to display the information in an easy to read format.

- **Short Elliott Hendrickson Inc. / Nine Offices in Wisconsin**
  USES • As a civil engineering consulting firm, we use the data on nearly every project we do. Having accurate, up-to-date data allows us to do our due diligence in scoping and estimating accurate proposals for our public and private sector clients.
  BENEFITS • Having been a user of public GIS data for over 20 years, the state wide database is just simply tremendous. In the past, we would have to contact the county GIS office and make a request and often times

make a purchase order. Which was time consuming for us and for the county agencies. Additionally, it could take a number of weeks to receive the data and the schema of the data varied from county to county. On the day the V5 data was released, I was able to use the Marathon County data to prepare a preliminary construction plan for a pedestrian path in the Village of Kronewetter in a time period of about 15 minutes. From a number weeks to 15 minutes, that's a benefit. I assume it's a great benefit for Marathon County as they no longer need to break-away from the work to fulfill a data order. It's great benefit for the Village of Kronewetter because we will be able to provide a higher quality design to them in shorter period of time for much less cost. We primarily use the parcel data in CAD (Civil 3D) form for construction plan documents and exhibits. In the past, it has been quite difficult to delineate public right-of-way because of the lack of schema to differentiate it. In the V5 release, Marathon County has Parcel ID of "ROW" which enables us to delineate the public ROW a great deal easier in the CAD environment. In the V4 release, Waukesha County had something similar. So, please continue to make the ROW parcels and include railroad ROW and any other public ROWs. Please also continue to provide the data in .shp format by county as you currently do. As .gdb files are not accessible in most CAD software.

- **[Anonymous]**
  USES • Architectural services

- **Conservation Strategies Group/Western Great Lakes Region**
  USES • Identifying land for natural area restoration.
  BENEFITS • Data enables locating lands with good restoration potential that are within a single ownership, and consequently more likely to be available for that purpose.

- **Local Realtor with NextHome Priority**
  USES • I am a realtor using this for property location and search info for listing property and working with buyers.
  BENEFITS • Ability to look up map layers and property info helps when providing accurate info to buyers and sellers.

- **[Anonymous]**
  USES • Personal info for boundary lines

- **Vernon Electric Coop**
  USES • Land owner names and references for getting utility easements, allowing access for right of way clearing, and no spray parcels and land owner information for power outage for areas in our coop area that are not members of ours.
  BENEFITS • It's a more reliable and efficient way of getting landowner information without driving all of the roads. It gives us a larger picture as a whole before starting projects of better routes before we start a project.

- **North Central Real Estate, LLC**
  USES • Was going to use it for real estate research.

- **Cedar Corporation/Planning Department**
  USES • Site Planning, Economic Development, property owner notification mailings for municipalities, data tracking for CDBG survey applications, base maps, reference, land use planning, zoning mapping, ERU calculations, water quality modeling, etc.
  BENEFITS • The parcel layers available for download have made my work with many of the smaller municipalities across the state which do not have the resources to maintain spatial data on their own. The parcel layers are usually one of the first layers put into a GIS as I use them for reference and analysis. Ultimately, the information from the parcel layer, and other layers (many of which are openly available from the SCO!), I am able to provide informed recommendations and products to my municipal clients.

- **Faith Technologies**
  USES • Shoreline alteration permitting.
  BENEFITS • I think we will benefit in the permitting process.

- **GZA Geoenvironmental**
  USES • Site assessment; property validation; land use; contact information; data exploration; site investigations.
  BENEFITS • Everything we do is within a geospatial construct—environmental, water resources, construction management, geotechnical, everything relies on high quality spatial information including boundaries of sites and data provided in the parcel data base. My teams use this information everyday and we are always wishing more states were as high quality as Wisconsin.

- **Van Kirk Logging**
  USES • I cut timber, I need to have landowner give me their tax parcel numbers to file cutting notices, this site helped me to identify what number went with the correct site location. Great tool!
  BENEFITS • Able to know correct location of tax parcel number.

- **Mead & Hunt, Inc.**
  USES • TID map boundary preparation and other ArcGIS mapping
  BENEFITS • Yes! The county doesn't provide the information separately and this is an easy and accessible way to get updated information.

- **River Ranch and Gardens**
  USES • Approach zoning commission for conditional use permit.
  BENEFITS • Potential event venue for profit.

- **[Anonymous]**
  USES • Locating addresses for underground bury communication services. For counties, townships, village, ect.

- **Forster Electrical Engineering**
  USES • I use parcel data for the design and mapping of electrical distribution systems.
  BENEFITS • We benefit by making it easier to generate an accurate landbase for our municipal utility clients.

- **RWE Renewables Americas, LLC**
  USES • Grid-scale renewable energy project development.
  BENEFITS • Grid-scale renewable energy is land-intensive (but not land use intensive!).

- **InspectWlz**
  USES • We are a software company that provides SAAS [software as a service] to inspectors around the state. As such, we need good property information. This data provides a consistent format for all properties, regardless of county, and we sure like the consistency.
  BENEFITS • Some counties provide us with data, but some just don't have a good or consistent way of getting that information to us. We use this data whenever possible.

- **InspectWlz Building Inspection Software**
  USES • We use property data for municipalities using our software. Our software, InspectWlz, is used by Building Inspectors across the state. We upload county property data into their office settings so they have all the information at their fingertips while using our program for inspections.
  BENEFITS • We have used this site because we like the format better than what we receive from each individual county. Everyone provides data in different formats, layout, headings, etc. It's a mess.

- **Blenker Construction, Inc.**
  USES • Getting accurate parcel data and approximate lot line locations fowhen meeting with clients looking to build a new home. Allows us to get a view of the property and some of its features.
  BENEFITS • Quick, accurate information

- **DiamondMaps.com**
  USES • We provide GIS software to municipalities for mapping their sewer and water infrastructure. We found this site and refer our Wisconsin customers to it to obtain a parcel layer to add to their local GIS software.
  BENEFITS • Although it is not required, our municipal customers get more use out of our GIS software when they have a parcel layer. Most customers will not go through the steps to request this data directly from their respective counties. This website makes it possible for our staff to add this data to the customer's maps for them.

- **[Anonymous]**
  USES • Location of owners of prospective rental properties. Belleville, WI is a small town, and word of mouth has gotten us a lot of "These places are open" but not a lot of "And here's who owns them." As such, having access to the parcel information gives us a way to find the owning company or person and get in touch. So thank you for having this up!
  BENEFITS • We're using it to find property owners to rent from, as stated above.

- **Ayres Associates - OSP [Outside-Plant Engineer] Designer**
  USES • Use to create base maps for utility plans (Telco, gas, electric).
  BENEFITS • The parcels provided allow us to draw ROW lines and set up bases for our utility maps. This dataset is one of the most comprehensive statewide datasets and compliments local data well.

- **[Anonymous]**
  USES • Collecting parcel data to create nation map of all parcels.

- **Mi-Tech Services**
  USES • We create utility plan sets.
  BENEFITS • Need row and parcels lines for our plan sets.

- **Baxter & Woodman Consulting Engineers – Infrastructure Engineering Department**
  USES • Sanitary and water main design for municipal clients and hydraulic drinking water modeling for municipal clients.

- **Ayres Associates - Telecommunications & SUE (Subsurface Utility Engineering)**
  USES • I use the statewide parcel layer on a nearly daily basis to aid in creating bases in AutoCAD Civil 3D for telecommunications facility projects. Companies that I have worked with and have used this layer on the base maps include CenturyLink, TDS, AT&T, and Verizon.
  BENEFITS • This is one of the best single sources of parcel and ownership data in the state. Without this database, it would take days to weeks to compile all of the parcel data for the State of WI, much less stay up-to-date on the parcel updates.

- **Ayres Associates**
  USES • ArcGIS, Autocad.
  BENEFITS • We create basemaps almost daily for landscape design and city planning purposes.

- **[Anonymous]**
  USES • Real estate appraisals.
  BENEFITS • Provides up to date and accurate land ownership boundaries.

- **Pine Curve Consulting Forestry LLC**
  USES • GIS - Land Management - Forestry (consulting forester)
  BENEFITS • I routinely visit new properties for evaluations and management. The first step in this is always looking at a aerial image of the property and its approximate boundaries. Having this data makes my work more efficient and accurate, Especially when it comes to enrolling the property into MFL. The more accurate the parcel lines the less potential issues in the future. Its very convenient to be able to access this data without having to contact each County.

- **Snyder & Associates**
  USES • Preliminary/conceptual design.
  BENEFITS • Very beneficial in preliminary design prior to actual boundary survey. Data can help move projects along while waiting for appropriate site/weather conditions to perform necessary surveys. Some of the data is very accurate.

- **Onterra, LLC**
  USES • Our firm works with lake associations/districts in managing their lake. We use this data in a number of ways to associate survey results to riparian property owners. Often this is in relation to where aquatic invasive species exist in the lake or where management activities are taking place (e.g. herbicide treatment, mechanical harvesting, etc).
  We often solicit riparian sentiments through a web-based stakeholder user survey. We use the parcel database to determine the recipient list of the survey that will receive us mail notification (and unique ID code) to take the survey.
  The WDNR has a shoreland condition survey protocol that assess the shoreland of the lake on a property-by-property basis, so having this data is a requisite of this program. Contact for this program is https://dnr.wi.gov/staffdir/_newsearch/ContactSearchResultsExt.aspx?cno=53908&cSrc=EMPLOYEE
  We use these data to understand property owners in a watershed (area that drains to a lake) in conjunction with NAIP orthophotos or NLDC Land Cover to contact industry or farmers that we may want to motivate to change practices to benefit the lake.
  BENEFITS • It is easier than having to request parcel data from county GIS departments, particularly when some counties don't have them or when there is a charge for this data.

- **Stuettgen Farms LLC**
  USES • Absentee property owners addresses, I rent farmland for cropping. Farm land used.
  BENEFITS • I have found contact information.

- **[Anonymous]**
  USES • Property ownership, very useful.

- **Civic 4, LLC**
  USES • I use the parcel data to create maps for urban planning projects.
  BENEFITS • I have greatly benefited from the data provided. Without it I would be required to pay for the exact same information from the counties that I work in. I work with rural communities so any costs that can be reduced are very beneficial. I have also been able to create online maps for clients that they can brand themselves as opposed to being tied to county datasets and processes.

- **REI Engineering, Land Survey Department**
  USES • Use it for job planning to locate property corners, show limits on topographic surveys and record keeping of past jobs.
  BENEFITS • Saves us time in research for a job because we can just make the GIS lines appear in our data collector and we don't have to calculate out a deed or certified survey map by hand and make search points.

- **Engineering Resource Associates, Inc. (ERA) – GIS Department**
  USES • We plan on using the parcel information to determine the right-of-way for a bridge we are proposing to do an inspection on.
  BENEFITS • This helps us understand the area prior to starting the project.

- **C.E.S. Inc./Survey-Technology - Civil Engineering and Surveying firm**
  USES • Surveying.

- **Trajectory Energy Partners**
  USES • Locating potential sites for renewable energy projects.
  BENEFITS • We have no projects in Wisconsin as of yet. However, the amount of time having an easy to find repository of the entire state saves us hundreds of hours. Should policy changes make entering the Wisconsin Market viable, we will be able to get to market quicker.

- **ValCore Appraisal**
  USES • Real estate appraisal services. Oftentimes, the local County GIS is down, and I utilize this State site as backup in such times.
  BENEFITS • It saves time when the local County GIS system is down. (Has happened in for Racine County and Kenosha County)

- **Shorewest Realtors**
  USES • I would like to use this to determine ownership of land parcels with a map based search for Menominee County. The ability to draw and select an area on the map would be outstanding!
  BENEFITS • I use the information regularly and primarily for Brown County to determine property ownership.

- **Exsell Real Estate Experts**
  USES • I am a real estate agent and I frequent this website in order to help clients get a good idea of the lot layouts prior to showings. It is GREAT! Thank you for upkeeping :)
  BENEFITS • Yes, it is helpful for the clients and myself.

- **Farmers & Merchants Bank & Trust**
  USES • Banking purposes.

- **[Anonymous]**
  USES • Bear hunt.

- **[Anonymous]**
  USES • Possible move from IL to WI.

- **AIS Insurance Services**
  USES • Personal insurance agency in Minocqua.
  BENEFITS • Able to verify address and ownership of parcels.

- **Telecommunications Company**
  USES • Land ownership.
  BENEFITS • Identification of property owners for communication purposes.

EDUCATIONAL INSTITUTION USERS

- **UW Stout - LAKES Summer REU**
  USES • I am using this data on a GIS project to classify farm land available for solar panel use. I am not using the farmland data from this data set, I am using the USDA satellite imagery converted to a polygon shape file, which would be useful to have interact/overlaid/checked with zoning data from this data set. I am finding the floodplain, wetland, etc. zoning useful in my project.
  BENEFITS • This data will contribute to removing land unfit for solar panels in the GIS project I am working on (land that is water, floodplain, etc.)

- Riverview Lutheran School
  USES • We use this site to verify which school district a student's address is in. This site is recommended for that purpose by the WI Department of Public Instruction. Please continue to offer this service!
  BENEFITS • Our school will be able to use "Choice" dollars to help our budget because we are able to use this site to verify addresses.

- University Course - Data Analytics for Economists
  USES • Map flood losses for a class.
  BENEFITS • We use this data for practice with QGIS.

- UW-Madison Department of Planning and Landscape Architecture
  USES • I am a student using the parcel data to analyze Dodge and Jefferson county by land use.

- St. Anthony School
  USES • Address verification for students.
  BENEFITS • We use this data for our state reports for specific students.

- [Anonymous]
  USES • Learning how to use GIS tools for educational purposes.
  BENEFITS • Great large dataset to learn with.

- [Anonymous]
  USES • Research essay for my UW History course.

- [Anonymous]
  USES • GIS class.

- St. Paul's Ev. Lutheran Church and School, Wonewoc, WI
  USES • -- I have used it to check on ownership of certain parcels as well as their value.
  -- Identifying addresses located in school district for Choice program
  BENEFITS • Already we are benefiting because it has helped us to narrow down our best options for building an early childhood learning center and daycare in connection with our church.

- St. Luke's Lutheran School
  USES • For the School Choice Program, I need to verify school district of the applicant. To verify school district information

- [Anonymous]
  USES • To verify school district information.

- [Anonymous]
  USES • Student historic preservation class.

- St. Rafael the Archangel School
  USES • Used for verifying an address for the WPCP [Wisconsin Parental Choice Program].
  BENEFITS • Family qualifies for WPCP.

- LEAF – Wisconsin's K-12 Forestry Education Program
  USES • Selecting parcels that contain registered school forests for LEAF- Wisconsin's K-12 Forestry Education program. A map will be created to show the different school forests across the state.
  BENEFITS • This layer provides easy access to statewide data. If this data set did not exist this project would be much more difficult.

PRIVATE CITIZEN USERS

- Private Citizen
  USES • Real estate research
  BENEFITS • The statewide database is very useful, unified resource for when shopping across county lines.

- Private Citizen
  USES • Looking at neighboring parcels.
  Also hope to acquire elevation data for my property and do contours.
  BENEFITS • Yes, allows us to plan for use management.

Private Citizen
USES • Measurement

Private Citizen
USES • Determine land ownership for purposes of gaining permission to metal-detect the property.
BENEFITS • Helps save time in tracking down property owner's name, address, and eventually phone number.

Private Citizen
USES • Check land ownership and boundaries for hunting purposes.
BENEFITS • Was able to check a piece of land and find out who owned it and their contact info.

Private Citizen
USES • Data lookup, mapping change in parcel value.
BENEFITS • Both the web app and the raw data are valuable to all users. Thanks!

Private Citizen
USES • Data lookup, analysis of parcel value change.
BENEFITS • The web app is super valuable.

Private Citizen
USES • Interested in checking a property for sale to see if it was one or two parcels for sale.

Private Citizen
USES • I am searching for a rural home with acreage.
BENEFITS • I just discovered this site, and find it useful to see the property lines, on listings I find on realtor web sites.

Private Citizen
USES • Looking for home\land to buy and interested in current tax information.
BENEFITS • Able to see assessed and fair market values.

Private Citizen
USES • Help to identify land parcel information as they usually do not have physical addresses. Looking into purchasing a land parcel.

Private Citizen
USES • Locating property boundries.
BENEFITS • I located my property boundries at a new piece of land.

Private Citizen
USES • I have used this data to identify landowners to obtain permission for hunting and to identify rough property lines when I'm out on public land.
BENEFITS • This data is more up to date than purchased plat maps which get expensive if you want to keep them up to date.

Private Citizen
USES • Reference.

Private Citizen
USES • To find the owner of a property I'm intersted in.

Private Citizen
USES • I want to find the property line to have an idea of where I can build a fence.

Private Citizen
USES • Remodel information.

Private Citizen
USES • Hunting and recreation.

Private Citizen
USES • Compare values for possible sale.

Private Citizen
USES • Purchasing property.
BENEFITS • Research for buying property.

- Private Citizen
  USES • Want to know who owns hunting land.

- Private Citizen
  USES • Inquiry.

- Private Citizen
  USES • Lot lines.

- Private Citizen
  USES • Trying to find info on private well.

- Private Citizen
  USES • Looking up the location of vacant land for forestry uses when all I have to start is the parcel number and cryptic legal description provided by several counties websites.

- Private Citizen
  USES • New or used property.

- Private Citizen
  USES • I use this map service to make decisions about land-use and land-management of my property.
  BENEFITS • It's benefitcial to know where property lines are when making decisions about how to deal with encroachment concerns.

- Private Citizen
  USES • Just using the site to do tax comparisons from county to county.

- Private Citizen
  USES • Building a new house

- Private Citizen
  USES • Finding out who actually owns an adjacent parcel to one that we may purchase.
  BENEFITS • This database has guided us into finding out the actual owner of the parcel. We think that someone thought they owned it when they actually do not.

- Private Citizen
  USES • Making private maps for myself and family/friends.
  BENEFITS • I also do GIS work for a municipality but find that I get the most use out of the statewide parcel layer when making maps for private use, family and friends, and occasional side jobs. It has greatly reduced the amount of time I spend locating data and getting it into a map.

- Private Citizen
  USES • Used for property information.
  BENEFITS • This map is very helpful and functions well.

- Private Citizen
  USES • Genealogy. I was looking for the location of land willed to my great grandfather. But I couldn't identify it with your site.

- Private Citizen
  USES • Information about my own property.

- Private Citizen
  USES • Find out who to contact for land permissions.

- Private Citizen
  USES • Ask permission to hunt and fish on private property.

- Private Citizen
  USES • How much land we own and property lines.
  BENEFITS • We know property lines.

- Private Citizen
  USES • I use it for identifying land owners for hunting. I'm able to contact owners to ask for permission to hunt and/or retrieve an animal.

- Private Citizen
  USES • Locating person who moved within last few years.

- Private Citizen
  USES • Finding the parcel number for filing of tax credits.

- Private Citizen
  USES • Hunting grounds to ensure I do not trespass.

- Private Citizen
  USES • Property lines for deer hunting season.

- Private Citizen
  USES • Finding suitable, legal, hunting land.
  BENEFITS • Find areas that are public to hunt and can stay off private land.

- Private Citizen
  USES • Hunting land layout—to find boundaries.

- Private Citizen
  USES • Estate purposes.

- Private Citizen
  USES • Obtain neighbor's house address.

- Private Citizen
  USES • To verify my set back from the water.

- Private Citizen
  USES • Looking for hunting availability.

- Private Citizen
  USES • Interesting to look through data.
  BENEFITS • Easy to look up data/statistics on values.

- Private Citizen
  USES • Private land ownership information for recreational purposes.

- Private Citizen
  USES • Hunting boundaries.

- Private Citizen
  USES • Ownership and current ag status.

- Private Citizen
  USES • Property searches.

- Private Citizen
  USES • County lines for land.

- Private Citizen
  USES • Look at own property map.

- Private Citizen
  USES • To find who owns properties so as to request permission to hunt small and large game; to harvest genseng, mushrooms and evergreen boughs.

- Private Citizen
  USES • Looking for a cousins address that I have no contact information for.
  BENEFITS • Found her address.

- Private Citizen
  USES • Used for information required for filling out for requesting testing for deer Chronic Wasting Disease harvested today.
  BENEFITS • Gives specific information to complete DNR CWD testing form.

Private Citizen
USES • To see where public and private property is.
BENEFITS • I found out where a private property is and where public property is.

Private Citizen
USES • I've used the web site to find zoning and ownership information for parcels.
BENEFITS • This web site is a million times better than anything available from Fond du Lac County's web site. If I recall correctly, the user interface is also superior to what the City of Sheboygan has available from their site. One web site that works everywhere is amazing.

Private Citizen
USES • Identifying the controlling municipality for a newly completed development.

Private Citizen
USES • See how property lines correlate with topography.
BENEFITS • This is the first time I've used it, but it was very helpful. I will use it again.

Private Citizen
USES • To determine boundarys and tax info of future land purchases and leases. Also good for checking land owners information for getting hunting permission.

Private Citizen
USES • Home buying information.

Private Citizen
USES • Check land ownership in area plan to visit.
BENEFITS • Could see the land (sat.) view and check owners.

Private Citizen
USES • I was curious on the ownership of a few land parcels down the road to inquire the owner about hunting permission.
BENEFITS • I was able to obtain a mailing address and a name.

Private Citizen
USES • Discover who is the land owner is.

Private Citizen
USES • Home prices in Kohler.

Private Citizen
USES • Info.
BENEFITS • Owner.

Private Citizen
USES • Purchasing a home looking up land info and owner.
BENEFITS • Confirming the land boundaries.

Private Citizen
USES • I am working on finding out information about the area in which I grew up -- that was in Richland county.

Private Citizen
USES • Looking at home values near my home.
BENEFITS • Found information I was searching.

Private Citizen
USES • I am just interested in looking at this data. If this info would be combined with the government flooding info which is also related to the parcels, it would be great value added for existing and future home owners.

Private Citizen
USES • Research when buying homes, see lot lines.

Private Citizen
USES • Verifying my property information.

- **Private Citizen**
  USES • Contact a new neighbor.

- **Private Citizen**
  USES • I primarily use this to aid in my work as a journalist. Before becoming a journalist I used this for my own personal curiosity.
  BENEFITS • Before I was a journalist I used this tool to see who owned land around my residence, and how many of those owners had offices outside of the county that I lived in.

- **Private Citizen**
  USES • I'm looking to purchase a house and wanted to see which county it resides in and the neighboring land.

- **Private Citizen**
  USES • Property details for buying.
  BENEFITS • For personal use, it has helped with property details I am not finding on real estate listings.

- **Private Citizen**
  USES • Look up parcels for intended purchase.
  BENEFITS • Found said parcel.

- **Private Citizen**
  USES • Looking for public hunting locations.
  BENEFITS • Helps me avoid trespass issues while hunting and also identifing land owners to ask permission to hunt.

- **Private Citizen**
  USES • Find the lot lines of our property.

- **Private Citizen**
  USES • Looking for an old coworker.

- **Private Citizen**
  USES • Find the property value in my neighborhood.
  BENEFITS • Find our neighbors names.

- **Private Citizen**
  USES • To find land lines so we don't trespass.
  BENEFITS • Been able to find property line.

- **Private Citizen**
  USES • Plat lines on for sale property.

- **Private Citizen**
  USES • Trying to get an easement into my land locked land. Looking up surrounding landowners name and address.

- **Private Citizen**
  USES • Use for Electric Engineering purposes/ROW. I personally use it for hunting/fishing purposes.
  BENEFITS • Look up owner information in one location.

- **Private Citizen**
  USES • Checking for trout fishing stream access points.

- **Private Citizen**
  USES • I used the parcels web app to look at parcels.
  BENEFITS • It shows the owner and assessed value.

- **Private Citizen**
  USES • Property borders for driveway access.

- **Private Citizen**
  USES • Looking for owners of lots in order to see if still for sale and what the taxes are.
  BENEFITS • Found name and address and able to contact them if needed.

- **Private Citizen**
  USES • Find out who owns the land.

- **Private Citizen**
  USES • Determining property lines for putting up a fence.

- **Private Citizen**
  USES • Identifying private/public property lines.
  BENEFITS • Benefit by being able to know what lands I can/cannot access.

- **Private Citizen**
  USES • I'm checking on the condition of some property on behalf of my mother, the owner, and would like a handier reference for boundaries than the surveyor's map.

- **Private Citizen**
  USES • Looked at own property line.

- **Private Citizen**
  USES • Ensuring I stay on public land while recreating in state parks, state natural areas, and county parks.

- **Private Citizen**
  USES • Searching for property.
  BENEFITS • It has simplified my search for properties to purchase! I don't have to load each county separately.

- **Private Citizen**
  USES • Looking for open lots.

- **Private Citizen**
  USES • Property lines.

- **Private Citizen**
  USES • Looking at my own parcel.

- **Private Citizen**
  USES • Determine my plot lines.

- **Private Citizen**
  USES • I am trying to find plot lines on my property.

- **Private Citizen**
  USES • Attempt to obtain GPS coordinate of my property.

- **Private Citizen**
  USES • Planning stages to purchase a property.
  BENEFITS • Still in the early stages of information gathering for purchasing a property. But this tool seems like it will be very handy!

- **Private Citizen**
  USES • Learn and know land boundries in respect for landowners while hunting and other outdoor winderness activities.

- **Private Citizen**
  USES • Use to define yard lines.

- **Private Citizen**
  USES • For searching parcel ID of specific address, finding its most recent assessed value, acre information, and also value of properties surrounding specific parcel. Helps me determine if a house if worth investing to, etc.
  BENEFITS • Helps determine interests in property before an actual physical self assessment. Saves time and effort in valuations of landspace, community, and value. And more.

- **Private Citizen**
  USES • Farmer, to see who owns certain parcels.

- **Private Citizen**
  USES • Hunting, fishing access, walks.

Private Citizen
USES • Finding names and addresses of neighboring land owners and owners of land of interest for purchase.
BENEFITS • This site is the single easiest site to find land owner information for the entire state of Wisconsin I have found.

Private Citizen
USES • Checking my own parcel lines.
BENEFITS • I was able to see what part of my woods I need to maintain.

Private Citizen
USES • Checking parcel data against certified plat survey.

Private Citizen
USES • For fishing, hiking, and my photography to ensure that I do not trespass/am within legal rights to cross lands if applicable
BENEFITS • I don't trespass on private property. I am aware of who is in ownership of said land so that I may try to contact said person(s) if I am unable to find another way to my destination.

Private Citizen
USES • Wanted to check to see our shoreline.
BENEFITS • We now know where our shoreline is!

Private Citizen
USES • Personal. First time looking at it, browsing more than anything else. Looks easy enough to use.

Private Citizen
USES • To identify ownership (public or private) of rural lands adjacent to fishing areas and also for mushroom hunting.
BENEFITS • Have not used it on a particular site, but became familiar with it to do so when needed.

Private Citizen
USES • On occasion, not often, I would like to identify a land owner so I can call him or her in advance for permission to cross his land to access a river to fish.

Private Citizen
USES • I use the parcel information to find owners of land I would like to hunt.
BENEFITS • I was able to locate someone who owned land and they were willing to let me hunt there.

Private Citizen
USES • Identify parcels by name or ID.

Private Citizen
USES • I can see information on lots before I spend my time going and looking in person…Really love this site!… [I]t has literally saved me several thousand miles of travel.

Private Citizen
USES • Finding out who owns land parcels next to mine parcels.

Private Citizen
USES • Permission for foraging. Identifying lake neighbors. Identify township landowners impacted by a proposed pig CFO from Minnesota.
BENEFITS • After town meeting, was able to study land owners adversely effected by waste distribution, whose wells at risk. Foraging, easy I.D. of public v. private land.

Private Citizen
USES • Building new house.

Private Citizen
USES • Get owner permission or locate owner of undeveloped land for possible purchase.
BENEFITS • I have had a person interested in selling me their property, but they have not decided on a price yet.

Private Citizen
USES • Hunting access, fishing access points, for easement.
BENEFITS • It has given me quick access to landowners so that I can respectfully address them when asking for permission to cross their property.

▪ Private Citizen
USES • Finding out who owns certain parcels of land.

▪ Private Citizen
USES • Searching for current owner of a particular vacant lot.

▪ Private Citizen
USES • Rough estimate of property lines.

▪ Private Citizen
USES • To find out what the property taxes are on real estate I may buy.

▪ Private Citizen
USES • I am looking to find a Planning job post graduate degree. In my free time I am looking to increase my GIS skills so I can demonstrate them to future employers.

▪ Private Citizen
USES • Looking to see who owns land with points of interest to hike on.
BENEFITS • Find places to go hiking.

▪ Private Citizen
USES • Outdoor recreation.
BENEFITS • Ensure that I am on public land, not private land without permission.

▪ Private Citizen
USES • In preparation for a town meeting regarding a change is zoning request.
BENEFITS • Was able to identify the parcel and the owner.

▪ Private Citizen
USES • Determine in who's name the marital property of my widowed mother is, to determine for which properties new titles are needed.
BENEFITS • To demonstrate the above.

▪ Private Citizen
USES • I am trying to find a car.

▪ Private Citizen
USES • Need to know property boundaries to know where to lay invisible fence.

▪ Private Citizen
USES • Love the site! I've been using the individual GIS systems for years for real estate and this saves so much time.
BENEFITS • It saves us time.

▪ Private Citizen
USES • 1) I think this is a cool website. 2) I am currently looking to purchase a parcel.
BENEFITS • I have obtained information on parcel layout in Wisconsin.

▪   ▪   ▪