

# Status of Selected Wisconsin Foundational Layers

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*WLIA Technical Committee*



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## ABOUT THIS DOCUMENT

This document summarizes the current status of selected Wisconsin “foundational layers” (*aka* “framework data layers” or “foundational elements”) associated with the Wisconsin Land Information Program (WLIP). Throughout this report, the term ***foundational layer*** (*aka* “layer”) refers to a digital spatial representation of the data that can be used for mapping and analyses in a geographic information system (GIS) or GIS-related applications and tools. The intent of this report is to provide a general overview of the completeness of each of the selected Wisconsin foundational layers at a given point in time.

Specifically, this report provides information about the status of each layer’s ***source data***, as well as the status of the corresponding ***statewide foundational layer*** – *if one exists* – created from the source data. It is important to separate information about the source data from the statewide foundational layers because, in all but a few cases: (1) they have separate stewards and contacts, (2) they are created and maintained using different processes, (3) they have different levels of completeness, (4) they have different associated costs, and (5) they may be developed to support different business needs or requirements.

This report does **NOT** provide specific recommendations or a plan about how or when source data and/or statewide foundational layers will be completed. The authors intend to present this status report to the Wisconsin Geographic Information Coordination Council (WIGICC) and others. The hope is for WIGICC or another interested entity to use this information to develop a final plan with specific steps for identifying and documenting the business needs, processes, and resources associated with (1) completion of Wisconsin’s foundational element source data and statewide layers, (2) development and governance of a centralized “system” to facilitate the integration and distribution of statewide foundational layers, and (3) sustainable maintenance of foundational elements and the “system” over the long term.

## ABOUT WLIP FOUNDATIONAL ELEMENTS

Foundational elements were originally identified by stakeholders as the most critical Wisconsin layers for supporting a wide range of business needs and policy decisions. Since 1990, foundational elements have been incorporated into WLIP requirements for county and state agency land information planning, as well as the WLIP-related funding of county land information activities. The 12 current data-related ***WLIP foundational element categories*** are described in Section E of the *Uniform Instructions for Preparing County Land Information Plans* (December 2009) found at <http://www.doa.state.wi.us/docview.asp?docid=5528>:

1. Geographic Positioning Reference Frameworks
2. Orthoimagery and Georeferenced Imagery
3. Elevation and Topographic Data
4. Parcel Data
5. Parcel Administration and Assessment Data
6. Street/Road Centerlines, Address Ranges and Address Points
7. Hydrography, Hydrology and Wetlands Data
8. Soils, Land Cover, and other Natural Resource Data
9. Land Use Data
10. Zoning Data
11. Election and Administrative Boundary Data
12. Critical Infrastructure and Facilities Data

Most WLIP foundational element categories are comprised of several related thematic foundational layers. For example, the *Election and Administrative Boundary Data* category includes voting district, legislative district, utility district, school district, municipal boundaries, and other layers. In addition to having a related subject, some of the layers within a category may also have related geometry (e.g., their boundaries must align). For example, the boundaries of voting districts and legislative districts must align with each other within a county, and legislative district boundaries must join across county boundaries.

**Most source data for foundational layers are created at the local level.** From the beginning, one of the main WLIP goals has been to help local government entities create and maintain their source data, which would, in turn, be aggregated into statewide layers. Since 1990, WLIP has invested approximately \$156 million in county land records modernization activities through retained fees (under s. 59.72(5), Wis. Stat.) and grants to counties (under s. 16.967(7), Wis. Stat.). In many cases, modernization at the local level has literally meant updating from 19<sup>th</sup> Century methods, such as original survey markers located by metes and bounds, to 21<sup>st</sup> Century technologies dominated by GIS tools, data and applications. Modern, digital land information, searchable databases, and mapping applications enable decision-makers, investors, government entities, private land owners, developers, and others to access accurate and timely information.

**Some source data for statewide foundational layers are created at the state or federal level.** Some Wisconsin state agencies have clear statutory authority and responsibility to create and maintain the source data and corresponding statewide foundational layers on behalf of the state. The state agency programs responsible for source data and corresponding statewide foundational layers have never had access to WLIP grants to help with these activities and rely, instead, on other funding sources where available. Federal agencies are also responsible for creating and maintaining source data used to create a few statewide foundational layers, and like state agencies, they have never been eligible for WLIP grants to fund their activities – *with one exception*. From 2000 to 2006, WLIP grants helped fund completion of soil survey field mapping in Wisconsin as the first step toward creation of the statewide foundational soils layer.

Counties that accept a land information grant and/or that retain fees for land information purposes must submit an annual report to the Wisconsin Department of Administration (DOA) that categorize how they spent their WLIP funding and cite how the spending was consistent with the county land information plan. In addition, DOA and the State Cartographer's Office (SCO) produced the *2009 Report on County GIS Data Systems* describing the status of county foundational element source data (see page 6 of [ftp://ftp.wi.gov/DOA/public/comprehensiveplans/2009\\_GIS\\_Report/FINAL\\_County\\_GIS\\_Inv\\_Report\\_May2009.pdf](ftp://ftp.wi.gov/DOA/public/comprehensiveplans/2009_GIS_Report/FINAL_County_GIS_Inv_Report_May2009.pdf)). Per s. 16.967(6), Wis. Stat., eleven state agencies are also required to submit annual plans that describes their land information integration and modernization activities, including those associated with WLIP statewide foundational layers (<http://gio.wi.gov/Projects/LIIMS/tabid/230/Default.aspx>).

## FOUNDATIONAL ELEMENT SUCCESSES

As mentioned above, WLIP has helped support resources for most counties to modernize land information related processes, tools, applications, databases, and/or source data. Specifically, retained fees and WLIP grants support the base budgets of county Land Information Offices, staff training and special projects. In addition, WLIP "Strategic Initiative" grants have supported a handful of statewide projects.

From 2000 to 2006, WLIP Strategic Initiative grants (\$415,000/year over six years for a total of \$2.49 million) helped fund completion of soil survey field mapping in Wisconsin and creation of the statewide foundational soils layer. In

addition to WLIP funds, the Wisconsin Department of Natural Resources, Department of Transportation, and the Board of Commissioners of Public Lands contributed a total of \$1,710,000 over the statewide soil project's six year timeline. In 2005, WLIP provided \$35K in Strategic Initiative funding for the development of the Wisconsin Coordinate Reference Systems (WISCRS) parameters and document.

In addition, municipalities, counties, state agencies, federal agencies, and other stakeholders continue to dedicate other (non-WLIP) funds for resources to create/acquire, manage, and distribute some foundational element source data and statewide layers, such as statewide soils, hydrography, and LiDAR. In a few cases, stakeholders have successfully pooled resources and coordinated efforts in order to save money, facilitate data sharing, and maximize return-on-investment. The *Wisconsin Regional Orthophotography Consortium* project is an example of such a collaborative initiative (<http://www.ncwRPC.org/WROC/>). Led by seven regional planning commissions, WROC coordinated the 2010 acquisition of statewide orthoimagery, which was used to produce a publicly available statewide orthophotography layer (18" pixel resolution, leaf-off), as well as additional "buy up" products for municipalities, counties, and other entities to support their specific business needs.

## FOUNDATIONAL ELEMENT CHALLENGES

Most stakeholders support – *in theory* – the WLIP goal of completing the source data at their appropriate level (e.g., municipal, county, state, federal) and creating statewide foundational layers from the source data, as appropriate. *In reality*, several challenges continue to hinder the full realization of this goal, as described below (**in no particular order**).

### 1. GAPS IN LOCAL SOURCE DATA

Some counties have yet to complete source data at the county level. Several issues contribute to these gaps.

- Municipalities within a county may not receive any WLIP-related funding to help them complete municipal data for aggregation into the county data.
- The county may have difficulty acquiring and/or integrating municipal data into their county data for technical, political or other reasons.
- Vast differences in WLIP related retained fees (i.e., collected through recordings) among counties support different levels of resources (e.g., staff, data development/maintenance), timelines, priorities, and levels of data completeness within counties. Wisconsin counties with larger and/or more rural land areas often have smaller populations and, as a result, fewer real estate transactions and less retained fees to fund work on foundational layers.
- WLIP "base budget" grants are intended to address, in part, disparities in retained fees as described in the bullet above. However, the current maximum base budget grant amount (\$50,000) has proven to be insufficient. Even more detrimental, lapses over the past several budget cycles have reduced the amount actually awarded via base budget grant process to less than \$50,000.

### 2. AGGREGATING SOURCE DATA INTO STATEWIDE FOUNDATIONAL LAYERS

While significant gains in the completion and maintenance of county data have been made, the aggregation of local data into statewide foundational layers lags woefully behind. The vast majority of issues that contribute to the lack of statewide foundational layers in Wisconsin are non-technical in nature.

- **Foundational element data not recognized as “critical infrastructure” by most decision-makers.** The importance of WLIP source data and statewide foundational layers seems obvious to GIS and land information professionals. However, despite several attempts to document and “sell” comprehensive business cases for creating and maintaining specific statewide foundational layers, the “buy in” – *and accompanying resources* - of decision-makers, program managers, administrators, executives, governing boards, and legislators remains elusive. In addition, until decision-makers, especially in government entities, truly understand and believe that geospatial data is “critical infrastructure” (i.e., like a utility), the GIS community will have to continue to justify the allocation of, and protest the lapse of, existing (and already inadequate) resources.
- **Local data sharing restrictions on source data created with WLIP funding.** Wisconsin has never realized a full return on its \$156 million WLIP investment, in part, due to data sharing restrictions at the county level. According to the *2009 Report on County GIS Data Systems*, only 39% of the 72 Wisconsin counties said they would be willing to contribute data to a statewide repository or clearinghouse. Additional complexity is added when 38% of counties license data, 33% copyright data, and 65% restrict re-distribution of data. Not only do county data sharing restrictions run contrary to statutes and grant agreements (which most counties have and which clearly state that counties must share land information ***without restrictions***), but they also inhibit “open source” innovation, create government inefficiencies, and increase costs for private businesses (in some cases thousands of dollars per county dataset). Please refer to <title> for more information about data sharing issues <link>.
- **Lack of database design and system implementation standards to help integrate data from different sources.** The 13<sup>th</sup> WLIP Foundational Element – *Database Design and System Implementation* – does not refer to a specific foundational layer. Instead, it encompasses data and database standards, models, policies, procedures, coding schemas, workflows, formats, structures, security, and other specifications intended to improve source data consistency and quality, and facilitate integration of source data into statewide foundational layers. Historically, Wisconsin government entities (at all levels) have adopted their own internal data and database standards, models, etc. to support specific business needs. This makes sense. However, another level of standards, models, etc. must be developed and adopted to integrate the geometry (e.g., survey points, boundaries) and attributes from multiple disparate source datasets into statewide foundational layers.
- **Lack of interoperability guidelines for GIS web mapping applications and web services.** As with data and databases, Wisconsin has not adopted standards and guidelines regarding the interoperability of web-based geospatial services and applications. These services and applications are one way of providing access to statewide foundational layers. Without interoperability standards, bringing web-based services from different counties together to create a statewide “view” can be difficult or impossible.
- **Lack of clearly identified “stewards” for statewide foundational layers.** Throughout this document, the term **steward** refers to an entity with primary authority or responsibility to create and manage source data or a statewide foundational layer, and/or is the primary owner of the source data or statewide layer. Some entities are clearly identified as stewards via federal or state statute or rule (e.g., DNR -*Wisconsin Wetlands Inventory*). Other stewards are not clearly identified, and, in some cases, an entity may become the steward

of a statewide foundational layer out of practical necessity (DATCP - *statewide soils layer*) or other reasons (e.g., SCO - *PLSSFinder*). Each statewide foundational layer must have a clearly identified steward with a specific business need or general coordination role to provide the incentive and resources necessary to create, manage and distribute that statewide layer. Several years ago, the state geographic information officer (GIO) created a prototype web-based GIS data repository to provide access to statewide foundational layers via web map services. Although intended to provide a facility for the aggregation, integration and distribution of statewide layers (and reduce redundant costs), the prototype revealed several technical, data and policy issues - *including stewardship and cost recovery issues* - that must be resolved.

- **Lack of state level resources committed to statewide foundational layers.** State and federal agencies have been ineligible to receive WLIP grants to work on source data and/or statewide foundational layers. In most (but not all cases), state agencies with clear stewardship authority for a statewide layer attempt to secure non-WLIP funding to work on that layer. Even with clear stewardship responsibility, however, some programs have been unable to adequately fund these activities. If stewardship authority is unclear, state agency programs have almost no chance of obtaining resources for creating and maintaining statewide foundational layers (other than to use existing resources – e.g., out of practical necessity).
- **Lack of governance structure for statewide foundational layers.** Wisconsin lacks an entity with true authority and adequate resources to address statewide foundational layer governance issues. Data governance is especially critical where data from multiple sources may be aggregated into statewide layers. A robust, non-volunteer structure must exist for identifying priorities, coordinating resources, adopting standards and models, resolving conflicts, negotiating data sharing arrangements, etc. associated with the creation, maintenance and distribution of statewide foundational layers.
- **Lack of centralized geospatial “system” for integrating, maintaining and disseminating statewide foundational layers.** If all challenges above were resolved, Wisconsin would still lack a centralized physical “system” where (1) integration of source data into statewide layers, (2) maintenance of statewide layers and (3) access to and distribution of statewide layers would be managed and administered. This need was most recently identified in the 2012 “Deer Report” (<http://www.doa.state.wi.us/section.asp?linkid=239&locid=0>) which recommends development of a “statewide geospatial information system” that “provides seamless support to all state resource managers across agencies, which also supports economic development, emergency planning and response, and a host of citizen services.” The first step in implementation would be to identify and assess business needs and existing options for developing and hosting such a “system”.

### **3. LACK OF COMPREHENSIVE “CATALOG” OF STATEWIDE FOUNDATIONAL LAYERS**

Identifying the status of statewide foundational layers, and developing a strategic plan for their continued development and improvement, is impossible without a comprehensive understanding of what exists where. For almost 20 years, counties and several state agencies have submitted annual reports to DOA regarding their land information modernization and integration activities. In addition to reports, various other tools - *Wisconsin GIS Inventory Survey (Ramona)*, *WiscLINC*, and the state agency *Land Information Integration and Modernization Survey (LIIMS)* - have been employed in an attempt to describe the status of existing foundational elements.

***Despite all these efforts, Wisconsin still lacks a single, comprehensive, current catalog of all statewide***

**foundational layers**, including the status of their source data, layer completion status, and other vital information (e.g., steward, sharing restrictions, costs, format, access methods).

#### 4. WLIP LACK OF EMPHASIS ON STATEWIDE FOUNDATIONAL LAYERS

Historically, WLIP retained fees and grants have been used to create and maintain local source data to support the production of paper maps and mapping applications at the local level. However, while completion of local source data is necessary to create specific statewide foundational layers, not all statewide layers are created from local source data. In fact, WLIP grant funds have been used only once to support a regional or statewide initiative - completion of soil survey field mapping in ten northwest Wisconsin counties. Throughout the years, other regional or statewide proposals have been opposed, often by county entities, and none have received WLIP grant funding. Even more tragic, DOA often lapses unused WLIP funds.

### STATUS OF SELECTED WISCONSIN FOUNDATIONAL LAYERS

The following tables describe the status of 17 selected WLIP Wisconsin foundational layers. It should be noted that many other critical statewide layers have been identified by stakeholders, not all of which are directly associated with existing WLIP foundational elements or identified WLIP statewide foundational layers. In order to understand the status of the 17 selected statewide foundational layers, it is first critical to understand what is meant by:

- **STATEWIDE LAYER:** The name or theme of the statewide foundational layer described in the table.
- **FOUNDATIONAL ELEMENT:** The name of the WLIP foundational element category in which the statewide foundational layer is classified.
- **IMPORTANCE:** In fall 2012, WLIA members and ESRI Wisconsin User Group (EWUG) conference participants were asked to weight (with 1 being "lowest" to 5 being "highest") the importance of (1) completing selected foundational elements and (2) using selected foundational element layers in their jobs. Averaging the "highest" importance (i.e., value 5) response percentages from the two questions revealed two general sets of layers. The first set (HIGHEST) includes the five foundational elements with the highest percentages of respondents (close to 50% or above) weighting both completion and use of the layer of "highest" importance. The second set (HIGH) had more variation in weighting. It should be noted that this poll was very informal, that all foundational elements are considered critical, and that it is difficult to rank foundational elements because different business areas require different layers to support their activities. Results of this analysis are found in Appendix A.
- **LAYER DESCRIPTION:** General description of the statewide foundational layer.
- **RELATED STATEWIDE LAYERS:** Other statewide foundational layers associated with the described layer. Related statewide layers may be categorized in the same or different foundational element category, and have a direct relationship with the creation or representation of the described layer. For example, statewide parcel boundaries would need to be coincident with statewide city/village/town boundaries, zoning boundaries, and special utility district boundaries.
- **BUSINESS NEEDS/STAKEHOLDERS:** General description of stakeholders and their business needs that are/would be supported by the statewide foundational layer, and especially by 100% completion of the source data and the corresponding statewide foundational layer.

- **SOURCE DATA STEWARD(S):** Officially recognized or *de facto* steward of the source data used to create the statewide foundational layer. In most cases, local entities are the stewards of local source data and state agencies are the stewards of state level source data and corresponding statewide foundational layers. When a state agency is the steward of state level source data, that source data is usually (but not always) the same as the statewide layer.
- **SOURCE DATA CONTACT(S):** Name, affiliation and email of the organizational contact who is coordinating the collection of program/business area information from internal contacts for this report. *NOTE: The source data contact(s) in this report are not necessarily responsible for responding to requests for the source data within the organization, so this contact information should not be used for data requests.*
- **SOURCE DATA STATUS:** Description of the status of the source data. For example, source data may not exist in any format, may not exist in a spatial format, may be under development in a spatial format, may be completely developed and under routine maintenance in a spatial format, etc. Status must also include an explanation/rationale about how that status was determined.
- **STATEWIDE LAYER STEWARD:** Officially recognized or *de facto* steward of the described statewide foundational layer. In most (but not all) cases, a state level entity will be the steward of a statewide foundational layer.
- **STATEWIDE LAYER CONTACT(S):** Name, affiliation and email of the organizational contact who is coordinating the collection of program/business area information from internal contacts for this report. *NOTE: The statewide foundational layer contact(s) in this report are not necessarily responsible for responding to requests for the statewide layer within the organization, so this contact information should not be used for data requests.*
- **STATEWIDE LAYER STATUS & ACCESS METHOD(S):** Description of the status of the statewide foundational layer. For example, the statewide layer may not exist in any format, may not exist in a spatial format, may be under development in a spatial format, may be completely developed and under routine maintenance in a spatial format, etc. Status must also include an explanation/rationale about how that status was determined. In addition, a description about the method(s) by which the statewide foundational layer may be accessed. *NOTE: There are several ways to access a statewide layer, and different business needs may require different access methods. For example, some users may require a copy of the actual layer itself for analyses and other purposes. Copies of the layer may be accessible via website download, FTP site, mailing a DVD, etc. A "view" of a statewide layer may be provided via a web map service or web feature service. In this case, a copy of the layer itself cannot be downloaded, but it can be viewed and manipulated using GIS desktop software, via web mapping applications, etc. Another option is to load individual source layers together via the sources' web map or feature services (e.g., load 72 web services) into one "view". A statewide foundational layer that is 100% complete and accessible via a web service may not support the activities of a business program that needs an actual copy of the layer itself.*
- **NOTES:** General notes about any of the components described above.

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
<b>Parcels</b>	Parcel Data	<b>HIGHEST</b>		
LAYER DESCRIPTION				
Parcels represent land ownership.				
RELATED STATEWIDE LAYERS				
Administrative Boundaries, Zoning, Land Use Mapping				
BUSINESS NEEDS/STAKEHOLDERS				
Parcel layers and related tabular attributes are used by a wide range of municipal, county, regional, and state (e.g., DOR, DATCP, DNR, DOA, WEM) government entities, engineers, real estate developers, city planners, tax assessors, public and private utility services, and homeowners. Parcels support hundreds of applications, such as land use planning and development, environmental and agricultural impact statements, tax assessment, engineering, utilities, emergency planning and response, identifying land owners eligible for tax credits. Stakeholders: Those with a need for land/property ownership, such as municipalities, counties, state agencies (DOR, DNR, DATCP, DOT, DOA, WEM), realtors, utilities, and many others.				
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)			
Municipal entities; County entities	stewards			
SOURCE DATA STATUS				
92% of Wisconsin's approximately 3.5 million parcels are completed. what does "complete" mean? This leaves approximately 280,000 parcels left to complete.				
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)			
unknown	Ian Grasshoff (Wapaca County) & Justin Conner (Wood County) -WLIA "Just Do It" project <a href="mailto:ian.grasshoff@co.waupaca.wi.us">ian.grasshoff@co.waupaca.wi.us</a> & <a href="mailto:jconner@co.wood.wi.us">jconner@co.wood.wi.us</a> Howard Veregin - SCO project SCO <a href="mailto:veregin@wisc.edu">veregin@wisc.edu</a>			
STATEWIDE LAYER STATUS & ACCESS METHOD(S)				
SCO is currently conducting its <i>Virtual Parcel Data Integration Project</i> ( <a href="http://www.sco.wisc.edu/news/virtual-parcel-data-integration-project-update.html">http://www.sco.wisc.edu/news/virtual-parcel-data-integration-project-update.html</a> ). This project involves using public county web map services to create a statewide "view" of parcel data. Specifically, the project is investigating ways to combine parcel data already published online by counties. Unlike more traditional integration projects, the SCO project does not require counties to supply a digital copy of their parcel dataset. As a result, it avoids challenges associated with (1) data sharing agreements, (2) converting data from disparate sources to a common data model, and (3) "stitching", edge matching or "rubber sheeting" data to align at county boundaries. Approximately 30 county web map services have been aggregated so far. Several data, technology, and policy issues would need to be resolved before this could be a practical solution. In addition, several stakeholders have a business need for an actual statewide parcel layer for download.				
At the same time, WLIA is currently conducting its "Just Do It" pilot project. The goal of this project is to gather as much parcel data as possible and assemble it into a seamless parcel layer, stored as one common database schema, for the purpose of demonstrating the value of statewide data layers to decision makers and legislators. This project has progressed and succeeded in adding parcel data from 59 counties without the need to sign county data sharing agreements, although agreements would be required to share datasets outside of this project. More information about this project and its status are found at: <a href="http://www.wlia.org/forumviewtopic.cfm?forumnbr=7274&amp;topicnbr=16314">http://www.wlia.org/forumviewtopic.cfm?forumnbr=7274&amp;topicnbr=16314</a> .				
NOTES				
Some counties would need to redo or update existing parcel layers as better geodetic control becomes				

available.

Parcel administrative and assessment data is as critical and must accompany parcel geometry and identifiers in a statewide system. Multiple stakeholders require parcel information such as (but not limited to): tax data, parcel address, owner name, parcel legal description, real estate transactions, zoning, easements and restrictions, tax exempt status, public lands, liens, etc. A data model is designed that could receive the local tax/parcel databases information and put into a standard format that can be used on a statewide basis. Work on this was done by the WLIA Parcel Data Task Force and the GIO in anticipation of grant funding. Automation of this system would require programmatically translating the steward's data into a unified format.

Distribution of this product would require creation of map services and file transfer protocol. Because of the volatile nature of this dataset, which can expect record level changes during the course of a day, and the technology interaction required to move data from a multitude of jurisdictional stewards into a standardized central data repository, maintenance costs (not shown above) should be included as an annual expenditure for a viable product. The biggest obstacle to a completed parcel data set is the lack of a clear mandate for efficient electronic data sharing across custodial agencies. Until legislation is clear on what must be created at the local level, and how this data must be shared, the creation of a unified statewide product will remain incomplete.

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE
Digital Orthophotography	Orthoimagery and Georeferenced Imagery	HIGHEST
LAYER DESCRIPTION		
Ortho-imagery (orthophotography) are aerial photographs that are geometrically corrected to account for the curvature of Earth's surface so they can be used to measure true distances and map base features without distortion (e.g., without buildings tilting away from the center of the photograph). Municipality, county, state, and federal agency programs (e.g., Forestry; DOT road corridors), utilities, and other stakeholder acquire orthoimagery for specific projects. Over the past years, several statewide initiatives have resulted in the collection of statewide orthoimagery for Wisconsin. These efforts include (but are not limited to) the USDA National Agriculture Imagery Program (NAIP) and the Wisconsin Regional Orthophotography Consortium (WROC). It is also important to note that, because different statewide orthoimagery products have different characteristics (leaf-on versus leaf-on; resolution; 3-band versus 4-band), different entities may use one or more of these products to support specific business needs.		
RELATED STATEWIDE LAYERS		
Parcels, Administrative Boundaries, Street Centerlines, Address Points, Hydrography, Wetlands, Soils, Land Use, Zoning, Critical Infrastructure		
BUSINESS NEEDS/STAKEHOLDERS		
Orthoimagery is used as the base map when creating most other foundational elements. Public Works Departments utilize orthophotography on virtually every new project. Planning can be achieved more efficiently and with better accuracy. Provides a general picture of surroundings and feature location, especially in rural areas, for various state and county agency field staff. DOT can determine where to build new transportation corridors. Emergency response utilizes imagery for wildfire, flooding, storm damage assessment, and other activities. <b>Stakeholders:</b> Those with a need for general picture of what's on the ground, such as municipalities, counties, state agencies (DNR, DATCP, DOT, DOA, WEM), realtors, utilities, and many others.		
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)	
Entities that fund the acquisition of orthoimagery products and/or who otherwise purchase these products.	stewards	
SOURCE DATA STATUS		
see below		
STATEWIDE LAYER STEWARDS	STATEWIDE LAYER CONTACT(S)	
WROC (unknown) NAIP (FSA)	Andy Faust (WROC) North Central WI Regional Planning Commission <a href="mailto:afaust@ncwRPC.org">afaust@ncwRPC.org</a> ; Brenda Zachman (NAIP) USDA Farm Services Agency (FSA) <a href="#">email</a>	
STATEWIDE LAYER STATUS & ACCESS METHOD(S)		
100% (2010). Statewide 18" leaf-off imagery was acquired in 2010 through WROC and is available for download via WisconsinView ( <a href="http://www.wisconsinvieew.org/">http://www.wisconsinvieew.org/</a> ). Statewide 1 meter leaf-on NAIP imagery was acquired in 2010 and is also available via WisconsinView.		
NOTES		
Imagery needs to be updated at least every five years. Jim Lacy (SCO) is currently working on a business plan for a sustainable statewide orthoimagery program ( <a href="http://www.sco.wisc.edu/news/project-to-develop-orthophotography-business-plan-moving-forward.html">http://www.sco.wisc.edu/news/project-to-develop-orthophotography-business-plan-moving-forward.html</a> ).		

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE
<b>Street Centerlines with Address Range</b>	Street/Road Centerlines, Address Ranges and Address Points	<b>HIGHEST</b>

#### LAYER DESCRIPTION

The Wisconsin Department of Transportation (WisDOT) maintains two separate statewide GIS road network layers, including inventory attribute data: the *State Trunk Network* (STN) that focuses on State, US, and Interstate highways, and the *Wisconsin Information System for Local Roads* (WISLR) that focuses on local roads.

- STN is a GIS database of centerline files, shapefiles and tables for approximately 12,000 miles. Location along the STN is maintained by two linear referencing systems—roadway links and reference sites (primary system), and the reference points (secondary system). The STN linear reference system has 1/100 mile precision for route and reference point information.
- WISLR is a GIS database of centerline files, shapefiles and tables for approximately 100,000+ miles of local roads, streets and highways. New roads/streets, annexations, incorporation's and construction changes affecting local roads are reported to the WisDOT via certified survey map, sub-division plat or legal descriptions by the local units of government to certify roads for transportation aids. Key roadway attribute data can be updated to the nearest foot using an on/at linear reference system.

**Neither STN nor WISLR currently include address range information.** However, some municipalities and counties create and maintain road centerline layers that includes address ranges. <true?>

#### RELATED STATEWIDE LAYERS

Orthoimagery, Administrative Boundaries, Parcels

#### BUSINESS NEEDS/STAKEHOLDERS

In general, street centerline data is used for a variety of transportation and routing (e.g., emergency vehicles, snow plows, school buses) purposes, and is also commonly used in “base maps” to provide general reference. Centerlines with address ranges also facilitate navigation and routing (e.g., to specific locations, around road closures and incidents) when published real time. WisDOT is responsible for maintaining, analyzing, inventorying and reporting on the STN inventory system which is required under the Department of Transportation’s administrative code and Federal law. STN contains inventory attribute data to support the national roadway infrastructure within the State of Wisconsin. WISLR is a shared state and local resource. The primary purpose of the physical and administrative local road inventory attribute data and line work is to comply with Wisconsin S86.302 inventory and certification of local roads and federal reporting requirements under HPMS. This database is used to determine the distribution of over \$400+ million in general transportation aides (GTA) to local governments. **Stakeholders:** Federal Highway Administration, Congress, metropolitan planning organizations, regional planning commissions, local and county units of government, safety, planning, forecasting, utilities, oversize/overweight vehicle routing, Badger TraCS Incident Locator Tool, State agencies (DNR, DATCP, DOT, DOA, WEM), etc.

SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)
Municipal entities (municipal data); county entities (county data); WisDOT (state data)	stewards

#### SOURCE DATA STATUS

unknown

STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)
Wisconsin Department of Transportation (WisDOT)	STN (Vacant); Kelly Schieldt (WISLR) Wisconsin DOT <a href="mailto:Kelly.schieldt@dot.wi.gov">Kelly.schieldt@dot.wi.gov</a>

#### STATEWIDE LAYER STATUS & ACCESS METHOD(S)

STN and WISLR geometry and inventory data are complete statewide and updated on an annual cycle. The data

layers are available from WisDOT as shapefiles upon request.

**NOTES**

DRAFT

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE
<b>Geodetic Control &amp; Control Network</b>	Geographic Positioning Reference Frameworks	<b>HIGHEST</b>
LAYER DESCRIPTION		
Highly accurate, surveyed local coordinates on corners of the Public Land Survey System (PLSS). These corners are then used to generate a PLSS framework (township, range, section, ¼-section, etc.) that is the foundation for accurate parcel and other mapping.		
RELATED STATEWIDE LAYERS		
Parcels, Orthoimagery, Administrative Boundaries		
BUSINESS NEEDS/STAKEHOLDERS		
An accurate PLSS framework is required for accurate and reliable parcel mapping. Reduces survey costs for highway projects, improves accuracy of flood insurance rate maps. Provides public and private agencies with a uniform survey system. Stakeholders: Those interested in highly accurate PLSS corners and general PLSS data, such as municipalities, counties, state agencies (DNR, DOT), surveyors, utilities, and many others.		
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)	
County surveyors; Wisconsin Department of Transportation	County surveyors; John Ellingson (DOT) Wisconsin DOT <a href="mailto:John.ellingson@dot.state.wi.us">John.ellingson@dot.state.wi.us</a>	
SOURCE DATA STATUS		
50% what does this mean?		
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)	
State Cartographer's Office (SCO) <i>de facto</i>	Howard Veregin State Cartographer's Office <a href="mailto:veregin@wisc.edu">veregin@wisc.edu</a>	
STATEWIDE LAYER STATUS & ACCESS METHOD(S)		
Web-based PLSSFinder application: <a href="http://www.sco.wisc.edu/plssfinder/plssfinder.html">http://www.sco.wisc.edu/plssfinder/plssfinder.html</a>		
NOTES		

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
<b>Minor Civil Division Boundaries (City, Village, Town)</b>	Election and Administrative Boundary System	<b>HIGHEST</b>		
<b>LAYER DESCRIPTION</b>				
Minor civil divisions (MCDs) are the primary governmental or administrative division of a county. MCDs represent many different kinds of legal entities with a wide variety of governmental and/or administrative functions.				
<b>RELATED STATEWIDE LAYERS</b>				
Parcels, Orthoimagery, Zoning, Land Use, Planned Land use, Election Boundaries				
<b>BUSINESS NEEDS/STAKEHOLDERS</b>				
Accurate MCD boundaries are important in the redistricting process and the delineation of election-related boundaries (e.g., school districts, state legislature districts, special districts). The general management of elections is very difficult without accurate MCD boundaries. Stakeholders: Those with a need to know where city, village and town boundaries are, such as municipalities, counties, state agencies (DNR, DATCP, DOT, DOA, WEM), realtors, utilities, legislators, elected officials, the Government Accountability Board (GAB), regional planning commissions, US Census Bureau, and many others.				
<b>SOURCE DATA STEWARD(S)</b>	<b>SOURCE DATA CONTACT(S)</b>			
Cities, Villages, Towns, Counties	stewards			
<b>SOURCE DATA STATUS</b>				
unknown				
<b>STATEWIDE LAYER STEWARD</b>	<b>STATEWIDE LAYER CONTACT(S)</b>			
unknown	Tony Van Der Wielen LTSB <a href="mailto:Tony.VanDerWielen@legis.wisconsin.gov">Tony.VanDerWielen@legis.wisconsin.gov</a>			
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>				
unknown				
<b>NOTES</b>				
Several groups have attempted to resolve the many issues associated with the reporting and review of minor civil division (MCD) boundaries and creation, maintenance and sharing of MCD layers at the local, county, state and federal levels. The WIGICC “MCD Committee” documented the data flows associated with various MCD boundary reporting and layer-creation processes associated with these boundaries, and decided to go on hiatus while LTSB developed a potential solution. LTSB is currently working with US Census Bureau and counties to help counties sign up for the “Consolidated Boundary and Annexation Survey” (CBAS) program. This program allows counties to report boundary and feature changes that they receive on behalf of the cities, villages and towns. To support the CBAS effort, LTSB has created a “Boundary Annexation Survey Tool” which is used by counties to identify differences between existing and current US Census boundary data. One potential by-product of the LTSB tool may be a statewide minor civil division boundary layer.				

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE
<b>Address Points</b>	Street/Road Centerlines, Address Ranges, and Address Points	<b>HIGH</b>
<b>LAYER DESCRIPTION</b>		
Address locations		
<b>RELATED STATEWIDE LAYERS</b>		
Parcels, Street/Road Centerlines		
<b>BUSINESS NEEDS/STAKEHOLDERS</b>		
Address points are the basic descriptor needed to identify people and places in our state. In urban areas they are needed to differentiate between units in multi-tenant buildings. In rural areas they are needed to pinpoint a building (home, shed, etc.) on very large tracts of land. This layer will be essential for Next Generation 911 (NG911) where address points are used to pinpoint the incident scene. Creation of this layer will also help the accuracy of any other routing or geospatial searches. Stakeholders: State agencies, Counties, Municipalities, and neighboring state jurisdictions.		
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)	
Municipal entities (local data); county entities (county data)	stewards	
<b>SOURCE DATA STATUS</b>		
20% what does this mean?		
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)	
Wisconsin Department of Transportation?	Curtis Pulford DOA <a href="mailto:Curtis.Pulford@Wisconsin.gov">Curtis.Pulford@Wisconsin.gov</a>	
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>		
0%		
<b>NOTES</b>		
Wisconsin will need to investigate Federal data model standards, including the work of NENA and others defining NG911 standards. We will need to create a data model for statewide integration; we must create crosswalks between the hundreds of addressing authorities and the common data model; we must develop ETL procedures for each of the crosswalks, and; we must develop service delivery options. Because of the volatile nature of this dataset, which can expect record level changes during the course of a day, and the technology interaction required to move data from a multitude of jurisdictional stewards into a standardized central data repository, maintenance costs (not shown above) should be included as an annual expenditure for a viable product. The biggest obstacle to a completed address point data set is the lack of a clear mandate for efficient electronic data sharing across custodial agencies. Until legislation is clear on what is to be created at the local level, and how this data will be shared, the creation of a unified statewide product will remain elusive.		

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
LiDAR	Elevation Data and Topographic Base Data	HIGH		
<b>LAYER DESCRIPTION</b>				
LiDAR (Light Detection and Ranging) instruments are used for surveying and mapping to capture points on a surface of an object to create a point cloud of elevation values and used to create a laser-generated digital terrain model.				
<b>RELATED STATEWIDE LAYERS</b>				
Orthoimagery, Hydrography, Wetlands, Soils, Zoning, Critical Infrastructure				
<b>BUSINESS NEEDS/STAKEHOLDERS</b>				
Creates more accurate parcel mapping, Reduces survey costs for highway projects, improves accuracy of flood insurance rate maps. Stakeholders: Counties, DOT				
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)			
Entities that fund the acquisition of LiDAR products and/or who otherwise purchase these products.	stewards			
<b>SOURCE DATA STATUS</b>				
50% what does this mean? Is this for the source data or the statewide layer or both?				
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)			
unknown	J.C Nelson USGS <a href="mailto:jcnelson@usgs.gov">jcnelson@usgs.gov</a>			
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>				
50%??				
<b>NOTES</b>				
50% of Wisconsin's land area still needs to be mapped.				

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
<b>Hydrography</b>	Hydrography, Hydrology, and Wetlands Mapping	<b>HIGH</b>		
<b>LAYER DESCRIPTION</b>				
Surface Water Delineation				
<b>RELATED STATEWIDE LAYERS</b>				
Parcels, Orthoimagery, Administrative Boundaries, Zoning, Wetlands				
<b>BUSINESS NEEDS/STAKEHOLDERS</b>				
Supports hydrologic modeling and analysis, drainage basin and watershed planning, engineering studies, flood zone mapping, shoreland zoning and water quality monitoring. Provides the framework for integrating a wide variety of surface water-related data. Stakeholders: Those with a need for general picture of surface water, such as municipalities, counties, state agencies (DNR, DATCP, DOT, WEM), utilities, and many others.				
<b>SOURCE DATA STEWARD(S)</b>	<b>SOURCE DATA CONTACT(S)</b>			
see below	see below			
<b>SOURCE DATA STATUS</b>				
see below				
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)			
Wisconsin Department of Natural Resources	John Laedlein Wisconsin DNR <a href="mailto:John.Laedlein@dnr.state.wi.us">John.Laedlein@dnr.state.wi.us</a>			
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>				
100% (but in need of additional enhancements – see notes below). Layer available for download via DNR public FTP site as described here: <a href="http://dnr.wi.gov/maps/gis/datahydro.html">http://dnr.wi.gov/maps/gis/datahydro.html</a> . Layer also available to view via the <i>Surface Water Data Viewer</i> application at <a href="http://dnrmaps.wi.gov/imf/imf.jsp?site=SurfaceWaterViewer">http://dnrmaps.wi.gov/imf/imf.jsp?site=SurfaceWaterViewer</a> ).				
<b>NOTES</b>				
In the late 1990s the DNR developed a statewide Hydrography geospatial data layer from 1:24,000-scale sources ("24K Hydro" - <a href="http://dnr.wi.gov/maps/gis/datahydro.html">http://dnr.wi.gov/maps/gis/datahydro.html</a> ), primarily linework from USGS 7.5-minute topographic maps. The DNR has expended significant resources over the past 10 years locating historical and current surface water data (e.g., impaired waters, trout waters, outstanding and exceptional resource waters, sensitive waters, monitoring data, biological data, and water body inventory data).				
DNR plans for enhancing the statewide Hydrography layer are currently focused on two potential initiatives:				
<ul style="list-style-type: none"> <li>Integrate 24K Hydro with the USGS National Hydrography Dataset (NHD - <a href="http://nhd.usgs.gov/">http://nhd.usgs.gov/</a> ). This is required to improve the data layer's utility as a framework for facilitating the exchange of water-related information between the DNR and other state and federal partners. Part of this work involves extending existing DNR linework to complete the Hydrologic Units that border Wisconsin. In FY2013, DNR is expected to receive a \$75K US EPA grant to fund this effort. The bulk of the remaining work involves conflating NHD attributes onto the existing Wisconsin 24K Hydro linework. To date, the NHD attribute conflation to 24K Hydro has been piloted for three Hydrologic Units, to help develop cost estimates for completing the work statewide.</li> </ul>				
<ul style="list-style-type: none"> <li>Improve the quality of the data layer by incorporating more detailed and accurate information about surface water locations where available, primarily from counties or other local data producers. More detailed and accurate Hydrography data is believed to be available from some counties, but analysis is needed to determine the extent and condition of local-resolution data and the level of effort that would be required to integrate that data into the existing 24K Hydro data model.</li> </ul>				
In recent years the DNR has added local-resolution data for trout waters and wild rice waters to the 24K Hydro				

database. But those features represent only a very small percentage of locally-produced Hydro data potentially available for integration, and the DNR Water Division does not currently have the staffing or funding for further Hydro data enhancements. At this time, the cost to upgrade the Hydro database statewide using local-resolution data is unknown.

**To determine the scope and cost of an improved statewide Hydrography data, a more complete assessment of business requirements and data availability is needed.** The user needs assessment should focus on the Hydro data requirements of external partners as well as DNR programs, including the effects of recent legislation resulting in new requirements for managing aquatic invasive species, mapping of all ordinary high water marks, and Total Maximum Daily Load (TMDL) analysis for impaired waters. Input from local producers of Hydrography data is also needed to determine availability and the level of effort that would be required for data conditioning or conversion. We estimate that approximately \$60K should be sufficient to carry out an assessment of Hydrography user needs and data availability.

DRAFT

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
<b>Floodplains and Floodways</b>	Zoning	<b>HIGH</b>		
LAYER DESCRIPTION				
Layer delineates areas of flood risk.				
RELATED STATEWIDE LAYERS				
Parcels, Orthoimagery, Zoning, Land Use, LiDAR, Planned Land Use				
BUSINESS NEEDS/STAKEHOLDERS				
High quality flood insurance rate maps are an important tool in the effort to protect lives and properties in Wisconsin. Over time water flow and drainage patterns change dramatically due to surface erosion and other natural forces. This layer will allow community planners, local officials, engineers, builders and others to make important determinations about where and how new structures and developments should be built. Stakeholders: Counties, DOT				
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)			
Federal Emergency Management Agency (FEMA)	unknown			
SOURCE DATA STATUS				
unknown				
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)			
Wisconsin Department of Natural Resources	John Laedlein Wisconsin DNR <a href="mailto:John.Laedlein@dnr.state.wi.us">John.Laedlein@dnr.state.wi.us</a>			
STATEWIDE LAYER STATUS & ACCESS METHOD(S)				
Web access for existing maps at <a href="http://dnrmaps.wi.gov/imf/imf.jsp?site=SurfaceWaterViewer.floodplain">http://dnrmaps.wi.gov/imf/imf.jsp?site=SurfaceWaterViewer.floodplain</a>				
NOTES				

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
<b>Wetlands</b>	Hydrography, Hydrology, and Wetlands Mapping	<b>HIGH</b>		
<b>LAYER DESCRIPTION</b>				
Wetlands delineation				
<b>RELATED STATEWIDE LAYERS</b>				
Parcels, Orthoimagery, Administrative Boundaries, Zoning				
<b>BUSINESS NEEDS/STAKEHOLDERS</b>				
Used for the development of comprehensive resource management plans; wetlands inventory maps to administer wetland zoning programs and as a resource for wetland protection, monitoring and management; environmental impact assessments; a resource for property buyers to determine proximity of wetlands. Stakeholders: Counties, DOT, RPCs, DNR, DATCP				
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)			
see below	see below			
<b>SOURCE DATA STATUS</b>				
see below				
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)			
Wisconsin Department of Natural Resources	John Laedlein Wisconsin DNR <a href="mailto:John.Laedlein@dnr.state.wi.us">John.Laedlein@dnr.state.wi.us</a>			
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>				
46% of statewide digital Wisconsin Wetland Inventory (WWI) data have been interpreted from orthorectified aerial photography, with periodic updates also performed – see notes below.				
<b>NOTES</b>				
Digital WI Wetland Inventory (WWI) data is currently available for about 90% of the state (65 counties), but ortho-rectified aerial photography was used to determine wetland locations for only about 46% of the state (37 counties). Wetlands Inventory information is available for about 10% of the state (7 counties) in the form of paper maps only.				
DNR is currently producing digital WWI data at an average rate of 3 counties per year. DNR Wetland program staff estimate the following costs for an “average”-sized county (25 PLSS Townships in extent):				
<ul style="list-style-type: none"> <li>• Aerial Photography Acquisition: \$25K-\$30K per county</li> <li>• Wetlands Interpretation/Mapping: \$50K per county</li> <li>• “Orthomapper” Conversion to obtain Orthorectified WWI Product: \$25K per county</li> </ul>				
Production of Digital WWI data takes place on a 25-year cycle for most counties. The timing and frequency of WWI data updates varies for particular counties, mainly due to the availability of cost-share funds from other government agencies. For example, the WWI data for southeastern WI counties is updated every 5 years and completely re-mapped every 10 years due to cost-share funding and newly-acquired aerial photography from the Southeastern WI Regional Planning Commission (SEWRPC).				
<u>Digital WWI Data Access Issues</u>				
Under Wisconsin state law, DNR Digital Wisconsin Wetland Inventory (WWI) data is exempt from the state Open Records Law. State statute [ss. 23.32(3)(a), Wis. Stats.] specifically allows for DNR sale of digital wetlands data. Ordering information for Wetlands maps and Digital WWI data is available on the DNR website: <a href="http://dnr.wi.gov/wetlands/inventory.html">http://dnr.wi.gov/wetlands/inventory.html</a> .				
DNR policy is to share digital Wisconsin Wetland Inventory (WWI) data upon request and at no cost with all				

Wisconsin counties and municipalities that have made provisions for the state's Shoreland Wetland Zoning program in their ordinances (administrative rules contained in Chapters NR115 and NR117, Wisconsin Administrative Code, set minimum statewide standards for shoreland-wetland ordinances).

All Wisconsin Counties except Milwaukee County and Menominee County have ordinances recognizing NR115, and are able to obtain access to the WWI data from the DNR at no cost. Milwaukee County doesn't include any unincorporated areas (to which NR115 would apply), and Menominee County doesn't need an ordinance since it is all Tribal Land, but nonetheless those Counties have also been provided with no-cost access to the WWI data. At this time, approximately 430 Wisconsin municipalities have shoreland-wetland ordinances in recognition of NR117, which also make them eligible for no-cost access to DNR WWI data. Presumably, over time more and more municipalities will be making provision for NR117, by which they can also obtain WWI data access privileges.

The DNR Wetland Inventory program also has an agreement with the federal government under which all the digital WWI data available for Wisconsin (currently 35 counties) can be viewed and downloaded using the USFWS National Wetlands Inventory (NWI) "Wetlands Mapper" application:

<http://www.fws.gov/wetlands/Data/Mapper.html>. As digital WWI data becomes available for more counties in the future, that data will be posted to the NWI site as well.

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE
Zoning Districts	Zoning Data	HIGH
<b>LAYER DESCRIPTION</b>		
Zoning districts delineating land use regulations for permitted use in specific locations.		
<b>RELATED STATEWIDE LAYERS</b>		
Parcels, Orthoimagery, Administrative Boundaries		
<b>BUSINESS NEEDS/STAKEHOLDERS</b>		
Zoning regulates land use. Changes to municipal or county zoning ordinances made after Jan. 1, 2010 need to be consistent with a comprehensive plan. Zoning information is important to real estate commerce because land value is often tied to allowable uses. Stakeholders: Counties, DOT, DNR, RPCs, Municipalities, Economic Development Authorities, Realtors, WEDC		
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)	
Municipalities, Counties	Stewards	
<b>SOURCE DATA STATUS</b>		
57 counties have county zoning. Town zoning occurs in most of the other counties. It is unknown how many have a county-wide zoning map in GIS format.		
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)	
unknown	Peter Herreid Wisconsin DOA <a href="mailto:Peter.Herreid@Wisconsin.gov">Peter.Herreid@Wisconsin.gov</a>	
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>		
0%		
<b>NOTES</b>		

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE
Existing Land Use	Land Use	HIGH
<b>LAYER DESCRIPTION</b>		
Existing land use maps delineate land uses typically by common zoning designations, such as residential, commercial, agriculture, industrial, but also other designations, such as public conservation/parks, public institutions, woodlands, and environmental corridors.		
<b>RELATED STATEWIDE LAYERS</b>		
Parcels, Orthoimagery, Zoning, Future land Use Map		
<b>BUSINESS NEEDS/STAKEHOLDERS</b>		
These maps are a requirement for comprehensive plans and used for planning purposes. Stakeholders: Counties, DOT, DNR, RPCs, DATCP		
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)	
Municipal, county, state, federal, and tribal entities	stewards	
<b>SOURCE DATA STATUS</b>		
95% All but Milwaukee and Price Counties have adopted a comprehensive plan or at least created a draft (that might not have been adopted). 95% completion may be a gross overestimate if only counting available GIS layers, since it is unknown which counties actually have existing land use source data that could be used to create a statewide foundational layer.		
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)	
unknown	Peter Herreid Wisconsin DOA <a href="mailto:Peter.Herreid@Wisconsin.gov">Peter.Herreid@Wisconsin.gov</a>	
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>		
unknown		
<b>NOTES</b>		

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE
School Districts	Election and Administrative Boundary System	HIGH
<b>LAYER DESCRIPTION</b>		
Boundaries of all school districts in the state.		
<b>RELATED STATEWIDE LAYERS</b>		
Zoning, Land Use, Planned Land Use, Election Boundaries		
<b>BUSINESS NEEDS/STAKEHOLDERS</b>		
Accurate delineation of school districts is needed to define election districts. School district boundaries can be used to better manage school locations. Stakeholders: Counties, DOT, Municipalities, GAB, RPC		
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)	
Municipalities, counties	stewards	
<b>SOURCE DATA STATUS</b>		
50% what does this mean? Is this the source, statewide layer, or both??		
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)	
Wisconsin Department of Public Instruction (DPI)	Tony Van Der Wielen LTSB <a href="mailto:Tony.VanDerWielen@legis.wisconsin.gov">Tony.VanDerWielen@legis.wisconsin.gov</a> ; Jared Knowles DPI <a href="mailto:Jared.Knowles@dpi.wi.gov">Jared.Knowles@dpi.wi.gov</a>	
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>		
unknown		
<b>NOTES</b>		

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
<b>Land Cover</b>	Soils Mapping, Land Cover and other Natural Resource Data	<b>HIGH</b>		
<b>LAYER DESCRIPTION</b>				
Delineating of current land cover.				
<b>RELATED STATEWIDE LAYERS</b>				
Parcels, Orthoimagery, Administrative Boundaries				
<b>BUSINESS NEEDS/STAKEHOLDERS</b>				
State and local agencies, non-governmental organizations, researchers, and students all rely on accurate and current land-cover data to protect and manage Wisconsin's natural resources. Management of renewable resources such as agriculture and forestry is ever more important as pressure from anthropogenic factors reduces available land and natural resources. Accurate and current land-cover data is critical to accurately assess what is occurring, predict future impacts on the state, and generate informed policy decisions. Stakeholders: Counties, DOT, RPCs, DNR, DATCP				
SOURCE DATA STEWARD	<b>SOURCE DATA CONTACT(S)</b>			
see below	see below			
<b>SOURCE DATA STATUS</b>				
see below				
STATEWIDE LAYER STEWARD	<b>STATEWIDE LAYER CONTACT(S)</b>			
State Cartographer's Office	Howard Veregin Wisconsin State Cartographer's Office <a href="mailto:veregin@wisc.edu">veregin@wisc.edu</a> Tim Kennedy Wisconsin State Cartographer's Office <a href="mailto:ttkennedy@wisc.edu">ttkennedy@wisc.edu</a>			
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>				
0%				
<b>NOTES</b>				
WISCLAND – a consortium created in the early 1990s through a partnership between the UW-Madison's Environmental Remote Sensing Center, Wisconsin DNR, and Wisconsin SCO – developed the first statewide, Wisconsin-specific digital landcover dataset. Despite its age, this dataset remains in use to this day due to a lack of alternatives. More current national landcover datasets exist, but many researchers continue to rely on WISCLAND because of its Wisconsin focus, increased accuracy, detailed accuracy assessment, public availability, ground-truthing, and the independent derivation of the product.				

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
<b>Soils</b>	Soils Mapping, Land Cover and other Natural Resource Data	<b>HIGH</b>		
<b>LAYER DESCRIPTION</b>				
Delineation of soil map units and associated attributes.				
<b>RELATED STATEWIDE LAYERS</b>				
Hydrography, Wetlands, Land Use				
<b>BUSINESS NEEDS/STAKEHOLDERS</b>				
The information in a soil survey can be used by farmers and ranchers to help determine whether a particular soil type is suited for crops or livestock and what type of soil management might be required. An architect or engineer might use the engineering properties of a soil to determine whether or not it was suitable for a certain type of construction. A homeowner may even use the information for maintaining or constructing their garden, yard, or home. Stakeholders: Counties, DNR, NRCS, DATCP, DOT				
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)			
USDA Natural Resource Conservation Service (NRCS)	Kent Pena NRCS <a href="mailto:kent.pena@wi.usda.gov">kent.pena@wi.usda.gov</a>			
<b>SOURCE DATA STATUS</b>				
100% NRCS currently maintains and updates county-based digital soils data as part of its business functions.				
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)			
Wisconsin Department of Agriculture, Trade and Consumer Protection ( <i>de facto</i> )	Lisa Morrison DATCP – Agency GIS Coordinator <a href="mailto:Lisa.Morrison@wi.gov">Lisa.Morrison@wi.gov</a>			
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>				
100%...DATCP aggregates the individual county map unit layers into a statewide soils layer. DATCP then joins several commonly used attributes and interpretation values (generated via scripts provided by NRCS) to these map units. The result is a statewide soils layer with attributes commonly used by state agencies. Updates are made when DATCP receives notification from NRCS that the geometry or attributes of soil map units have been updated. This layer is available for download via DATCP's FTP site, and is also used in several DATCP web mapping applications (e.g., Wisconsin 590 Nutrient Management Restrictions - <a href="http://datcpgis.wi.gov/590/">http://datcpgis.wi.gov/590/</a> ). DATCP maintains the statewide layer out of practical necessity, until such time that NRCS takes over the creation and maintenance of an acceptable statewide layer.				
NOTES				
WLIP funds were used to help complete statewide soil survey field mapping in Wisconsin (soils must be field mapped before a digital layer of soil map units can be created). In addition to WLIP funds, NRCS, and DATCP contributed funding for this effort. To date, this has been the only statewide initiative funded, in part, with WLIP funds.				

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE
<b>Planned Land Use</b>	Land Use Mapping	HIGH
LAYER DESCRIPTION		
Delineating areas based on planned future land use.		
RELATED STATEWIDE LAYERS		
Parcels, Orthoimagery, Zoning, Existing Land Use		
BUSINESS NEEDS/STAKEHOLDERS		
These maps are required as part of a comprehensive plan and are developed through the comprehensive planning process. This layer provides a vision for land use over the next 20-year timeline. Stakeholders: Counties, DOT, DNR, RPCs, Municipalities		
SOURCE DATA STEWARD(S)	SOURCE DATA CONTACT(S)	
Municipalities, Counties	stewards	
SOURCE DATA STATUS		
80% Eight counties (Buffalo, Clark, Milwaukee, Oneida, Pepin Price, Vernon, and Washburn) have yet to adopt comprehensive plans. A planning process is required to create a future land use map because it is a policy document. As with existing land use maps, 80% may be a gross over estimation for planned land use maps actually available as map data layers in GIS. Many of the maps may be in PDF format.		
STATEWIDE LAYER STEWARD	STATEWIDE LAYER CONTACT(S)	
unknown	Peter Herreid Wisconsin DOA <a href="mailto:Peter.Herreid@Wisconsin.gov">Peter.Herreid@Wisconsin.gov</a>	
STATEWIDE LAYER STATUS & ACCESS METHOD(S)		
0%		
NOTES		

STATEWIDE LAYER	FOUNDATIONAL ELEMENT	IMPORTANCE		
<b>Public Lands</b>	Critical Infrastructure and Facilities Management	<b>HIGH</b>		
<b>LAYER DESCRIPTION</b>				
Location of all the Federal, State, and Local Public Conservation and Recreation Lands in Wisconsin.				
<b>RELATED STATEWIDE LAYERS</b>				
Parcels, Orthoimagery, Administrative Boundaries				
<b>BUSINESS NEEDS/STAKEHOLDERS</b>				
This data can provide a framework for communities and government agency decision makers to prioritize their recreation and conservation goals and implement land protection strategies. This data would also supports the need for citizens to have information about the location of Public Lands in order to identify recreational opportunities and plan visits. Stakeholders: Counties, DOT, DNR, RPCs, Municipalities, DATCP				
SOURCE DATA STEWARD(S)	<b>SOURCE DATA CONTACT(S)</b>			
see below	see below			
<b>SOURCE DATA STATUS</b>				
see below				
STATEWIDE LAYER STEWARD	<b>STATEWIDE LAYER CONTACT(S)</b>			
unknown	John Laedlein Wisconsin DNR <a href="mailto:John.Laedlein@dnr.state.wi.us">John.Laedlein@dnr.state.wi.us</a>			
<b>STATEWIDE LAYER STATUS &amp; ACCESS METHOD(S)</b>				
70% what does this mean?				
<b>NOTES</b>				
Wisconsin currently lacks a statewide integrated Public Lands GIS data layer, as well as lacking a data steward with the responsibility to develop or manage such a layer. Some subsets of public lands are represented in separate data sets, such as DNR-Managed Lands, County Forests, lands enrolled in the Managed Forest Law or Forest Crop Law programs, and the Protected Areas Database of the US (PADUS). Statewide GIS data layers do not exist for several important categories of public lands, including Recreational Trails and Local Parks.				

## APPENDIX A – FOUNDATIONAL ELEMENT POLLING ANALYSIS

	% RESPONSE		
	COMPLETE LAYER "highest" importance	USE LAYER "highest" importance	AVERAGE "highest" importance
<b>HIGHEST IMPORTANCE</b>			
Parcels	74.1	86.3	80.2
Digital OrthophOTOGRAPHY	53.8	81.1	67.45
Street Centerlines	49.1	66.7	57.9
Geodetic Control & Control Network	55.6	54	54.8
Civil Division Boundaries	49	44.9	46.95
<b>HIGH IMPORTANCE</b>			
Address Points	34.6	47.1	40.85
LiDAR	39.2	37.5	38.35
Hydrography	25.5	37.3	31.4
Floodplains and Floodways	23.1	36	29.55
Wetlands	23.5	29.4	26.45
Zoning Districts	21.2	26.5	23.85
Existing Land Use	20.8	22	21.4
School Districts	24.5	16	20.25
Land Cover	17.6	20.4	19
Soils	17.3	19.6	18.45
Planned Land Use	11.5	18	14.75
Public Lands	9.6	14.3	11.95

*NOTE: Only the value 5 ("highest" importance) response percentages are presented in this table. Highlighted cells indicate that value 5 also had the highest percentage of responses for that layer for that question. For example, 74.1 % of responses for completing "Parcels" were value 5 ("highest" importance), while only 20.8% of responses for completing the "Existing Land Use" foundational element were value 5, with a greater percentage (30.2%) weighting completion of "Existing Land Use" as value 3 ("medium" importance).*

## **APPENDIX B - ABOUT WLIA**

Founded in 1987, the Wisconsin Land Information Association (WLIA) is a grassroots organization representing a collection of concerned professionals working to develop, maintain, and apply a network of statewide land information systems. We are united by an interest in land records modernization, GIS, and related technologies, and by the need for government policies and programs that support their efficient and effective application. WLIA is open to individual, non-profit and corporate members. WLIA is a registered 501(c)(6) non-profit organization.

The purpose of WLIA is to foster the understanding, development, operation and maintenance of a network of statewide land information systems. These multipurpose land information systems require the spatial registration of various layers of land data that are maintained independently in various offices, agencies and organizations in both the private and public sectors. The registration of data from separate, but coordinated, information systems will provide the opportunity for all cooperating parties to access and use these valuable land data. Specifically, WLIA's mission is focused on promoting sound policy, promoting interaction and cooperation, technical research and education.

Since 1987, WLIA has made some significant steps to enhance the understanding, development and use of land information systems. Some of the greatest accomplishments have been done through its support of the Wisconsin Land Information Program (WLIP). The items below summarize what has been accomplished through both the support of the WLIP and accomplishments beyond the WLIP.

- Work with the Legislature and local units of government for the continued support of the WLIP.
- Educate both our members and, more importantly, our non-members about the benefits of the WLIP.
- Support statewide initiatives, which enhanced the development of statewide foundational elements.
- Provide a forum in which the concepts of the WLIP were further enhanced.

Since 1987, the WLIA has been successful in aligning its organization and budget structure within the organizational priorities, missions, and objectives. This alignment has allowed the Association to:

- Conduct an annual conference.
- Conduct annual regional meetings and educational seminars.
- Provide a forum for interaction between land information professionals.
- Develop a stable and diverse membership base.
- Promote the importance of land information.
- Develop standards, which promote cost effective information.
- Expand the cooperation between different levels of government.
- Expand the cooperation between the public and private sectors
- Provide educational programs for both members and nonmembers.