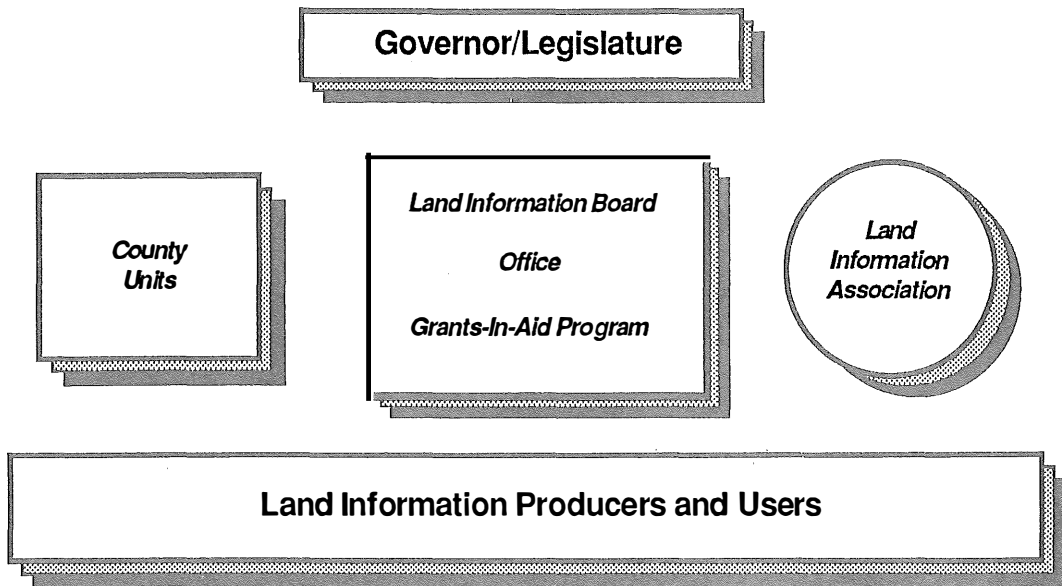


**FINAL REPORT
OF THE
WISCONSIN LAND RECORDS COMMITTEE:**

MODERNIZING WISCONSIN'S LAND RECORDS

Wisconsin Land Information Program



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The illustration on the cover is a conceptual representation of the diagram
on page 19, which more completely depicts relationships among the
components of the proposed **Wisconsin Land Information Program**.

To request a copy of this report, write to: **Attn: WLRC Final Report**, Center for
Land Information Studies, Room 1042 WARF Building, 610 Walnut Street,
Madison, Wisconsin 53705; or call (608) 262-9937.

FINAL REPORT OF THE WISCONSIN LAND RECORDS COMMITTEE:
MODERNIZING WISCONSIN'S LAND RECORDS

July 1987

Wisconsin Land Records Committee

State of Wisconsin

c/o Institute for Environmental Studies
University of Wisconsin-Madison

1040 WARF Building, 610 Walnut Street, Madison, WI 53705 (608) 263-6843

July 1, 1987

Committee Members

James Clapp, Chair
Myron Bacon
Kurt Bauer
William Chatterton
Arnold Clement
Barbara Crosser
Helen Croteau
Earl Espeseth
Phyllis Fuller
Kevin Hagen
George Hall
William Huxhold
Carolyn Johnson
James Johnson
Craig Karr
Rebecca Keipe
Anthony Kiedrowski
Tom Krauskopf
Julie MacSwain
Florence Magnuson
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Bernard Niemann Jr.
Meredith Ostrom
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Diane Preston
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Agnes Ring
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Arthur Ziegler

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D. David Moyer
Facilitator
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Facilitator
Vice Chair
Christine Reinhard
Facilitator
Barbara Weisman
Program Assistant

Governor Tommy G. Thompson
State of Wisconsin
State Capitol Building
Madison, Wisconsin 53702

Dear Governor Thompson,

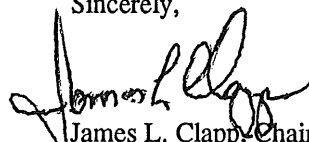
On behalf of the thirty-two members of the Wisconsin Land Records Committee and the seventy-one members of its twelve supporting subcommittees and task force, I am pleased to submit to you this final report. Contained within are the Committee's recommendations for a Wisconsin Land Information Program which, if implemented, would provide the means for the State of Wisconsin to address the immediate needs of state and local agencies regarding land records collection and management, and the long-term issues of land records modernization.

These needs and issues are extremely broad in scope, and profound in their impact upon the decision process in both the public and private sectors. Three recent issues that illustrate the need to recognize and address the problem are: (1) a U.S. Supreme Court decision that found a financial lender liable for site contamination that occurred prior to the loan; (2) analysis by a private market research firm projecting an investment by utilities and local governments of \$45 to \$92 billion by the year 2000 in automated land information systems; and, (3) a Kentucky Supreme Court decision that found a tax assessment process unconstitutional because it failed to take into account such factors as variation in soil productivity. In brief, decision-makers including citizens, private firms and public officials need access to accurate and timely land-related information for a variety of purposes. A 1978 Wisconsin Department of Administration report revealed that Wisconsin invests \$80 million annually (approximately \$135 million in 1987 dollars) to collect and maintain land information. In efforts to improve efficiency, many local and state government agencies, utilities, and businesses are beginning to modernize their land records. The State has a vital role in helping to manage the change that is already upon us, for the benefit of its citizens.

At nine public information meetings held around the state, the proposed Wisconsin Land Information Program received widespread support by elected officials and other concerned professionals. Hardly a week has gone by in recent months without a request for a presentation on the Committee's recommendations from organizations of elected officials, national and international professional associations, other states studying land records modernization, and most recently, a National Governors Association conference on "Integrating Information for Decisionmaking." To date, the Committee's recommendations have received support from several federal and local government officials, officers of professional organizations, and individual citizens.

It has been a pleasure and an honor to serve as your chairman. I am ready to assist you in the implementation of the Committee's recommendations.

Sincerely,



James L. Clapp, Chair
Wisconsin Land Records Committee

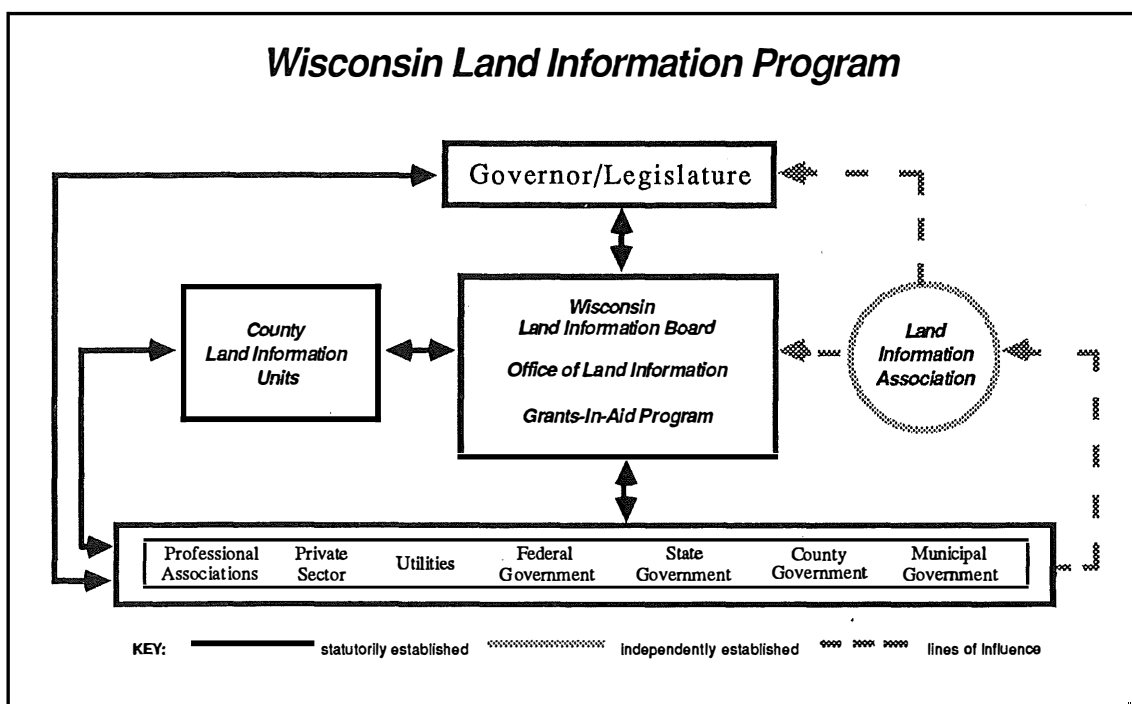
EXECUTIVE SUMMARY

After examining the needs and opportunities associated with modernizing land records for almost two years, the **Wisconsin Land Records Committee** recommends to the Governor and the Legislature that a **Wisconsin Land Information Program** be established.

The Program is a five-point plan for statewide land records modernization with centralized coordination, yet distributed responsibility. It is designed to foster and guide the development of modern, multipurpose land information systems - - development that is already under way due to technological and socioeconomic trends.

affected are property ownership rights and responsibilities, property tax assessment, utility and transportation infrastructures, economic development and other land use planning, socioeconomic research, and natural resource management.

Increasingly available and affordable information and surveying technologies provide a means to address many aspects of land records modernization. Interactive computer graphics, telecommunications, database management systems, and satellite systems for extremely accurate global positioning are a few of the applicable state-of-the-art technologies.



The Wisconsin Land Records Committee believes that state agencies, county and municipal governments, regional planning agencies, and certain private enterprises and utilities must act immediately to make now-developing land information systems compatible. To fail to do so is to risk an inability to adequately address increasingly complex policy and development issues, and to risk wasting tax dollars on systems with limited applications and abilities.

A large percentage of society's need for information is related to the land. Day-to-day policy-making, management, and government services are hindered by an inability to associate much of this land-related information with its physical location. Most

The Committee recognizes that many of the changes needed to modernize land records cannot be made overnight. Rather, new technologies and legislative changes must be adopted gradually, and changes in administrative procedures should be based upon sound economic and technical precedents.

As expressed by the Committee, Wisconsin's overall goal for modernizing land records is to develop, implement, and maintain compatible multipurpose land information systems that can provide useful, quality data needed by citizens, public agencies, and businesses. A further objective is to establish economic, legal, institutional, technical, and educational frameworks to fairly and efficiently support these systems.

The **Wisconsin Land Information Program** will provide a long-range, strategic mechanism to guide the development of modern, multipurpose land information systems, as well as a flexible process by which to implement and maintain these systems. As such, it will enable Wisconsin to meet the goal set forth by the Committee. The Program will: establish a **Land Information Board**, an **Office of Land Information**, and a **Grants-In-Aid Program**; encourage the establishment of **County Land Information Units**; and cooperate with a non-governmental **Land Information Association**.

- The **Land Information Board** will establish and direct overall Program policy. The Board will develop programs to include:
 - a Grants-In-Aid Program to help fund local government efforts to modernize land records;
 - guidelines for implementing multipurpose land information systems;
 - methods for resolving legal and administrative discrepancies pertaining to land information;
 - advisory channels to the Governor, Legislature, and state agencies; and
 - educational, research, and outreach projects to promote land records modernization.

To ensure institutional balance the Governor will appoint 12 Board members -- four each from:

- (a) state agencies;
- (b) county, municipal, and town governments, and regional planning commissions; and
- (c) the private sector and utilities.

Appointees will reflect a statewide regional and urban/rural balance.

- The **Office of Land Information** will administer programs developed by the Board. The Office will:
 - administer the Grants-In-Aid Program;
 - help local and state agencies integrate land information for decision-making;
 - maintain a statewide inventory of land records and modernization efforts;
 - serve as a clearinghouse for land information inquiries; and
 - assess the potential impact of new technologies on land records modernization.

The Wisconsin State Cartographer's Office will merge with the Office of Land Information to avoid duplication of effort.

In addition to existing State Cartographer's Office personnel, Land Information Office staff will consist of three full-time equivalent positions, including a director selected by the Board. State agencies will be encouraged to provide additional technical staff. Liaisons with appropriate federal agencies, regional

planning commissions, utilities, and the private sector will be encouraged as well. The Office will be administratively attached to the University of Wisconsin System for the provision of physical space and basic overhead services.

- The **Grants-In-Aid Program** will help fund development of local and regional multipurpose land information systems. It will include technical assistance to local governments undertaking any degree of land records modernization. Any local unit of government will be able to apply for grants. The Board will review all grant proposals, and each grant will require an equal or greater in-kind match from non-state sources.
- Each of Wisconsin's 72 counties will be encouraged to establish a **County Land Information Unit**. Because the parcel-level land data maintained by local governments is crucial to a statewide land information network, County Units will be fundamental to the Land Information Program and will:
 - serve as the primary contact point between local government and the Office of Land Information;
 - apply to the Grants-In-Aid Program for funding to assist with land records modernization; and
 - assist with land records modernization projects initiated by local governments, businesses, and small utilities within county borders.

Because of considerable variation in needs and constraints, each county would structure the type of Land Information Unit best suited to its priorities.

- In its 1986 Summary Report, the Wisconsin Land Records Committee recommended that an independent, non-governmental association of land records professionals be established. Since then, the **Wisconsin Land Information Coalition** has emerged as a grassroots organization of concerned professionals who advocate land records modernization in Wisconsin. The Coalition hopes to build upon the momentum generated by the Committee.

The Wisconsin Land Records Committee envisions land records modernization as a dynamic, evolutionary process rather than a revolutionary one. The technologies likely to help modernize land records in the near future, for example, are sure to change even more before the end of the century. The **Wisconsin Land Information Program** is prepared to evolve as necessary to manage this change.

Until such time as the **Wisconsin Land Information Program** is established, additional information is available from the University of Wisconsin-Madison Center for Land Information Studies, (608) 262-9937, or from the Governor's Office.

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LAND RECORDS: INFORMATION FOR MANY USES

The term "land records" encompasses a wide variety of topics and professions, and can therefore mean different things to different people depending on their backgrounds and interests.

Land records, as defined by the Committee, include maps, titles, statistics, and other documents on paper, microfilm/microfiche, computer files, or any other communication media that record land information.

All land records relate to publicly or privately owned land parcels and their associated attributes.

Land information is in turn considered any and all information about the economic, legal, and physical aspects of land -- whether above, on, or below the surface of the earth.

To effectively resolve complex policy issues, to offer basic services, and to meet or monitor rules and regulations, decision-makers must consider several types of information simultaneously. Land records, in particular, convey information essential to governments, utilities, businesses, and citizens -- such as:

- **Individual Property Rights**
Legal ownership rights and regulations;
- **Property Valuation**
Property descriptions used to determine value;
- **Land Use**
Current and past land use, and attributes of potential development sites;
- **Infrastructure**
Attributes, geographic locations, and dimensions of the infrastructure systems essential to meeting society's fundamental needs for transportation, sewerage, water supply, storm water management, electric power, and communications;
- **Natural Resources**
Attributes, geographic location, and extent of natural features above, on, or below the earth's surface.
- **Geographic Reference**
Legal, administrative, and technical references to dimensions and locations on the surface of the earth; and

- **Socioeconomics**

The geographic location, extent, or distribution of demographic or sociological phenomena.

Wisconsin's land records are collected, stored, and used by virtually all state agencies, local governments, regional planning commissions, and public utilities, as well as by many private organizations.

In fact, of all information collected and maintained by all levels of government, the percentage that is land-related is so large that it is difficult to imagine a data set whose value would not be enhanced by a geographic or locational reference.

Several studies have shown that as much as 80 percent of all municipal transactions, revenues, expenditures, and other day-to-day management functions involve land information.¹

Consider the specific examples, on page 2, of land records and the agencies and organizations that use them.² (See also Local Land Records in Wisconsin, *Appendix C*.) The accuracy, timeliness, and efficiency with which these agencies and organizations process land information have an immediate impact on the citizens of Wisconsin in areas such as:

- **Economic Development;**
- **Environmental Protection;**
- **Hazardous Waste Disposal;**
- **Land Ownership Transfer;**
- **Land Use Regulation and Zoning;**
- **Personnel Allocation;**
- **Property Taxes;**
- **Resource Management;**
- **Transportation Planning and Design;**
- **Urban and Rural Planning;** and
- **Utility System Planning and Design.**

Agency / Land Record	State														
	Towns, villages, & cities	Counties	School districts	RPC's	DNR	DOT	DILHR	DOA	DATCP	DOR	DOD	WGNHS/UWEX	Federal	Private	Utilities
Property Ownership															
Owner Name & Address															
Zoning															
Flood Plains															
Easements															
Mineral Resources															
Deeds															
Liens															
Land Surveys															
Environmental Impact															
Petroleum Rights															
Historic Preservation															
Property Tax Violations															
Building Code Violations															
Abstracts															
Assessment Records															
Soils															
Well Information															
Parcel Characteristics															
Parcel Identification															
Building & Improv. Char.															
Property Sales															
Land Use															
Conservation															
Recreation															
Ground Water															
Archaeology															
Resource Programs															
Agriculture															
Oil Drilling Information															
Mining Operations															
Forests															
Water Navigation															
Topography / Geology															
Roadways															
Railways															
Other Transportation															
Sewers															
Water Mains															
Communication Lines															
Cable TV															
Gas Mains															
Electrical Lines															
Bridges															
Sewage Treatment															
Electrical Generation															
Public Facilities															
U.S. Rep. Districts															
State Senate Districts															
State Rep. Districts															
County Boundaries															
Township Boundaries															
Village Boundaries															
City Boundaries															
School Districts															
Consolidated School Districts															
Aldermanic Districts															
County Supervisor Districts															
Administrative Districts															
Monument Locations															
Vital Statistics															
U.S. Census															
School Census															
Personal Income															
Business Income															
Unemployment															
Crimes															
Fires															
Health Data															
Voting Data															
Ambulance Service															
Social Services															
Permits and Licenses															

Key

■ Collect and use data

▨ Use data collected by others

- DNR Dept. of Natural Resources
- DOT Dept. of Transportation
- DILHR Dept. of Industry, Labor, and Human Relations
- DOA Dept. of Administration
- DATCP Dept. of Agriculture, Trade, and Consumer Protection
- DOR Dept. of Revenue
- DOD Dept. of Development
- RPC's Regional Planning Commissions
- GNHS/ UWEX Geological & Natural History Survey (within University of Wisconsin-Extension)

Examples of Land Information Collection and Use in Wisconsin

THE NEED TO MODERNIZE WISCONSIN'S LAND RECORDS

FACTS AND FIGURES

The following statements illustrate the complexity of land records maintenance in Wisconsin:

- **Wisconsin has over 2,000,000 parcels of land.**³
- **Wisconsin has 2,592 local and special-purpose units of government whose jurisdictions overlap both politically and geographically.**⁴
- **Collectively, Wisconsin agencies and organizations have gathered and stored an estimated one billion pieces of land-related information.**⁵
- **The Wisconsin Statutes contain over 600 references to the collection, maintenance, and use of land information.**⁶
- **At the county level alone, an average of ten government officials per county produce, maintain, and/or use land records. For most of these officials, there are several private sector professionals who perform similar functions.** (See tables of county, municipal, and town land information officers/agencies, *Appendix C.*)

A plethora of government operations together with a tremendous volume of land-related information make it difficult and inefficient to access and share existing land information within and among Wisconsin's public and private sectors.

The cost of modernizing land records -- of reducing these difficulties and inefficiencies -- is reasonable when one considers not only the benefits that would accrue, but the amount of money *already being spent*:

- **Wisconsin units of government and utilities collectively invest \$80 million annually (in 1976 dollars) to maintain Wisconsin's existing storehouse of land information.**⁷ (With inflation, this figure is now approximately \$135 million.)⁸
- **In 1981, the Wisconsin Department of Administration considered the above expenditure substantial enough to warrant an inventory to determine how much money Wisconsin state agencies spend to collect and manage land information.**⁹

Land records modernization is already occurring, but without guidelines to ensure that the benefits are maximized. In fact, at present, little has been done to manage and potentially curtail the enormous expenditures that have been projected:

- **Local governments and utilities across the nation will spend between \$45 and \$92 billion by the year 2000 on information systems to manage the nation's infrastructure.**¹⁰

With the inevitable application of new technologies, Wisconsin will undoubtedly follow this trend.

THE NEED TO MODERNIZE WISCONSIN'S LAND RECORDS

WHY CHANGES ARE NEEDED: Problems with the Status Quo

Duplication of Effort

Presently, public and private agencies and organizations gather and maintain land information in many different formats tailored to individual program needs and constraints. This results in:

- **an inability to integrate various types of information within an agency/organization, or to share it among different agencies;** and
- **repeated collection of the same land information by many different agencies.**

Duplicate or similar land records emerge not out of ignorance but, rather, due to the time-consuming effort required to make geographic references compatible with one another. This in turn obliges agencies/organizations to gather and store land information that already exists elsewhere. From the taxpayer's point of view, this reduces overall government efficiency.

While a growing number of Wisconsin agencies and organizations are already investing significant resources to modernize the land records they produce and use, no standards or guidelines exist for them to follow. (See *Modernization in Progress*, pages 8-9.)

A Lack of Guidelines

Guidelines are needed to modernize every aspect of land information processing. If land information systems proliferate without guidelines for their development, the problems of data incompatibility and repeated collection will become increasingly difficult, if not impossible, to address.

Unless guidelines are developed soon, we can expect no more uniformity among future information processing techniques than among current techniques, and information sharing will remain curtailed by:

- **a wide variety of data scale, accuracy, and precision needs;**
- **an absence of uniform approaches to information collection, storage, and access;** and
- **an absence of institutional and cooperative arrangements to facilitate agreement on standards for developing and using shared land databases.**

A case in point is the group of 14 utilities, government agencies, and engineering firms in southeastern Wisconsin that has been meeting for the past 20 months to develop a shared land database. So far, despite the group's overall willingness to cooperate, neither the desired scale and accuracy requirements nor a cost-sharing formula for the database are agreed upon.¹¹

Guidelines must be developed as new technology becomes available. Given the current haphazard development of land information systems, a lack of guidelines will impede efforts among government agencies, utilities, and the private sector to create a land information network.

The Current Land Records Expenditure

Despite an estimated annual per-citizen cost of \$29 to maintain Wisconsin's present land information base,¹² it is exceedingly difficult, cumbersome, and time-consuming for citizens to gain access to much of this public information. Whether it is accurate and up-to-date, once found, is often questionable. Yet citizens, developers, realtors, lawyers, appraisers, utility personnel, and many others rely on this information regularly.

Problems with land information accuracy and currentness are not unique to Wisconsin. They are inherent to current methods of gathering and storing land information, which are themselves cumbersome, time-consuming, and tedious. Wisconsin has the expertise to use newly available technologies to improve these methods, but lacks a statewide program, such as the proposed **Wisconsin Land Information Program**, to develop guidelines for improvement.

With almost half of Wisconsin's current land records investment (see *Facts and Figures*, page 3) **coming from local government,¹³ those involved in modernizing land records at the local level have repeatedly indicated a desire for leadership.** (See *Modernization in Progress*, pages 8-9.) This desire was voiced by many of the local government and private sector representatives on the Committee, subcommittees, and task force, and was reaffirmed by numerous contacts during the Committee's 22 months with other local government officials. Many of these contacts followed the Committee's statewide public information meetings. (See *Committee Organization and Activities*, page 16.)

THE NEED TO MODERNIZE WISCONSIN'S LAND RECORDS

WHY CHANGES ARE NEEDED: Opportunities for Improvement

Modernizing Wisconsin's land records to reduce duplication and allow sharing of land information would benefit Wisconsin's citizens by improving decision-making, equitability, and efficiency in public and private sector functions involving land information.

Property taxation, revenue sharing, political districting, land transfer, and compliance with land-related mandates are just a few examples of such functions.

Decision-makers -- from the Executive Office to town halls -- depend on accurate and up-to-date information. Modern land information systems can meet this need by enabling decision-makers to easily use, integrate, and display land information from multiple sources in a timely manner. Modern land information systems can also provide policy makers with an effective tool for developing more efficient services.

In general and over the long term, land records modernization has the potential to:

- **optimize Wisconsin's continuing investment in land information** (see Facts and Figures, page 3);
- **maximize the potential of Wisconsin's storehouse of land information by making it more accessible, more accurate, and easier to use;** and
- **minimize duplication of effort by enabling Wisconsin agencies and organizations to more easily share land information, thereby eliminating repeated collection of the same land information.**

Modern land information systems can help produce, integrate, and effectively display detailed information in a timely manner *to use it to its fullest potential.*

Minimizing duplication of effort would help *increase efficiency at all levels of government*, as information that already exists at one agency would no longer have to be collected a second, third, or fourth time -- as often happens -- to be usable by other agencies and organizations. With the modest assumption that Wisconsin can reduce duplication of effort by ten percent, *an annual savings of \$8 million (in 1976 dollars), or \$13.5 million (in 1987 dollars) would result.* Citizens, agencies, and organizations could *get more for*

their land records dollars if Wisconsin optimizes its current land records expenditure. (See Facts and Figures, page 3, and The Current Land Records Expenditure, page 4.) Consider the way in which the Universal Product Code allows grocery stores to automatically update their inventory as every transaction is completed. With a uniform, statewide code that uniquely identifies every land parcel, much land data could be indexed and placed in the appropriate land record file *as routine land records transactions are made.*

Modernizing land records can:

- **help offer Wisconsin a competitive economic advantage;**
- **contribute to fairness and efficiency in property taxation;** and
- **help manage Wisconsin's wealth of resources.**

Competitive Advantage

Accurate, large-scale maps allow information to be displayed in a manageable form. They provide a standard graphic base on which complex data sets can be displayed, compared, and acted upon by planners and decision-makers. As such, they are critical tools for attracting economic development. A single map can be more convincing than an entire document in efforts to convince federal government, large corporations, industries, and developers of the suitability of a particular site. Easily accessed, highly usable, and as detailed as necessary, maps produced by modern land information systems can provide graphic evidence of such factors as location of markets, availability and proximity of labor and raw materials, and special information such as geologic criteria.

Example: The State of Illinois' Geographic Information System (GIS) can, on relatively short notice, produce maps that identify and describe potential development sites. The GIS helped Illinois provide timely evidence that it possesses a site with the qualities desired for the Diamond-Star automobile assembly plant. Similarly, the GIS will be an important tool in Illinois' bid for the U.S. Department of Energy's multibillion-dollar Superconducting Super Collider (a particle accelerator), which will bring 3,000 high-paying permanent jobs to the community that can prove it has the most suitable site.

THE NEED TO MODERNIZE WISCONSIN'S LAND RECORDS

WHY CHANGES ARE NEEDED: Opportunities for Improvement (cont'd)

Fair and Efficient Property Taxation

A uniform parcel numbering system could facilitate property taxation by making compatible the information needed by the many Wisconsin agencies and organizations that process assessment rolls. Compatibility of this information would simplify the process of equitable assessment.

Property valuation is complex due to the difficulty of obtaining accurate and complete information on property ownership, boundaries, and resource attributes. This costs local governments extra dollars, and sometimes leaves the assessment function vulnerable to controversy over equitability.

The complexities of property taxation have an impact at the state level when Wisconsin's largest budget items (Shared Revenues and School Aids) are distributed, as property valuation is a factor in the formula used to determine their distribution.

Example: An assessor often must use the factor of soil type when assessing farmland property. Yet comparisons between property ownership maps and maps that delineate soil type are difficult and time-consuming, because such maps are rarely compatible. Since it is virtually impossible to acquire precise measurements, the assessor must use gross estimates and apply averages to values.

Resource Management

Wisconsin has a wealth of comprehensive land information. For example, the coverage and detail of Wisconsin's wetlands inventory is more complete than that of many other states. The Wisconsin Department of Natural Resources has automated this inventory in a form that can be shared with local governments, other state agencies, and private organizations.

Accurate, large-scale maps and compatible attribute files could help monitor and evaluate the migration of toxic waste to ensure that Wisconsin's high-quality groundwater is preserved. Similarly, maps that integrate information about potentially dangerous landfill sites could help eliminate the danger that stems from the current inability to monitor hazardous wastes once a

landfill site has been closed, and possibly forgotten. If a potentially harmful or useful substance is put in the ground, not only we, but our children and grandchildren should know where and what it is -- particularly in relation to other recorded information about natural resources, the built environment, and human health.

Example: An explosion of migrated methane gas occurred not long ago at an apartment complex built near a closed sanitary landfill in Madison, Wisconsin. The resulting injuries and property damage might have been prevented had it been possible to correlate the location of the closed landfill with building construction plans, geologic structure maps, and construction site details.

Another Example: In 1986, the Governor of Virginia used an effective display of maps and other accurate, up-to-date land information to question the reliability of federal government information used in determining appropriate sites for high-level nuclear waste disposal. The federal government withdrew its proposal.

Another Example: Recent state and federal mandates have established programs for rural land management and protection. These include programs for farmland preservation and cross-compliance, farm commodity, soil erosion, non-point pollution, and conservation assessment and management provisions of the 1985 Farm Bill. All of these programs require the same land records, and would benefit from access to a modern land records system.

To maintain a reasonable cost of government, existing land information must be used more effectively to manage Wisconsin's resources. Land records modernization can make this possible.

Although it is difficult to quantify land records modernization benefits in economic terms,¹⁴ the degree to which we can use better, more accessible land information to make better decisions will be the degree to which the quality of life of future generations will benefit.

THE NEED TO MODERNIZE WISCONSIN'S LAND RECORDS

WHY CHANGES ARE NEEDED: Trends Affecting Land Records Modernization

Current responsibilities for collecting and storing land information are based upon statutory authority, administrative rules, and approximately 100 years of customary practice. Typically, these responsibilities were developed and assigned for specific purposes, with no requirements for linking new data to existing data.

Until recently there was little reason to change the status quo. Today, however, several technological and socioeconomic trends are compelling all levels of government, most utilities, and many businesses in Wisconsin to focus considerable attention on modernizing the land records they produce and use.

The Technology Push

Recent technologies such as electronic databases, satellite global positioning, and remote sensing have a proven capacity to substantially reduce the amount of time and money spent gathering and maintaining certain types of land information.¹⁵

Example: Electronic scanning of soils maps, as opposed to manual digitizing, can reduce the time spent by a factor of three.¹⁶

Another Example: Traditional manual land survey techniques used to establish mathematical coordinates for geographic reference points require days and thousands of dollars. Newer surveying technologies, such as global positioning systems, take hours and hundreds of dollars.¹⁷

With or without a uniform plan for modernizing land records, Wisconsin agencies and organizations are turning to recent information technologies to provide efficient records management.

Computing technologies are becoming more accessible, more affordable and therefore more practical. These factors and the "vendor push" are causing many public agencies to adopt these technologies at an accelerated rate, often before having a chance to adequately assess their needs. Statewide guidelines developed through the proposed **Wisconsin Land Information Program** would ensure maximization of the potential these technologies offer for improved information management.

Institutional and Legal Trends

- **Increasingly Complex Decisions.**

Today's governments face increasing challenges in their responsibility to establish policy, manage day-to-day functions, and make decisions that require integration and simultaneous consideration of information from many different sources.

- **Public Records Accessibility.**

Wisconsin law requires a timely response by government agencies to all reasonable requests for public information.

- **Increasing Responsibilities.**

Local governments are becoming more responsible for enforcing regulations formerly handled at the state or federal level. Many local governments struggling to comply with state-imposed mandates lack guidelines and adequate funding.

Wisconsin property owners are legally required to adhere to an increasing number of often complex land use regulations. This requires owners to obtain information about their land which may, ironically, be virtually inaccessible to the average citizen.

Under a 1980 federal law known as Superfund, financial lenders can be held liable after foreclosure for hazardous waste cleanup costs -- even if the contamination occurred prior to foreclosure. The Superfund law can also rest cleanup responsibilities with anyone it defines as an "owner" or "operator" of a hazardous waste site, including firms that held legal title for as little as an hour during a title transfer. Recent Superfund amendments allow for a defense of ignorance of the contamination only after "all appropriate inquiry" of previous site owners/operators has been conducted by the current owner -- requiring at least an on-site inspection.¹⁸ Those considered owners and operators under Superfund will want access to detailed land records to avoid a lawsuit that could result from a seemingly ordinary loan agreement.

- **Accomplishing More with Less.**

The "technology push" not only contributes to the *potential* to do more with less -- it tends to make all of us *expect* that we can accomplish more with less resources, in less time. Whether this expectation can be realized is open to question. One thing is certain, however, about this trend as applied to land records: the constant challenge of *attempting* to do more with less, especially if it results in increased productivity, will require no less *creative human effort* than is needed today, even with computer technology.

THE NEED TO MODERNIZE WISCONSIN'S LAND RECORDS

MODERNIZATION IN PROGRESS

A growing number of initiatives to modernize land records attest to Wisconsin's capability to apply new technologies in an effective and efficient manner, and to Wisconsin's potential to be a national leader in modernizing land records.

Below are examples of efforts to modernize land records in Wisconsin.¹⁹

- The **City of Milwaukee's MAGIC system**, an automated mapping and geographic information system, is used by many of the city's departments. It produces information to assist with daily operations as well as policy analysis.
- The **Dane County Land Records Project** created an experimental land information system that has been successfully used for soil and water conservation planning in fulfillment of state and federal mandates. (See page 12.) This led to the **CONSOIL** project in which additional system applications are being tested.
- **Burnette, Dodge, Door, Manitowoc, Outagamie, and Vilas Counties** have purchased computer-aided design and drafting systems through their surveying, planning, zoning, or parks departments.
- **Dunn County** employs a **Land Records Coordinator**.
- **Eau Claire County** has reorganized its zoning, planning, and conservation departments in an effort to better manage its land records.
- **Racine County** has developed a land parcel identification system, and has automated property ownership and taxation information.
- The **Town of Randall, Kenosha County**, was the site of a pilot project conducted by the **Southeastern Wisconsin Regional Planning Commission** to demonstrate the feasibility of creating digital property ownership and taxation information that can be applied to comprehensive planning and zoning.

- **Winnebago County** uses specially designed software for tax parcel maps and for soil and water conservation planning. Several land information layers have been put into a digital format.
- **Wisconsin Geographic Data Sharing Group**. Since mid-1986, a group of state Department of Transportation and Department of Natural Resources employees have been meeting to explore common interests and ways to better share existing land information needed by both agencies. The group is also developing an inventory of cartographic and geographic data maintained in a digital format by either agency.
- Officials in several Wisconsin counties whose work directly involves land records have voluntarily formed study groups to explore possibilities for land records modernization that are agreeable to all concerned. Among the counties that have recently formed study groups are:
 - **Brown County**;
 - **Marinette County**; and
 - **Oneida County**.

These officials include the Register of Deeds, Surveyor, Real Property Lister, Highway Commissioner, Conservationist, Planner, Zoning Administrator, and Treasurer in various counties. Although the same land records often pass through the hands of each of the above officials, their duties, in most cases, have not traditionally required them to work with one another in the past.

While this list does not identify all of the land records modernization efforts under way in Wisconsin, it does attest to an urgent need to coordinate these efforts. Most of the individuals involved in these efforts are anxious for guidelines to be developed. Indeed, if land information systems proliferate without guidelines or standards to direct their development, the problem of incompatible land data will worsen, defeating a major purpose of modernization.

In Wisconsin, as elsewhere, most land information systems are developed primarily by a single agency or organization for specific, limited purposes. (To help view Wisconsin's efforts in a national context, see Land Records Modernization Efforts Outside Wisconsin, *Appendix D*.)

THE NEED TO MODERNIZE WISCONSIN'S LAND RECORDS

MODERNIZATION IN PROGRESS (cont'd)

These systems are often technologically driven, sometimes designed by vendors rather than users. Individual needs and constraints, along with the absence of statewide facilitation, restrict the efficiency of these otherwise outstanding systems.

Without a state presence, there is a high risk that incompatible systems will proliferate, thereby diminishing the efficiency of any one system as well as the possibility of ever having an effective land information network in Wisconsin.

Only a permanent yet flexible mechanism such as the proposed **Wisconsin Land Information Program** can guide the process of modernizing land records in Wisconsin over the long term.

MULTIPURPOSE LAND INFORMATION SYSTEMS

THE MULTIPURPOSE CONCEPT

The concept of Multipurpose Land Information Systems is based on the premise that the same land information is needed regularly by many different agencies and organizations for many different purposes.

To be shared and used for many purposes, new and existing land information must be stored by an agency or organization in such a way that other users can access this information and integrate it with their own. This would improve the accessibility of much information that is currently acquired only with considerable difficulty and significant expenditures of time and money.

Multipurpose Land Information Systems require various, land information "layers," each containing a different type of information, and often, each maintained by different agencies and organizations, to be pinned or "registered" to a common geographic reference framework. Only then can the layers be superimposed, integrated, and manipulated -- mixed and matched to produce new information as needed by Wisconsin's citizens, government officials, and others.

The essence, then, of **Multipurpose Land Information Systems** is the ability to link a multitude of land attributes, often from many different sources and maintained by many different agencies, to a single geographic location or area -- thus eliminating the need for duplicate records. This concept is illustrated in the diagram on the following page.

A LAND INFORMATION NETWORK

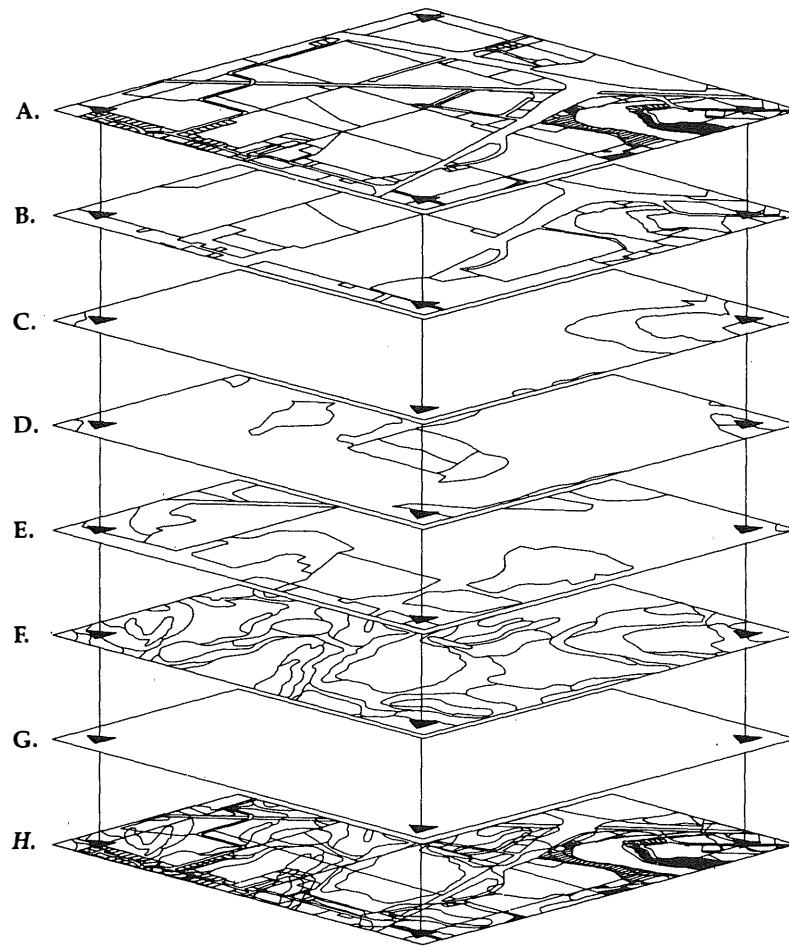
A land information network in Wisconsin would require *many* Multipurpose Land Information Systems rather than a single, state-managed system.

Multipurpose Land Information Systems would be modern versions of the same land records "systems" that *already exist* in Wisconsin agencies and organizations. Land records custodians could continue to maintain the same data for which they are currently responsible, but the data would become easier to access, easier to use, and capable of serving many more purposes than in the past.

The multipurpose concept relies on a land information *network* employing the latest in automated information management techniques.²⁰ **Multipurpose Land Information Systems** *must* be compatible with one another, if the stored information is to be shared among different agencies, organizations, and decision-makers throughout Wisconsin. While the technology needed to design compatible systems exists, the governmental and other cooperative arrangements necessary to apply it are as yet undeveloped. This is a major reason to establish the proposed **Wisconsin Land Information Program**.

By no means does the compatibility of land information systems *force* land information to be shared, nor does it dictate any particular decision by those who use the information; rather, it *makes possible* the sharing of information between and among consenting public and private sector agencies, organizations, and decision-makers.

Wisconsin agencies and organizations now investing significant resources on land information systems will get more for their dollars if these systems are compatible with others throughout Wisconsin.



Concept for a Multipurpose Land Information System

Section 22, T8N, R9E, Town of Westport, Dane County, Wisconsin

Data Layers:	Responsible Agency:
A. Parcels	Surveyor, Dane County Land Regulation and Records Department.
B. Zoning	Zoning Administrator, Dane County Land Regulation and Records Department.
C. Floodplains	Zoning Administrator, Dane County Land Regulation and Records Department.
D. Wetlands	Wisconsin Department of Natural Resources.
E. Land Cover	Dane County Land Conservation Committee.
F. Soils	United States Department of Agriculture, Soil Conservation Service.
G. Reference Framework	Public Land Survey System corners with geodetic coordinates.
H. Composite Overlay	<i>Layers integrated as needed, example shows parcels, soils and reference framework.</i>

The above figure illustrates some of the ingredients of **Multipurpose Land Information Systems**.²¹ Each layer represents actual information collected and maintained by government agencies for one particular square mile of land in the Town of Westport, Wisconsin. These records have been integrated in an experimental land information system developed as part of the Dane County Land Records Project. (For more information about this project, see Modernization in Progress, page 8.)

MULTIPURPOSE LAND INFORMATION SYSTEMS

SYSTEM ELEMENTS

There is general agreement that Multipurpose Land Information Systems require four basic elements:

- **Interrelatable geographic reference frameworks;**
- **Accurate, up-to-date, large-scale maps;**
- **A statewide parcel indexing system;** and
- **Standardized attribute files.**

A **geographic reference framework** (also referred to as a *geodetic reference framework*) provides the underpinnings of **Multipurpose Land Information Systems**. Several different geographic reference systems are used to describe physical locations on the earth's surface, but an **interrelatable** system is one in which the descriptions are mathematical and can therefore be "translated" into other mathematically based systems.²² All land information is virtually meaningless without reference to a location or dimension above, on, or below the earth's surface; and it can be shared only if these geographic references are interrelatable. In fact, it is a common geographic reference framework that "pins" together the various information layers of a **Multipurpose Land Information System**. Not even state-of-the-art computer technology can enable the sharing of land information that cannot be related to a common, mathematically based geographic reference framework.²³

Accurate large-scale maps are critical for effective and equitable decision-making. Large-scale maps (maps that show a small area in detail) can serve as an effective tool for the uniform display of many layers of information. These layers, when uniformly displayed, allow simpler and faster comparison of the areas and attributes of various sites.

A **statewide parcel indexing system** assigns a unique number to each land parcel (not unlike a unique street address for each house). Record keepers can then code and easily match both graphic and tabular land records to the appropriate ownership parcel. In turn, decision-makers can integrate and manipulate land information any number of ways, and landowners can readily access information about selected features of their property.

Standardized attribute files help communicate information in such a way that land attributes can be evaluated efficiently and fairly. The records of these attributes may be graphic, such as a map of zoned areas, or tabular, such as a tax roll. A single land parcel may have many attributes that could be examined simultaneously, if collected, stored, and updated according to certain standards.²⁴

Again, the essence of **Multipurpose Land Information Systems** is the ability to link attribute information (such as the cause and extent of damage of a traffic accident, the type and surface conditions of a road, or the value of a land parcel) to the physical location or dimensions of the associated point (such as the site of a traffic accident), line (such as a road), or closed area (such as a land parcel). Once the attribute information is thus linked to various points, lines, and areas, it gains a common reference that allows it to be shared.

An agency or organization might wish to modernize only one or two **Multipurpose Land Information System** elements. Until all are modernized, however, the agency will be unable to effectively integrate information from other systems, and the land information system is likely to be incapable of serving multiple purposes.

THE WISCONSIN LAND RECORDS COMMITTEE

PURPOSE OF THE COMMITTEE

On August 7, 1985, then-Governor of Wisconsin Anthony Earl signed Executive Order No.79, officially establishing the **Wisconsin Land Records Committee**. The Committee's broad mandate was to:

Examine and address the immediate needs of state and local agencies regarding land records collection and management; and to

Develop recommendations on how Wisconsin should approach the long-term issues of land records modernization.

The geographical and professional diversity of the Committee's 32 members was intentional, and mirrors the breadth of land records issues as well as the complexity of the land records dilemma.

Committee, subcommittee, and task force members contributed their expertise and represented the perspectives of a diverse group of institutions: state agencies, county, municipal, and town offices, regional planning commissions, utilities, businesses, and the university. (See list of Committee, subcommittee, and task force members, *Appendix A*.)

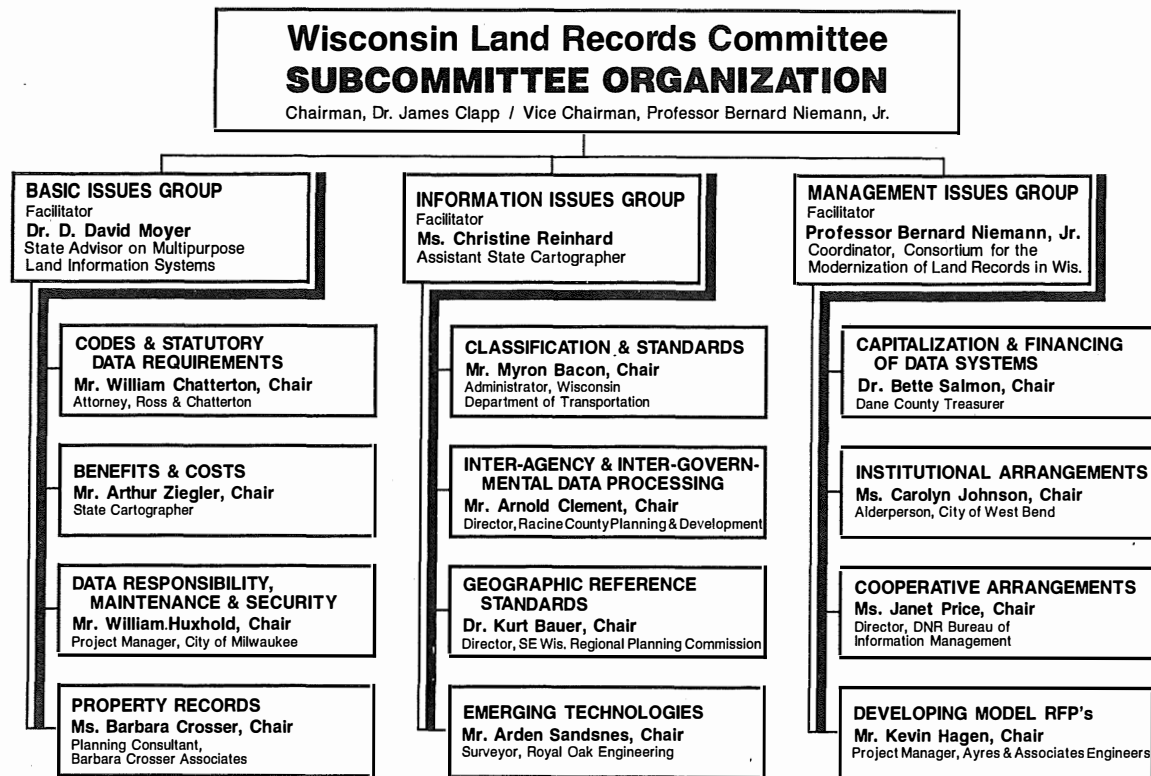
In January 1987, Governor Tommy Thompson officially recreated the Committee, charge and membership intact, with the signing of Executive Order No.1. The Committee continued to examine land records issues and to refine its preliminary recommendations until July 1987, culminating in this final report.



Members of the Wisconsin Land Records Committee at their tenth meeting.

THE WISCONSIN LAND RECORDS COMMITTEE

COMMITTEE ORGANIZATION AND ACTIVITIES



During its 22 months, the Committee undertook the following activities:

- **Organized 12 subcommittees** to cover basic issues, information issues, and management issues. (See Subcommittee Organization Chart, above).

The subcommittees involved the 32 Committee members as well as 60 more individuals who volunteered their time and energy. (See list of Committee and subcommittee members and their affiliations, *Appendix A*.)

The subcommittees collectively held almost 100 meetings. In addition to enabling members to address specific subcommittee missions, these meetings helped foster a unified voice among Wisconsin's concerned land records professionals.

- **Met 20 times.**²⁵ The Committee's time span afforded it the opportunity to fully explore alternatives proposed by individual members. Over the course of Committee meetings, members were able to reach consensus to the degree that minority reports were considered unnecessary.

- **Completed a Strategic Planning Sequence**, producing working papers to coincide with six of the sequence's seven steps. (See Time Line for Activities, following page.)
- **Completed a Summary Report** in 1986 containing preliminary recommendations for land records modernization in Wisconsin.²⁶
- **Reviewed and approved 12 Subcommittee Reports.** (See report descriptions, *Appendix B*.)
- **Held nine Public Information Meetings** throughout Wisconsin to inform and seek input from citizens and professionals about the proposed **Wisconsin Land Information Program.**²⁷
- **Compiled a wealth of information** on the status of land records and modernization, including an update of a 1981 Wisconsin Department of Administration study of state agency expenditures for collecting land information. (See Report No.9, *Appendix B*.)

THE WISCONSIN LAND RECORDS COMMITTEE

COMMITTEE ORGANIZATION AND ACTIVITIES (cont'd)

Substantial progress has been made toward:

- a **Glossary** of land information terminology;
- a statewide **Survey** of land information user and provider needs; and
- a **Bibliography** of land records modernization literature.

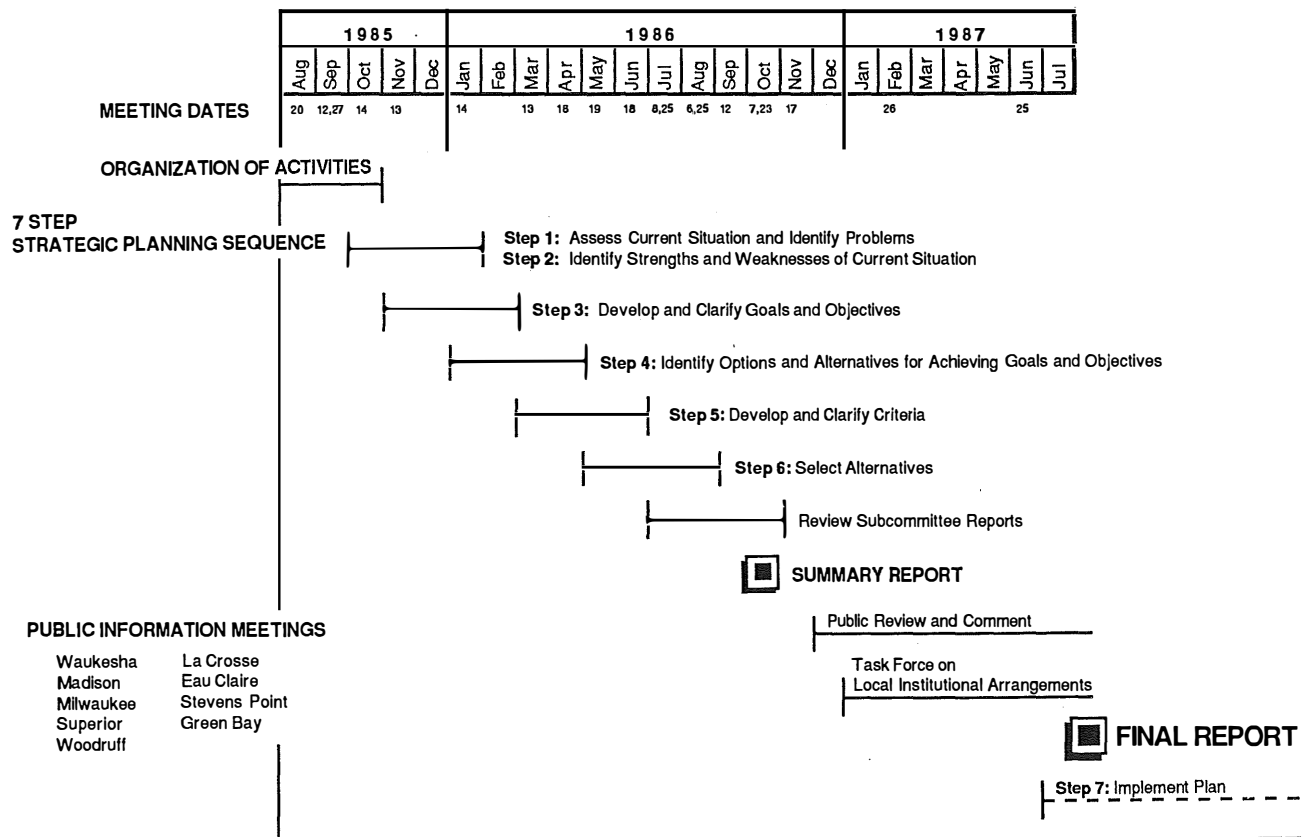
The Committee assumes the Wisconsin Office of Land Information, when established, will continue the above activities. (See Office of Land Information, page 25).

- **Organized a Task Force on Local Institutional Arrangements** to expand upon the Committee's recommendation that the establishment

of County Land Information Units be encouraged. (See County Land Information Units, page 29.) A list of task force members is found in *Appendix A*. Their report is described in *Appendix B* (Report No. 13).

- Cooperated with the **Wisconsin Land Information Coalition**, an independent association of concerned professionals whose work involves land records (see page 31). In keeping with its recommendation that such an association be created, the Committee supported the concept of the Coalition's establishment and has encouraged membership.

Wisconsin Land Records Committee TIME LINE FOR ACTIVITIES



THE WISCONSIN LAND RECORDS COMMITTEE

LAND RECORDS MODERNIZATION GOAL AND OBJECTIVES

Modernizing Wisconsin's land records to create Multipurpose Land Information Systems would benefit Wisconsin's citizens by improving decision-making, equitability, and efficiency in public and private sector functions involving land information (as described in Opportunities for Improvement, pages 5-6).

To do so, Wisconsin must accomplish the following overall land records modernization goal:

Develop, implement, and maintain compatible Multipurpose Land Information Systems that provide useful, quality data needed by Wisconsin's citizens, agencies, and private sector.

These systems must be effectively and efficiently supported by economic, legal, institutional, technical, and educational frameworks.

The following objectives, when achieved, will support **Multipurpose Land Information Systems** and foster the sharing of land information.

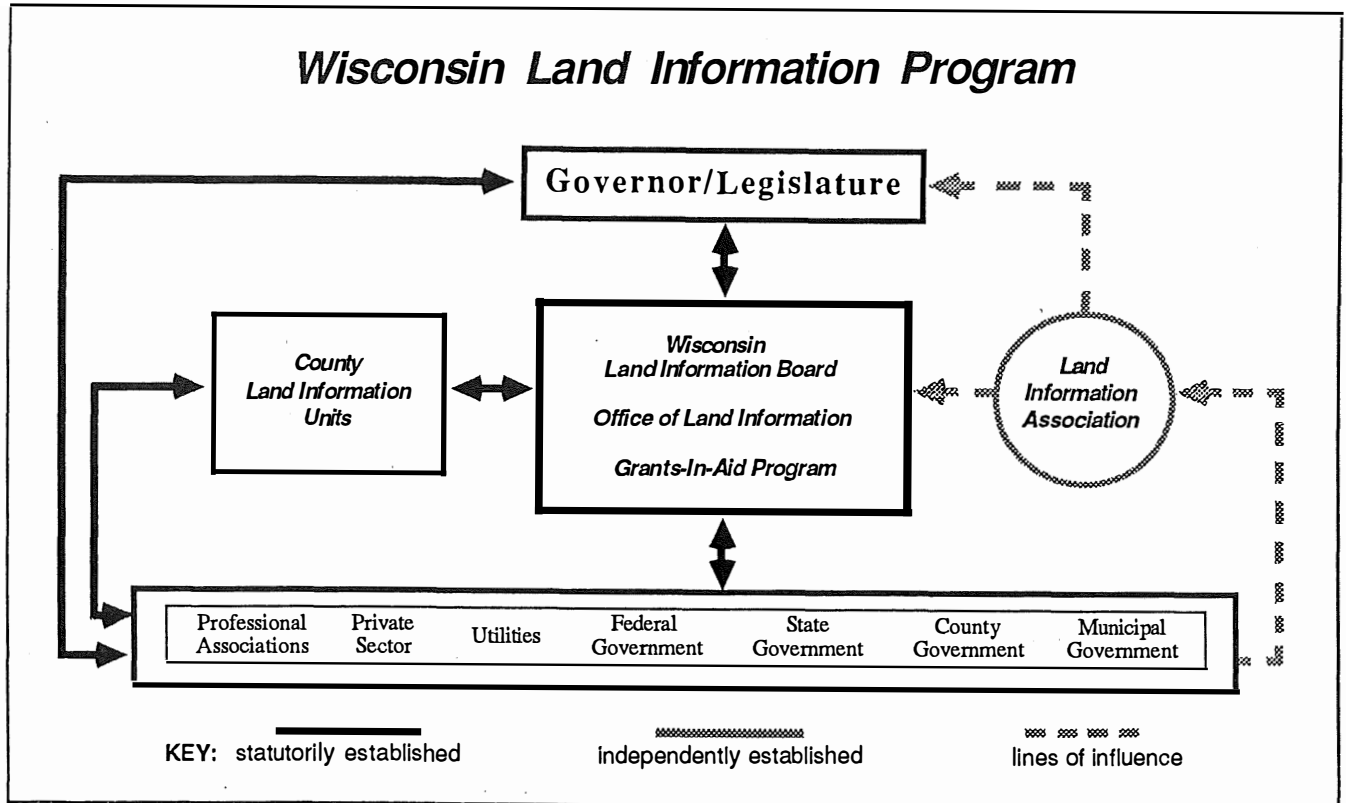
The need to achieve each of these objectives reflects the scope and complexity of the long-term land records modernization process.

- **Economic Objective:**
To develop new and existing public and private revenue sources and create incentives to maximize benefits and minimize costs.
- **Institutional Objective:**
To develop professional standards and cooperative arrangements among public and private agencies, including utilities.
- **Legal Objective:**
To resolve omissions, duplication, and inconsistencies in constitutional authorities, laws and statutes, and administrative rules that hinder the overall goal of modernizing land records.
- **Technical Objective:**
To promote technically sound procedures and practices that foster modern, efficient mapping and database management. To use these procedures to establish a geographic reference framework, and to create a land information network among the private sector, utilities, and all levels of government.
- **Educational Objective:**
To promote educational, research, and outreach efforts toward development and evaluation of supporting software, hardware, and personnel.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM

AN OVERVIEW

The Wisconsin Land Records Committee formally recommends to the Governor the establishment of a **Wisconsin Land Information Program**. The diagram below illustrates relationships among Program components, and between Program components and land information producers and users.



Program Intentions

The **Wisconsin Land Information Program** is a long-range strategic mechanism by which Wisconsin can guide the development of modern, efficient **Multipurpose Land Information Systems**. The Program also offers a flexible process through which to implement and maintain these systems.

The Program will enable Wisconsin to meet the land records modernization goal set forth by the Committee. (See page 18.)

The following overall program intentions are grouped into a time frame based on an evolutionary, guided approach toward statewide development of **Multipurpose Land Information Systems**:

- **Immediately:**
Review current methods of land records collection and maintenance, and provide technical assistance to public agencies seeking to improve these methods. Assist with modernization activities that encourage the development of **Multipurpose Land Information Systems**.
- **In the Short Term (within the first five years):**
Help local and state government agencies modernize land records in ways that will be consistent with eventually adopted statewide guidelines.
- **In the Long Term (within the next five to ten years):**
Continue these activities with an emphasis on developing and adopting guidelines for **Multipurpose Land Information Systems**.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM

AN OVERVIEW (cont'd)

Program Components

The Committee recommends that the Wisconsin Legislature establish a Wisconsin Land Information Program with the following components:

- Land Information Board;
- Office of Land Information;
- Grants-In-Aid Program;
- County Land Information Units.

The **Board** will establish and direct overall Program policy.

The **Office** will administer programs developed by the Board.

The **Board and Office** will constitute a single institutional entity, with joint responsibility for fulfilling overall program intentions (as described on page 19).

The **Grants-In-Aid Program** will help fund development of local and regional **Multipurpose Land Information Systems**, and will provide technical assistance.

Each Wisconsin county will choose whether or not to establish a **County Land Information Unit** to provide a defined link between the Program and local government.

A fifth Program component is a non-governmental **Land Information Association**, independently rather than legislatively established by individuals and groups who advocate land records modernization. Such an association might monitor the activities of the Board and Office, collaborate with them on related efforts, and be called upon as necessary to assist the Governor, the Legislature, or any component of the **Wisconsin Land Information Program** in addressing land records modernization issues.

The diagram on page 19 illustrates the relationships among these components. Each component is described in detail on the following pages.

Housing Agency

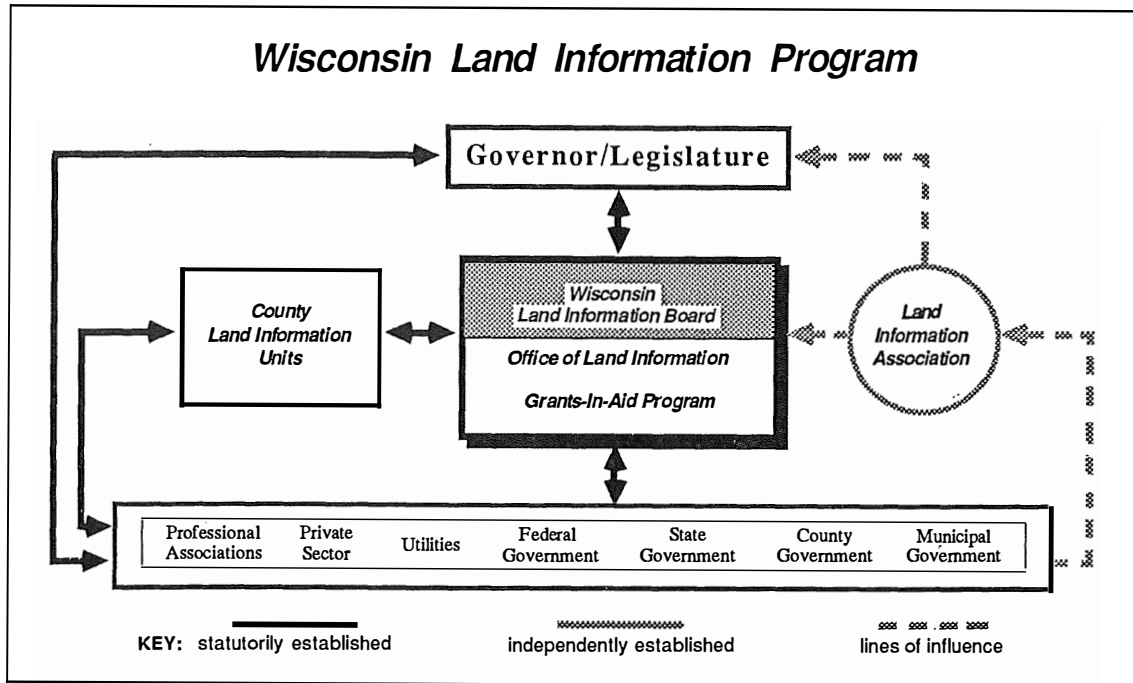
The Board and Office will be attached to the University of Wisconsin System for purposes of administrative support only.

The Committee believes the University provides "neutral ground" for a program that involves numerous government agencies as well as private enterprise.

The intention of housing the **Wisconsin Land Information Program** in an existing agency is to increase efficiency and reduce bureaucracy. The University as a housing agency will be solely an administrative channel for the Board and Office, providing physical space and basic overhead services under contract to the Board.

To ensure autonomous functioning of the Board and Office, the Board will develop an appropriate budget over which it has sole authority. As the **Wisconsin Land Information Program** will be a discrete entity with a statewide mission, the budget of its Board and Office will be unaffected by fluctuations in the University's budget. Similarly, the University's overall budget will be unaffected if funding for the **Wisconsin Land Information Program** is reduced for any biennium. Appropriate arrangements for establishing and managing this housing relationship should be developed with the University of Wisconsin System.

**RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM
LAND INFORMATION BOARD**



Description

The Land Information Board will be the overall policy body of the **Wisconsin Land Information Program**. The Board will work closely with the Office of Land Information, whose staff will help implement Board policies.

Purpose

The Board will be responsible for developing policy as well as programs to implement and evaluate that policy.

Board programs will be designed to address a number of general tasks, given below.²⁸ To determine priorities, the Committee divided these tasks into those to be addressed immediately (upon establishment of the Program), in the short term (within the next two to five years), and over the long term (beginning within the next five to ten years). This time frame assumes resources will be limited. Land records improvements will accrue more rapidly if resources allow these tasks to be accomplished sooner.

Immediate Tasks:

- Develop a Grants-In-Aid Program for land records modernization by local governments, and review all grants. (See Grants-In-Aid, page 27.)
- Establish a statewide inventory of land records, land information systems, and modernization efforts.
- Help state agencies determine their capabilities and potential roles in a statewide land information network.
- Identify and pursue sources of budgetary support and cooperation among public agencies, utilities, and the private sector for pilot and demonstration land records modernization projects.
- Advise the Governor, Legislature, and state agencies on programs and budgets affecting land information. Prepare an annual report.
- Support educational, research, and outreach efforts that promote land records modernization.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM

LAND INFORMATION BOARD (cont'd)

Short-Term Tasks:

- Provide guidelines for coordination, "networking," and improved management of land records, including geographic reference framework standards that permit land areas to be identified by coordinates specific to the ownership parcel level.
- Establish a geographic reference framework for **Multipurpose Land Information Systems** that includes a system of permanent land survey monuments.
- Recommend and assist with the development of **Multipurpose Land Information Systems** tailored to the varying needs and constraints of rural and urban governments.
- Establish task forces as needed to address specific land information issues.
- Resolve specific issues identified by the Committee and subcommittees, considering as a starting point the recommendations contained in the reports of the WLRC subcommittees, where applicable.
- Recommend legislation as needed to accomplish any of these tasks.

Long-Term Tasks:

- Resolve new land information issues as they arise.
- Resolve legal and administrative discrepancies pertaining to land information.
- Monitor the effectiveness of Board programs by continual review.

Structure

Board representatives will be appointed equally from among state agencies, local governments, utilities, and the private sector. There will also be a balanced number of rural and urban representatives and, to the extent practical, balanced representation of Wisconsin's different geographical regions. The following Board structure will ensure an institutional balance.

- **12 Governor-appointed members, with four each from:**
 - (a) **state government;**
 - (b) **local government and regional planning commissions;**
 - (c) **utilities and the private sector.**

- (a) **State government representatives will come from the four state agencies whose land information needs and responsibilities are most pervasive at the time of appointment.**

Currently, the Committee suggests that these agencies are the Department of Natural Resources; the Department of Revenue; the Department of Transportation; and the Department of Agriculture, Trade and Consumer Protection.

Given that the land information needs and responsibilities of Wisconsin's various state agencies could fluctuate over time, other state agencies may be considered for representation on the Board when the staggered terms of the initial representatives end.

State agency appointees should be the secretaries or deputy secretaries of their agencies.

- (b) **Local government representatives will be selected from town, municipal, and county governments, and from regional planning commissions.**
- (c) **Private sector representatives will include at least one utility appointee and possibly one from a non-governmental professional land information association.** (See Association, page 31.)

- **Board appointees will serve six-year, staggered, renewable terms.**

The Board will elect its **chairperson** on a rotating basis to a two-year, non-renewable term.

The Board's non-voting **executive secretary** will be the director of the Office, to provide a strong supportive link between the Board and the Office as well as continuity throughout changing Board chairpersons.

- **The Board or the Governor should appoint additional ex officio, non-voting Board members to include:**
 - a representative from the Wisconsin Department of Administration;
 - the President of the University of Wisconsin System;
 - representatives from other Wisconsin state agencies that actively process land information; and
 - representatives from interested federal agencies and adjacent states.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM

LAND INFORMATION BOARD (cont'd)

Specific Issues to Address

The specific land information issues described below are representative of several such issues identified by the Committee, subcommittees, and task force. One of the Board's short-term tasks is to resolve such issues. As a point of departure, the Board should first and foremost consider the recommendations of the subcommittees and task force regarding these issues.

- **Inventory and Management of State-Owned Lands.** Wisconsin has not completed an inventory of public lands since the early 1970's. Even then, only parcels of 160 acres or more were included. Much of Wisconsin's state-owned land is thus unaccounted for or poorly mapped. An inventory of state-owned lands is essential to determine the land's best possible use, and to be prepared to take advantage of economic development opportunities.

A lack of accurate, up-to-date land inventory information is a problem for many states. For example, two recent reports by the State of California conclude that it is missing over \$160 million worth of potential economic opportunities due to under-utilization of state-owned lands. The reports attribute this to shortcomings in the state's property management program, such as a lack of accountability. Several states such as Illinois have developed land inventory and management programs and are applying them in areas such as industrial waste siting and economic development. (For details about such programs see Opportunities for Improvement, page 5, and Land Records Modernization Efforts Outside Wisconsin, *Appendix D*.)

The Board should develop a program to inventory and evaluate Wisconsin's public lands.

- **Digital Line Graph for Wisconsin.** A digital line graph provides approximate coordinates for all Public Land Survey System section corners in an automated format that allows for computer storage. Wisconsin's Topographic Mapping Advisory Committee recently proposed the acquisition of a statewide digital line graph, with initial use of data obtained from the just-completed statewide series of 1:24,000-scale, 7.5-minute topographic maps. State agencies and others have already had considerable discussion on such issues as costs and cost-sharing possibilities for a Wisconsin digital line graph.

The Wisconsin Land Records Committee believes that statewide coverage of essential survey information in a digital format is necessary as soon as possible. It endorsed the acquisition of a digital line graph for the Public Land Survey System, to incorporate the best data available at the time of input, from whatever source, with the understanding that more accurate, precise, or detailed data, if and when available, should be incorporated. The digital line graph could provide a beginning basis for a common, statewide geographic reference framework. (See explanation of geographic reference frameworks, page 13.)

The Board should lead the effort to acquire a digital line graph for Wisconsin.

- **North American Datum of 1983 (NAD 83).** Recently the National Geodetic Survey (part of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce) finished adjusting the 250,000 land survey measurement points that comprise a national network.²⁹ NAD 83 assigned new mathematical coordinates to all survey monuments in the national network, replacing those assigned by NAD 27 more than 50 years ago. Many government agencies are using the new NAD 83 coordinates to replace the NAD 27 coordinate network. Many other land survey information users, however, question whether the increased accuracy and coverage of the new datum are worth the potentially substantial conversion costs.

The Board should evaluate the benefits and costs of conversion to NAD 83 in Wisconsin. If the Board concludes that the benefits warrant the costs, then it should develop procedures to fund and implement the datum conversion.

- **State Statutes Affecting Land Records.** In fulfillment of its mission, the Subcommittee on Codes & Statutory Data Requirements initiated research to identify key provisions of the Wisconsin Statutes that affect land records. The resulting document, *Wisconsin Statutes Affecting Land Records*, consists of over 600 statutory references to land records. (See Report No. 1, *Appendix B*.)

The Board should analyze the identified statutory references for inconsistencies, conflicts, and oversights that must be amended to facilitate the modernization of Wisconsin's land records.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM

LAND INFORMATION BOARD (cont'd)

Additionally, in accordance with recommendations in the foreword to *Wisconsin Statutes Affecting Land Records*, the Board should sponsor research to identify provisions in the Wisconsin Administrative Code, the United States Code, and the Code of Federal Regulations that affect land records.

- **Federal and State Mandates Affecting Land Records.** The December 1986 report of Wisconsin's Governor-appointed Task Force on County and Local Mandates notes a number of mandates that affect local land records management. These include programs related to farmland preservation and erosion control, cross-compliance, conservation aids, on-site private sewage system inspection, floodplain/shoreland mapping and zoning, real estate transfer tax fees, review of assessment practices, full-value assessment, accident reporting forms, and replacement of lost survey monuments.

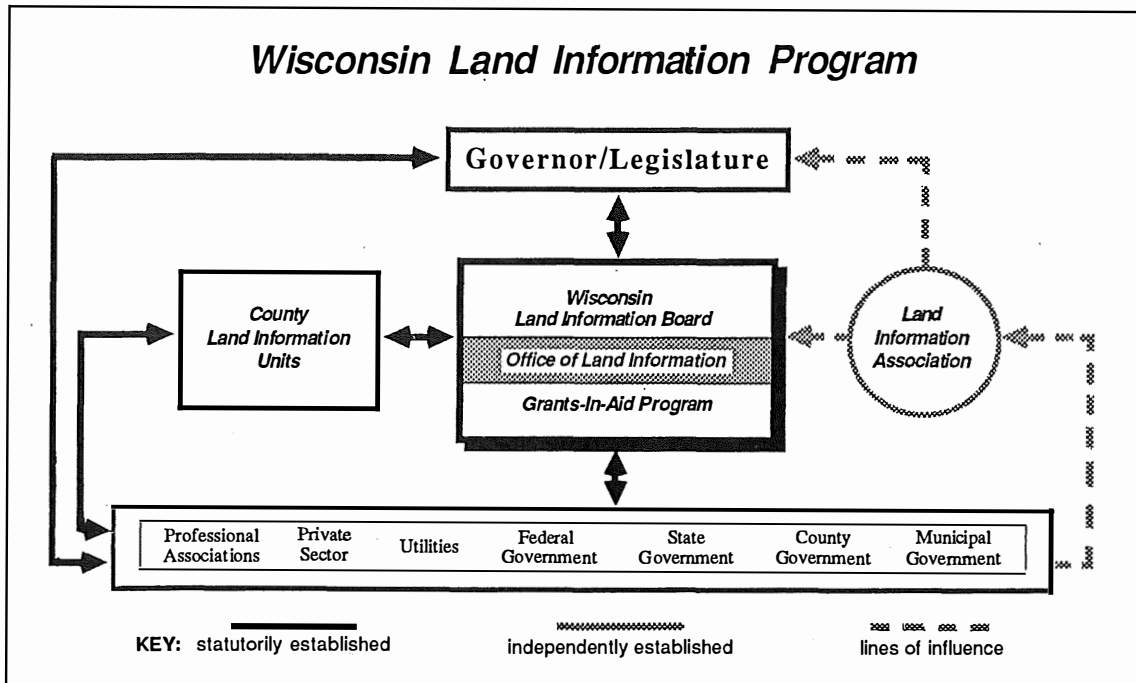
The Board should review the above report and evaluate the impacts of existing mandates on local land records management.

- **Property Value Assessment Implications.**

The process of property valuation for tax purposes is complex. Missing or inaccurate data on property ownership, boundaries, and resource value can result from incompatibility of the different formats used to maintain this data by different agencies and organizations. The problem of data incompatibility increases the cost of assessment as well as the chance of inequities. Many assessors believe modernizing land records will improve the quality of the information they need to assess property value, and will lower the cost of the process. (See also Fair and Efficient Property Taxation, page 6.)

The Board should ensure that land records are modernized in a way that benefits the property valuation process. Toward that end, the Board should review the report of the Wisconsin Property Tax Relief Commission, when complete.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM OFFICE OF LAND INFORMATION



Purpose

The Office of Land Information will administer programs developed by the Board.

In support of the Board's policies and programs, the Office will provide facilitation, consultation, and advisory services to state agencies, local governments, regional planning commissions, and the private sector.

Above all, the Office will serve as a clearinghouse designed to respond to questions on how to obtain land information managed by a variety of agencies and organizations.

As directed by the Board, the Office will:

Immediately:

- Administer the Grants-In-Aid Program. (See Grants-In-Aid, page 27.)
- Provide technical assistance to local governments with land records responsibilities.
- Maintain a current inventory of land records and modernization efforts in Wisconsin.

- Serve as a clearinghouse for land information inquiries.
- Help state and local governments integrate land information for decision-making on policy issues such as siting major industrial developments and nuclear waste repositories, monitoring groundwater pollution, and controlling soil erosion.
- Work with professional associations, federal agencies, state agencies, and the university to develop educational materials and conduct training programs.

In the Short Term:

- Ensure development of a statewide land information network, including the interchange of standards between systems.

In the Long Term:

- Assess the impact of state-of-the-art technology on land records management.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM**OFFICE OF LAND INFORMATION (cont'd)*****State Cartographer's Office***

The office of the State Cartographer will merge with the Office of Land Information to avoid duplication of effort in their related functions. The statutory language for this merger should uniquely identify the position of the State Cartographer and separately list the duties of that position to assure that the full statutory function of the State Cartographer, as well as the associated research, development, and outreach missions, are preserved within the Office of Land Information.

Department of Administration

To avoid duplication of effort, the Wisconsin Department of Administration's responsibility for coordinating land resource data under Wisconsin Statute 16.967 will be transferred to the Office of Land Information.

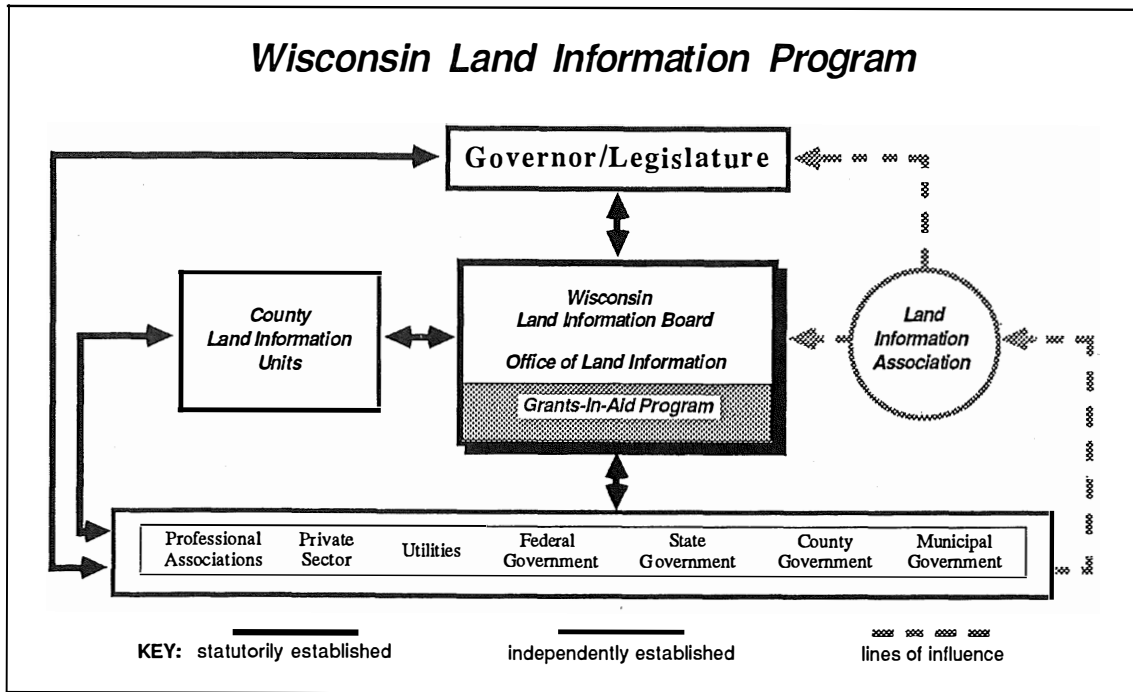
Full-Time Staff

The Office director will be selected by the Board and will serve as the Board's executive secretary. Office staff, in addition to existing State Cartographer's Office personnel, will be hired by the director to include, as appropriate, an assistant director, specialists, and clerical support, totaling the equivalent of three full-time positions.

Liaisons

The Office will encourage state agencies with land information interests to provide the Office with technical staff. Possible arrangements for such liaisons include in-kind assistance or direct assignment by the state agency. The Office will encourage similar liaisons with regional planning commissions, federal agencies, utilities, and the private sector.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM GRANTS-IN-AID PROGRAM



Purpose

A Grants-In-Aid Program will aid in the development of local and regional **Multipurpose Land Information Systems**. The Grants-In-Aid Program will include technical assistance to local governments undertaking any degree of land records modernization.

Operation

The Grants-In-Aid Program will be developed by the Board and administered by the Office. The Board will review all grant proposals.

Any local unit of government will be able to apply for grants. The Board will determine criteria for grant eligibility. One suggested criterion is a willingness and

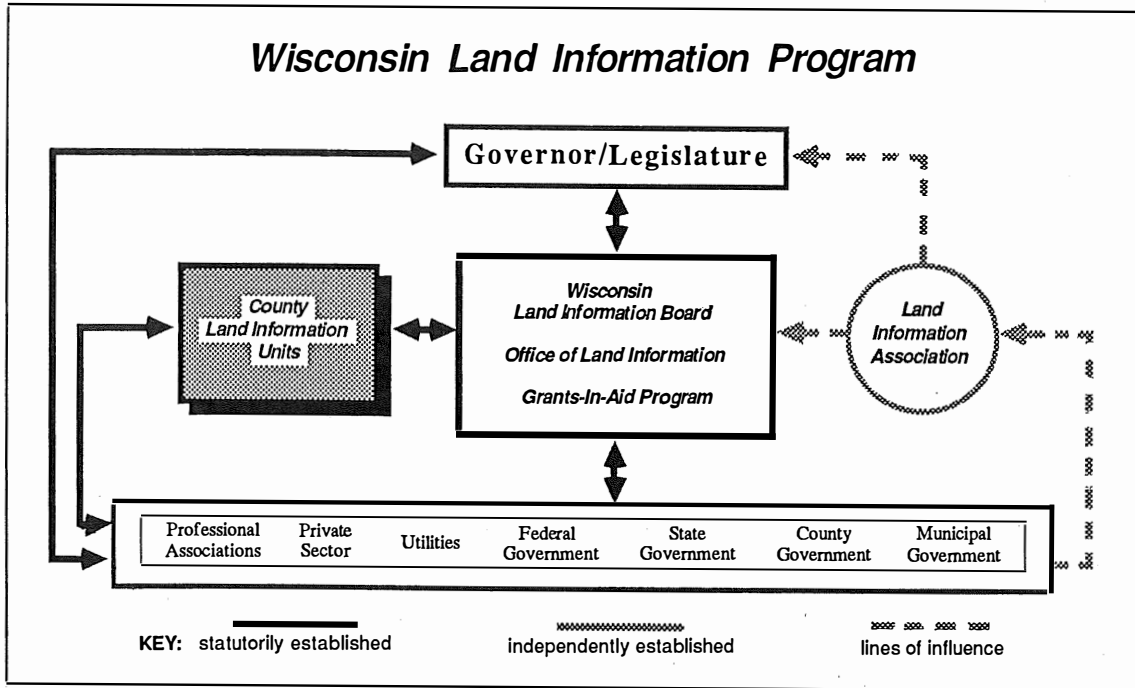
intent to follow guidelines, once established, that foster the development of **Multipurpose Land Information Systems**.

Each grant will require an equal or greater in-kind or dollar match. Local, private, and other non-state sources will provide these matches.

The **Wisconsin Land Information Program** budget will provide about \$450,000 annually for the Grants-In-Aid Program. Another \$450,000 in matched amounts (as described above), will bring the total amount available for the Grants-In-Aid Program to at least \$900,000.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM

COUNTY LAND INFORMATION UNITS



Description

Each of Wisconsin's 72 counties will be encouraged to establish a County Land Information Unit, to facilitate participation in the Grants-In-Aid Program and to provide a link between local government and the Wisconsin Land Information Program.

- state government;
- regional planning commissions;
- federal government;
- utilities; and
- businesses.

Purpose

Because of the important detail it affords, the land ownership parcel is arguably the most fundamental level at which land data is collected. Since most data at this level is managed by local governments, the County Unit would be crucial to a statewide land information network, and would:

- Serve as the primary contact point for land information issues between the Office and local government;
- Apply to the Grants-In-Aid Program for assistance in funding land records modernization projects, and assist municipalities, businesses, and small utilities within its jurisdiction in applying for grants; and
- Assist with land records modernization projects among local governments and between local government and:

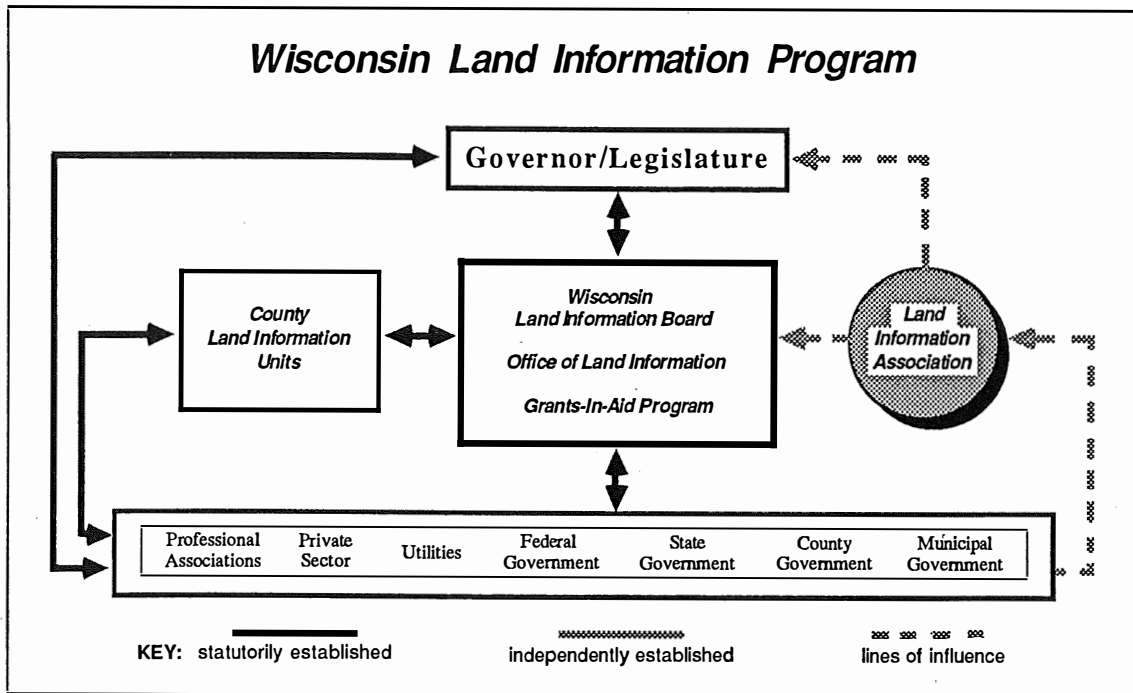
Structure

Each county that designates a committee, office, officer, or the like, will be able to structure this "unit" to best suit its capabilities and priorities. It is suggested that the unit include, at the county's discretion, the land records functions of the Register of Deeds, Surveyor, Planner, Zoning Administrator, Tax Lister, Conservationist, and others, as appropriate for the given county. (See County Land Information Processing, Table 1, *Appendix C.*)

County Units should work closely with towns, villages, and cities within county borders that wish to modernize their land records. A municipality seeking assistance to modernize its land records will be able to submit a grant proposal to its County Unit, if one exists, or to apply directly to the Grants-In-Aid Program.³⁰

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM

LAND INFORMATION ASSOCIATION



Description

In its Summary Report (October 1986), the Committee strongly advised that individuals and groups with land information concerns and responsibilities establish an independent, non-governmental association focusing on land information in Wisconsin. Such a group, the Wisconsin Land Information Coalition, now exists.³¹

Professionals from other independent associations, from town, municipal, county, state, and federal government, from private companies, and from utilities have joined the Coalition to continue the efforts of the Consortium for the Modernization of Land Records in Wisconsin.³² The Coalition intends to build upon the momentum generated by the Committee to promote land records modernization.

The Coalition is likely to informally influence the Wisconsin Land Information Program, although no formal legislative link will exist between the two. It is possible the Coalition will be represented on the Land Information Board. The Coalition should cooperate with the Office of Land Information on related efforts.

Purpose

The Coalition's mission is to foster the development, operation, and maintenance of a network of statewide land information systems. Towards that end, it plans to focus on the following activities and corresponding results:

- **"Networking":**
An exchange of information and ideas among professionals and other land information users.
- **Technical Research:**
A forum for examining new land information developments.
- **Education:**
Programs and materials on land information issues.
- **Political Action:**
A unified professional voice promoting land information improvements.

RECOMMENDATIONS: THE WISCONSIN LAND INFORMATION PROGRAM

FUNDING

The Committee suggests an initial budget of **\$868,000 per year** for the Board, the Office, and their programs. The budget will be approved by the Board and managed by the Office.

The Wisconsin Legislature should consider the following funding sources:³³

- **Reappropriation of the \$106,000 that supported the Wisconsin Land Records Committee for each year of the 1985-87 biennium** (i.e., a request for \$106,000 in new general purpose revenue funds). These funds were provided by the Legislature and administered by the University of Wisconsin-Madison.
- **An existing \$162,000 to continue and preserve the position and full statutory function of the State Cartographer** within the Office of Land Information (i.e., a transfer of existing general purpose revenue funds); and
- **Reallocation of \$600,000 of the State's current share of Real Estate Transfer Tax revenues** (i.e., a reallocation of one cent per \$100 value).³⁴

Since property owners will be major benefactors of improved land records, it is appropriate that a small portion of the Real Estate Transfer Tax already collected by the State be used to help fund these improvements.

It is suggested that the \$600,000 from transfer tax revenues be segregated for the **Wisconsin Land Information Program**. Of this \$600,000 per year:

- **\$150,000 would partially fund Board and Office operations**; and remaining funds of approximately
- **\$450,000 would help fund the Grants-In-Aid Program**.

(Each grant will require an equal or greater in-kind or dollar match from local, private, or other non-state sources.)

This suggested budget is illustrated below.

PROPOSED BUDGET	POTENTIAL SOURCES	
<i>Annual Budget Total:</i>	\$868,000	
<u><i>Board and Office Operations:</i></u>		
	\$106,000	GPR Reappropriation of Wisconsin Land Records Committee Provision
	\$162,000	GPR State Cartographer's Office
	<u>\$150,000</u>	SEG Real Estate Transfer Tax
Total:	\$418,000	
<u><i>Grants-in-Aid Program:</i></u>		
	\$450,000	SEG Real Estate Transfer Tax
Total:	\$450,000	
<u><i>Permanent Positions:</i></u>		
	3 FTE	State Cartographer
	<u>3 FTE</u>	New Authorizations
Total:	6 FTE	
GPR = general purpose revenue; SEG = segregated funds; FTE = full-time equivalent positions.		

INTO THE 21st CENTURY: A STRATEGY TO MANAGE CHANGE

Those involved in today's efforts to modernize land records must realize that current land records problems are in part historical. Yesterday's land administration procedures developed as they did for good reasons. They were not, however, designed to accommodate changing laws and technology.

The Committee realizes that many of the changes needed to modernize land records cannot and should not be made overnight. Rather, new technologies and legislative changes must be adopted gradually, and certain changes in administrative procedures should be based upon successful economic and technical precedents.

A large percentage of society's information needs are land-related; therefore, a continued inability to connect much of this information to its location on the land will hinder policy-making and land management in the daily operation of our society.

Information and surveying technologies are becoming increasingly available and affordable as a means to address many aspects of land records modernization. (See Trends Affecting Land Records Modernization, page 7.) Interactive computer graphics, telecommunications, database management systems, and satellite systems for extremely accurate global positioning are a few of the applicable state-of-the-art technologies.

The Committee envisions land records modernization as a dynamic, evolutionary process rather than a revolutionary one. Technology, for example, is sure to change during this process, and the **Wisconsin Land Information Program** is designed to evolve as necessary to manage this change.

Wisconsin is fortunate to have the capability to assist and guide the process of statewide land records modernization over the long term -- and the potential to create an effective, efficient land information network for centuries to come.

REFERENCES AND NOTES

1. Jack Dangermond and Carol Freedman, "Findings Regarding a Conceptual Model of a Municipal Data Base and Implications for Software Design," in *Seminar on the Multipurpose Cadastre: Modernizing Land Information Systems in North America*, ed. Bernard J. Niemann, Jr., Institute for Environmental Studies Report 123 (University of Wisconsin-Madison, 1984), pp.12-49. Also, "Invitation to Information," 1986 brochure by the Municipality of Burnaby, British Columbia, Canada.
2. The diagram on page 2 is adopted from the report of the **WLRC Subcommittee on Data Responsibility, Maintenance, & Security**. Reports by the **WLRC Subcommittee on Property Records** and the **Task Force on Local Institutional Arrangements** contain additional details on land records collection, maintenance, and use in Wisconsin.
3. **U.S. Bureau of the Census**, "Taxable Property Values and Assessment-Sales Price Ratios," *1982 Census of Governments* (Washington, D.C., 1982), vol. 2, p.13.
4. **Wisconsin Blue Book**, 1968, pp.13-18.
5. Each of Wisconsin's two million land parcels has any number of attributes associated with it besides ownership and valuation (e.g., census data, flood-prone zoning, political districting). This could easily aggregate to more than a billion pieces of information to be collected and managed.
6. These references are described in *Wisconsin Statutes Affecting Land Records*, the report of the **WLRC Subcommittee on Codes & Statutory Data Requirements**.
7. **Barbara Larsen et al.**, *Land Records: The Cost to the Citizen to Maintain the Current Land Base: A Case Study of Wisconsin*, (Wisconsin Department of Administration, 1978), p.23.
8. The inflation factor used was 1.6975, based on the **Consumer Price Index**.
9. The report of the **WLRC Subcommittee on Capitalization & Financing** contains an update of this inventory.
10. **Automation, Inc.**, *1986 Intelligent Infrastructure Market Report*. Automation, Inc. is a private market research firm.
11. The report of the **WLRC Subcommittee on Cooperative Arrangements** includes a discussion of the southeast Wisconsin shared land database effort.
12. With an inflation factor of 1.6975 (see note 8), the figure of \$17 per citizen annually (1976 dollars), from **Larsen et al.**, *Land Records* (note 7), becomes \$29 annually in 1987 dollars.
13. **Larsen et al.**, *Land Records* (note 7).
14. The report of the **WLRC Subcommittee on Benefits & Costs** discusses ways to carry out benefit/cost analyses of modern land information systems.
15. The report of the **WLRC Subcommittee on Emerging Technologies** includes a discussion on the impacts of recent and upcoming technologies on land records modernization.
16. **N. R. Chrisman**, "Effective Digitizing: Advances in Software and Hardware," *Technical Papers of the 1986 ACSM-ASPRS Annual Convention* (American Congress on Surveying and Mapping and American Society for Photogrammetry and Remote Sensing, 1986), vol.1, pp. 162-171, as referenced in: **N. R. Chrisman et al.**, "Soil Erosion Planning in Wisconsin: Order of Magnitude Implications of Integrating New Technologies," in *Papers from the 1986 Annual Conference of the Urban and Regional Information Systems Association, Denver*, vol.1, pp.117-128.
17. **Chrisman et al.**, "Soil Erosion Planning" (note 16).
18. **Roger D. Schwenke**, "Lender Liability for Hazardous Waste Cleanup Expenses," *Probate & Property*, January/February 1987, pp.43-47.
19. The report of the **Task Force on Local Institutional Arrangements** contains a more complete list and several detailed case studies of local-level land records modernization efforts in Wisconsin.
20. The report of the **WLRC Subcommittee on Interagency and Intergovernmental Data Processing ("Networking")** features a conceptual model for a statewide, interagency, cooperative land information network.
21. This diagram was prepared by the Land Information and Computer Graphics Facility, University of Wisconsin-Madison College of Agricultural and Life Sciences and School of Natural Resources, with support provided by the **Gordon H. Barker Fund** of the University of Wisconsin Foundation.
22. Throughout the United States, land survey monuments (wood or metal markers placed in the ground by surveyors) are used to mark points of scientifically controlled measurement upon the earth's surface. When these monuments are assigned mathematical (x,y) coordinates, they can serve as geographic reference points, which can be tied to a network of such points. If different agencies and organizations are able to relate their geographic reference data to a common network, the network can serve as a geographic or geodetic reference framework.
23. The report of the **WLRC Subcommittee on Geographic Reference Standards** contains specific recommendations for a geographic reference framework for land information systems in Wisconsin.

24. The report of the **WLRC Subcommittee on Classification & Standards** contains specific recommendations for a statewide land parcel indexing system and data attribute files.
25. Tapes and minutes exist for each meeting. In addition, the *Wisconsin Land Information Newsletter* (vol.3, nos.1 and 2, and the forthcoming vol.4, no.1) provides a meeting-by-meeting chronicle of the Committee through its tenth meeting.
26. The WLRC Summary Report was formally submitted to the former and current Governors of Wisconsin. Copies have since been sent to the former and new secretaries of the seven state agencies represented on the Committee, and, upon request, to hundreds of professionals within and outside Wisconsin.
27. Attendees of the public information meetings received copies of the WLRC Summary Report and learned of other Committee documents then available, watched a video on land records modernization, and responded to a brief presentation on the proposed **Wisconsin Land Information Program**.
28. The report of the **WLRC Subcommittee on Institutional Arrangements** is the source of many of the tasks listed.
29. For a brief explanation of land survey monuments, see note 22.
30. The report of the **WLRC Subcommittee on Developing Model RFP's** suggests ways local governments could be assisted in preparing requests-for-proposals.
31. For more information on current Coalition activities, contact Acting President Christine Reinhard at 143 Science Hall, 550 North Park Street, Madison, WI 53706-1404 (608/262-6850).
32. The Consortium for the Modernization of Land Records in Wisconsin is the grassroots organization of concerned professionals that helped establish the Wisconsin Land Records Committee.
33. The report of the **WLRC Subcommittee on Capitalization & Financing of Data Systems** lists other funding possibilities.
34. In the 1986 fiscal year, Wisconsin's total real estate transfer tax collections were \$17.8 million, based on a tax of 30¢ per \$100 value. Therefore, an allocation of \$600,000 would be approximately equivalent to 1¢ per \$100 value of transferred property.

APPENDIX A
THE WISCONSIN LAND RECORDS COMMITTEE



Pictured from left to right are: **Back row:** Diane Preston, David Carlson, Craig Karr, Rebecca Keipe, Christine Reinhard, Jerry Griswald, James Johnson, Earl Espeseth, George Hall, William Chatterton, Arthur Ziegler, John Schindler, D. David Moyer.
Middle Row: Shirley Rasmussen, Arden Sandsnes, Barbara Weisman, Barbara Crosser, Myron Bacon, Carolyn Johnson, Anita Sprenger, Janet Price, Agnes Ring, Meredith Ostrom, John Hohol, Anthony Kiedrowski, Phyllis Fuller, Julie MacSwain.
Front Row: Bette Salmon, William Huxhold, Bernard Niemann, James Clapp, James Plourde, Judy Rendall.
Not pictured: Fred Arbogast, Kurt Bauer, Arnold Clement, Helen Croteau, Kevin Hagen, Rebecca Keipe, Brenda Kittilson, Tom Krauskopf, Florence Magnuson, Clifton Maguire, Suzette Mullooly, Ralph Taylor.

Chair: James Clapp
Director, Center for Land Information Studies
Professor, Department of Civil & Environmental Engineering
/Institute for Environmental Studies
University of Wisconsin-Madison

Vice Chair: Bernard Niemann, Jr.
Editor, Wisconsin Land Information Newsletter
Professor, Department of Landscape Architecture
/Institute for Environmental Studies
University of Wisconsin-Madison

Myron Bacon
Administrator
Division of Business Management
Wisconsin Department of Transportation
Madison

Kurt Bauer
Executive Director
Southeastern Wisconsin Regional Planning Commission
Waukesha

William Chatterton
Attorney
Ross and Chatterton
Madison

Arnold Clement
Director
Racine County Planning and Development
Sturtevant

Barbara Crosser
Planning Consultant
Barbara Crosser Associates
Plymouth

Helen Croteau
Ashland City Council
County Board Supervisor
Ashland County

Earl Espeseth
United Real Estate Corporation
Madison

Phyllis Fuller

Vice President, Microcomputers for Everyone
Owner, Data-Serve
LaCrosse

Kevin Hagen

Project Manager
Transportation Division
Ayres and Associates Engineers
Madison

George Hall

Local Assistance Planner
Land Use Section
Wisconsin Department of Development
Madison

William Huxhold

Project Director
Central Electronic Data Services Department
City of Milwaukee

Carolyn Johnson

Alderman
City Plan Commission
West Bend

James Johnson

Director
Bureau of Land Resources
Wisconsin Department of Agriculture,
Trade and Consumer Protection
Madison

Craig Karr

Assistant Administrator
Division of Resource Management
Wisconsin Department of Natural Resources
Madison

Anthony Kiedrowski

Kiedrowski Engineering, Inc.
County Board Supervisor
Portage County
Wisconsin Rapids

Thomas Krauskopf

Federal Relations Coordinator
Division of State Budget and Planning
Wisconsin Department of Administration
Madison

Julie MacSwain

Conservationist
Soil Conservation Service
U.S. Department of Agriculture
Sparta

Florence Magnuson

Register of Deeds
Marinette County
Marinette

Suzette Mullooly

Southern Region Manager
Wisconsin Power and Light Company
Janesville

Meredith Ostrom

State Geologist and Director
Wisconsin Geological and Natural History Survey
Madison

Diane Preston

Register of Deeds
Douglas County
Superior

Janet Price

Director
Bureau of Information Management
Wisconsin Department of Natural Resources
Madison

Shirley Rasmussen

Assessor and Zoning Administrator
Town of Rome, Adams County
Wisconsin Rapids

Judy Rendall

County Board Supervisor
Dane County
Mazomanie

Agnes Ring

Planning Consultant
Cedar Corporation
Menomonie

Bette Salmon

Treasurer
Dane County
Madison

Arden Sandsnes

Registered Land Surveyor
Royal Oak Engineering, Inc.
Madison

Anita Sprenger

Director
Office of Conservation and Energy Efficiency
Wisconsin Public Service Commission
Madison

Ralph Taylor

Director
Bureau of Local Financial Assistance
Wisconsin Department of Revenue
Madison

Arthur Ziegler

State Cartographer
University of Wisconsin-Madison

The Committee gratefully acknowledges the contributions of the following members, who were unable to continue their participation: Rebecca Keipe, Green Lake; Brenda Kittilson, Prescott; and James Plourde, Madison.

Federal Liaisons (Ex Officio Members)

Fred Arbogast
Forest Service
U.S. Department of Agriculture
Milwaukee

John Hohol
Bureau of Land Management
U.S. Department of the Interior
Madison

Robert M. Maguire
Clifton Maguire
Soil Conservation Service
U.S. Department of Agriculture
Madison

D. David Moyer
National Geodetic Survey
U.S. Department of Commerce
Madison

Coordinating Staff

Chair: **James Clapp**
(see above list of WLRC members)

Facilitator: **D. David Moyer**
(see above list of federal liaisons)

Vice Chair, Facilitator: **Bernard Niemann, Jr.**
(see above list of WLRC members)

Facilitator: **Christine Reinhard**
Assistant State Cartographer

Program Assistant: **Barbara Welsman**

TASK FORCE ON LOCAL INSTITUTIONAL ARRANGEMENTS

Chair: David Fodroczi
(Subcommittee on Institutional Arrangements)

Don Barnes
(Subcommittee on Data Responsibility, Maintenance & Security)

Jeff Bluske
Real Property Lister
La Crosse County
La Crosse

Warren Buchner
representing the Wisconsin Towns Association
Town Clerk
Town of Windsor
DeForest

Arnie Clement
(WLRC member)
(Subcommittee on Interagency & Intergovernmental Data Processing)

Richard DeVriend
(Subcommittee on Benefits & Costs)

Esther Gage
(Subcommittee on Codes & Statutory Data Requirements)

George Hall
(WLRC member)
(Subcommittee on Codes & Statutory Data Requirements)

Carolyn Johnson
(WLRC member)
(Subcommittee on Institutional Arrangements)

Nolan Johnson
Superintendent
Outside Plant Records
Madison Gas & Electric
Madison

Jane Licht
representing the Wisconsin Counties Association
(Subcommittee on Benefits & Costs)

Eugene Miller
Supervisor of Equalization
Bureau of Property Tax
Wisconsin Department of Revenue
Madison

Joe Woloschek
(Subcommittee on Institutional Arrangements)

FORMER SUBCOMMITTEE MEMBERS

The subcommittees on which the following individuals served are grateful to have benefited from their contributions:

Gary DeByl, DePere
(Benefits & Costs)

Thomas Genthe, Platteville
(Cooperative Arrangements)

Terry Golding, Woodruff
(Classification & Standards)

Rebecca Kelpe, Green Lake
(Developing Model RFP's)

Brenda Kittilson, Prescott
(Property Records)

Edward Kuipers, Madison
(Developing Model RFP's)

Barbara Larsen, Madison
(Institutional Arrangements)

James Plourde, Madison
(Property Records)

John Schroer, Beloit
(Interagency & Intergovernmental Data Processing)

John Stellen, West Bend
(Property Records)

SUBCOMMITTEE MEMBERS: *Basic Issues Group***Codes & Statutory Data Requirements****Chair: William Chatterton** (WLRC member)**Richard DeVriend**Land Use Controls Administrator
Eau Claire County**Steve Fix**Project Leader, Wisconsin Wetlands Inventory
Bureau of Water Regulations and Zoning
Wisconsin Department of Natural Resources
Madison**Esther Gage**Register of Deeds
Rock County
Janesville**George Hall** (WLRC member)**Anthony Kiedrowski** (WLRC member)**Ole Marlatt**President
Northern Title and Abstract
Rhinelander**Benefits & Costs****Chair: Art Ziegler** (WLRC member)**John Hagman**Chief, Budget and Program Analysis Section
Bureau of Management and Budget
Wisconsin Department of Natural Resources
Madison**Jane Licht**County Board Supervisor
Dane County
McFarland**Gregg Miller**Warzyn Engineering
Madison**Thomas Patterson**Chief of Planning Research
Southeastern Wisconsin Regional Planning Commission
Waukesha**Shirley Rasmussen** (WLRC member)**Sandy Rowe-Goderstad**Executive Budget and Planning Office
Wisconsin Department of Administration
Madison**Data Responsibility, Maintenance & Security****Chair: William Huxhold** (WLRC member)**Don Barnes**County Surveyor
Rock County
Janesville**Helen Croteau** (WLRC member)**John Duffy**Appraiser
Hayward Land Title Company
Hayward**Mike Llewelyn**Chief, Water Resources Planning and Policy Section
Bureau of Water Resources Management
Wisconsin Department of Natural Resources
Madison**Julie MacSwain** (WLRC member)**Walter Raushenbush**Professor
Law School
University of Wisconsin-Madison**Mike Robbins**Assistant Professor
School of Business
University of Wisconsin-Madison**Property Records****Chair: Barbara Crosser** (WLRC member)**Earl Espeseth** (WLRC member)**Carl Evert**Director
Office of Lands
Wisconsin Department of Natural Resources
Madison**Bonnie Friedrich**Contract Specialist
Farmland Preservation Program
Wisconsin Department of Agriculture, Trade and Consumer Protection
Madison**James Jaeger**Attorney
Melli, Walker, Pease, and Ruhly
Madison**Lois Ketterhagen**Register of Deeds
Walworth County
Elkhorn**John Nielsen**County Surveyor
Racine County
Land Surveyor and Engineer
Nielsen, Madsen, and Barber
Racine**Diane Preston** (WLRC member)**Gene Rankin**Director
Land Regulations and Records Department
Dane County
Madison**Duane Wunsch**Assistant Vice President
Commonwealth Land Title Insurance Company
Brookfield

SUBCOMMITTEE MEMBERS: *Information Issues Group*

Classification & Standards

Chair: Myron Bacon (WLRC member)

Nicholas Chrisman
Assistant Professor
Department of Landscape Architecture/
Institute for Environmental Studies
University of Wisconsin-Madison

Thomas Krauskopf (WLRC member)

Lowell Lee
Tax Assessor
City of Oshkosh

Allen Miller
Sea Grant Institute
University of Wisconsin-Madison

Agnes Ring (WLRC member)

Les Van Horn
County Surveyor
Brown County
Green Bay

Dale Zaug
Data Administrator
Bureau of Information Management
Wisconsin Department of Natural Resources
Madison

**Interagency & Intergovernmental
Data Processing ("Networking")**

Chair: Arnold Clement (WLRC member)

Richard Allen
Interactive Computer Graphics Manager
Central Electronic Data Services Department
City of Milwaukee

Tom Carlsen
Chief of Special Services
Wisconsin Department of Transportation
Madison

William Fleck
Zoning Administrator
Land Regulations and Records Department
Dane County
Madison

James Johnson (WLRC member)

Roger Nacker
Director
Bureau of Business Information Services
Wisconsin Department of Development
Madison

William Shaw
Chief, Applications Support Section
Bureau of Information Management
Wisconsin Department of Natural Resources
Madison

Tom Sprague
Real Estate Supervisor
Wisconsin Power and Light Company
Madison

Geographic Reference Standards

Chair: Kurt Bauer (WLRC member)

Carol Mahnke
Register of Deeds
Dane County
Madison

Meredith Ostrom (WLRC member)

Donald Rhode
Survey Supervisor
Wisconsin Public Service Corporation
Green Bay

Mark Riggle
Geographic Information Specialist
Bureau of Information Management
Wisconsin Department of Natural Resources
Madison

Richard Walker
Professor
School of Library and Information Studies
University of Wisconsin-Madison

William Wambach, Jr.
Director
District One Office
Wisconsin Department of Transportation
Madison

Emerging Technologies

Chair: Arden Sandsnes (WLRC member)

Bruce Balkie
Supervisor
Facilities Marketing Systems
Wisconsin Public Service Corporation
Green Bay

Phyllis Fuller (WLRC member)

Richard Leaver
Survey and Description Supervisor
Dodge County
Juneau

Ron Ripp
County Surveyor
Land Regulations and Records Department
Dane County
Madison

David Schmidt
Director
Planning and Zoning Department
Winnebago County
Oshkosh

Alan Vonderohe
Assistant Professor
Department of Civil and Environmental Engineering
University of Wisconsin-Madison

SUBCOMMITTEE MEMBERS: *Management Issues Group***Capitalization & Financing of Data Systems****Chair: Bette Salmon** (WLRC member)**Ronald Gromackl**
J.C. Zimmerman Engineering Company
Greendale**Douglas King**
Physical Planning and Capital Budgeting
University of Wisconsin System
Madison**Florence Magnuson** (WLRC member)**Mark Middagh**
Associate Planner
Planning Department
Marathon County
Wausau**Ronald Schaefer**
Management Information Specialist
Wisconsin Department of Transportation
Madison**Institutional Arrangements****Chair: Carolyn Johnson** (WLRC member)**David Fodroczi**
Specialist
Farmland Preservation Program
Wisconsin Department of Agriculture, Trade,
and Consumer Protection
Madison**Harvey Jacobs**
Assistant Professor
Department of Urban and Regional Planning/
Institute for Environmental Studies
University of Wisconsin-Madison**Craig Karr** (WLRC member)**William Lontz**
Natural Resources Education Agent
University of Wisconsin-Cooperative Extension
Hayward/Madison**Judy Rendall** (WLRC member)**Joseph Woloschek**
JAW Appraisals Corporation
Eagle River**Cooperative Arrangements****Chair: Janet Price** (WLRC member)**Michael Hasslinger**
Register of Deeds
Waukesha County
Waukesha**Roger Laning**
County Highway Commission
Sheboygan County
Sheboygan**David Mezera**
Associate Professor
Department of Civil and Environmental Engineering
University of Wisconsin-Madison**Suzette Mullooly** (WLRC member)**Anita Sprenger** (WLRC member)**Developing Model Requests for Proposals (RFP's)****Chair: Kevin Hagen** (WLRC member)**Emmett Harold**
Assessor
City of Boscobel / Village of Avoca / Village of Wauzeka
Richland Center**Matthew Janiak**
County Surveyor
Richland County
Richland Center**Paul Skidmore**
Landscape Architect
Foth and Van Dyke
Madison**Paul Wolf**
Professor
Department of Civil and Environmental Engineering
University of Wisconsin-Madison

APPENDIX B
 DESCRIPTIONS OF REPORTS BY THE
 WLRC SUBCOMMITTEES AND TASK FORCE

To request a price list and ordering information for the following reports please write to: Attn: Publications, Center for Land Information Studies, Room 1042 WARF Building, 610 Walnut Street, Madison, Wisconsin 53705.

Basic Issues Group

Report No. 1

Subcommittee on Statutory Data Requirements

Wisconsin Statutes Affecting Real Property Records, researched by Dean Massey of the University of Wisconsin Law School, describes over 600 provisions of the Wisconsin Statutes that relate to land information collection, management, and use. These references are grouped and sub-grouped into several land information topics. The document is indexed according to the state statutes as well as the land information topics it covers.

Report No. 2

Subcommittee on Benefits & Costs

Guidelines for Benefit-Cost Analysis of Land Records offers guidelines and suggests methods appropriate for conducting various types of benefit-cost analyses of land information systems in Wisconsin. Particularly helpful is the report's Bibliography of Land Records Cases with Summaries and Abstracts.

Report No. 3

Subcommittee on Data Responsibility, Maintenance & Security

The *Final Report of the Subcommittee on Data Responsibility, Maintenance & Security* proposes principles for an orderly transition from the present status of land records management to modern, **Multipurpose Land Information Systems**, as well as a process by which to implement these principles. Seven categories of land information are listed, each with about 20 sub-categories.

Report No. 4

Subcommittee on Property Records

In the *Final Report of the Subcommittee on Property Records* the subcommittee recommends that certain essential property records be included in basic land information systems, and assigns priorities to other records for inclusion in more extensive systems. Included are a highly informative matrix of land records and users showing frequency of use, and a list of various land records providers in Wisconsin.

Information Issues Group

Report No. 5

Subcommittee on Classification & Standards

The *Report on Land Records Classification and Standards* recommends establishment of a land data file descriptor to facilitate communication and interaction among land information users. The file descriptor would include several standardized items such as general subject titles, mathematically convertible geographic references, and uniform geographic codes for standard political divisions.

Report No. 6

Subcommittee on Interagency & Intergovernmental Data Processing ("Networking")

The *Final Report of the Subcommittee on Interagency and Intergovernmental Data Processing* features a conceptual model for an interagency/intergovernmental land information network. It also discusses "networking" needs from the perspectives of various land information users.

Report No. 7

Subcommittee on Geographic Reference Standards

A Recommended Geometric Framework for Land Data Systems describes Wisconsin's current geographic reference system and recommends the development of a geometric reference framework with certain accuracy requirements. The framework would incorporate U.S. Public Land Survey System corners with accompanying geometric coordinates from the State Plane Coordinate System. The report also contains recommended procedures for updating land information and resolving the discrepancies likely to be uncovered as land databases develop.

Report No. 8

Subcommittee on Emerging Technologies

Modern Technology for Land Records Information Systems identifies problems inherent in existing automated land information systems, and offers guidelines to local government for procuring automated systems. A significant portion of the report discusses techniques for data collection, conversion of data into various formats, and base mapping.

Management Issues Group

Report No. 9

Subcommittee on Capitalization & Financing of Data Systems

The *Final Report of the Subcommittee on Capitalization & Financing of Data Systems* is in two parts. The first is a brief paper on funding sources for the proposed Wisconsin Land Information Program. The second part is an updated version of "Planning for the Collection of Natural and Physical Resources in Wisconsin," a 1981 Department of Administration study to determine the expenditures of various state agencies to collect resource data. The update is considered a working document, as continual updates will be necessary over time.

Report No. 10

Subcommittee on Institutional Arrangements

Institutional Arrangements for Land Information Management in Wisconsin presents several alternatives for institutional mechanisms by which Wisconsin can approach land records modernization. The alternatives are reviewed using a combination of economic, political, and technical criteria. Finally, a single combined alternative is recommended. This alternative was presented to the Wisconsin Land Records Committee, and helped shape the Committee's recommendations for a Wisconsin Land Information Program.

Report No. 11

Subcommittee on Cooperative Arrangements

The *Final Report of the Subcommittee on Cooperative Arrangements* outlines the results of the following tasks: (1) examine existing cooperative arrangements to determine which are successful, and why; (2) determine the types of cooperative arrangements Wisconsin would benefit from the most; (3) recommend generic steps toward development of cooperative arrangements; and, (4) identify basic assumptions and requirements that should be clarified at the onset of any cooperative arrangement.

Report No. 12

Subcommittee on Developing Model RFP's

The *Final Report of the Subcommittee on RFP's* offers general guidelines for preparing requests for proposals (RFP's) to procure technological and other products and services for land records management. The guidelines are intended to be of use to local governments in particular. Also available is a separate compendium of actual RFP's from a variety of sources.

Task Force

Report No. 13

Task Force on Local Institutional Arrangements

Local Institutional Arrangements for Land Information Management in Wisconsin closely examines a variety of important institutional and organizational considerations for local governments, small businesses, and small utilities that plan to modernize land records. The organizational aspects of several notable Wisconsin land records management systems are presented and reviewed in in-depth case studies. Also provided is a list of current land records modernization efforts throughout Wisconsin, as complete and up-to-date as possible, including the names of individuals to contact for further information about each effort.

Other Materials

The following educational and outreach materials were produced by University of Wisconsin-Madison departments in cooperation with various federal government agencies. They are noteworthy in their coverage of the need for and status of land records modernization in Wisconsin.

Wisconsin Land Information Newsletter

The *Wisconsin Land Information Newsletter*, published three to five times a year, seeks to inform land records users and professionals of recent research activities, results, and applications in Wisconsin pertaining to land records modernization. The *Newsletter's* current circulation is approximately 10,000. To receive future issues, send your name and address to the *Wisconsin Land Information Newsletter*, c/o Center for Land Information Studies, 1040 WARF Building, 610 Walnut Street, Madison, Wisconsin 53705. (There is currently no subscription fee.)

Land Records Modernization Video

Land Records Modernization: Issues, Applications, and Recommendations is a 40-minute instructional video that asks and answers ten basic questions about land records modernization, such as "Why are land records important?" and "What are some of the benefits of land records modernization?" For more information about the video, contact the Center for Land Information Studies, 1042 WARF Building, 610 Walnut Street, Madison, Wisconsin 53705 (608/262-9937). To rent or purchase copies of the video, contact the University of Wisconsin-Extension Bureau of Audiovisual Instruction, P.O. Box 2093, Madison, Wisconsin 53701 (608/262-3902), and refer to Video #11301 "Land Records Modernization."

APPENDIX C
LOCAL LAND RECORDS IN WISCONSIN

The following tables offer an overview of county, municipal, and town land records in Wisconsin. The tables are adopted from the report of the WLRC Task Force on Local Institutional Arrangements (described in *Appendix B*). There has been an attempt to include any and all local officers and agencies known to have a substantial role in processing land records. Not every local government has all of the officers and agencies listed.

TABLE 1
COUNTY LAND RECORDS PROCESSING

OFFICER / AGENCY	PRIMARY LAND RECORDS FUNCTIONS	STATE OVERSIGHT *	PRIVATE SECTOR COUNTERPARTS
Abstractor (Authorized under sec. 59.58; duties under sec. 59.58(1))	Prepare abstracts of title in counties with tract index or chain of title system.	None.	Attorneys, abstractors, and title companies.
Assessor (Kenosha County only) (Authorized under sec. 70.99; duties under secs. 70.99(6) and related sections of Chapter 70)	Prepare/maintain assessment roll and assessment maps.	DOR has statutory oversight for assessor certification and operations.	Appraisers
Clerk (Constitutional Officer; duties under sec. 59.17)	Archive for records and maps produced and stored by other agencies. Procure and provide property tax forms.	Property tax forms from DOR under sec. 70.09(3).	None.
Clerk of Circuit Court (Prescribed under sec. 59.12; duties under secs. 59.39, 59.395, and 753.30)	Maintain records of judgments, tax foreclosures, and liens affecting property.	None.	Attorneys, abstractors, and title companies.
Conservationist (Authorized under sec. 92.09 to administer all conservation programs under Chapter 92)	Prepare and administer county animal waste and erosion control plans and individual conservation plans.	DATCP for Chapter 92 programs and funding; DNR under secs. 144.25 and 29.598.	Conservation contractors and agricultural engineers.
Emergency Government (Prescribed under sec. 166.03(4); duties under sec. 166.03(5))	Prepare county emergency government plans and coordinate other local plans.	DHSS under sec. 166.03.	None.
Forestry Administrator (Can be authorized by county ordinance under sec. 28.11(3)(a))	Prepare and maintain plans and records for county forests.	DNR under sec. 28.11.	Private foresters and timber companies.
Highway Commissioner (Authorized under sec. 83.01(1); duties under sec. 83.01(7))	Prepare/maintain highway register of layout, alteration and discontinuance of all highways in unincorporated area of county.	DOT for funding and standards.	Private engineers and construction firms.

TABLE 1 (cont'd)

OFFICER / AGENCY	PRIMARY LAND RECORDS FUNCTIONS	STATE OVERSIGHT *	PRIVATE SECTOR COUNTERPARTS
Parks Director (Authorized under sec. 27.015(9) or sec. 27.03(2); duties under secs. 27.015 and 27.05)	Maintain records, plans, and maps for county park system.	DNR for funding and planning standards.	Private recreational facilities.
Planner (Authorized under sec. 59.97(2)(d))	Prepare and maintain county development plan and related records and maps.	DATCP, DNR, DOD, and/or DOT depending upon scope of programs.	Private planning consultants, developers, realtors, and related development professionals.
Real Property Lister (Authorized under sec. 70.09(1); duties under sec. 70.09(2); advisory only)	Prepare and maintain lists, maps, and descriptions of real property tax parcels.	Indirectly by DOR through consultation, assessors, and forms.	Attorneys, appraisers, abstractors, and title companies.
Register In Probate (Prescribed under sec. 851.71; duties under sec. 851.72)	Maintain records of court actions related to wills and estates.	None.	Attorneys, abstractors, and title companies.
Register of Deeds (Constitutional Officer; duties under sec. 59.51; operations under secs. 59.512 to 59.57)	Recordation of property records authorized throughout statutes.	None.	Attorneys, abstractors, and title companies.
Sanitarian (Authorized under sec. 140.45; duties under sec. 145.20)	Issue and maintain sanitary permit records.	Certification by DHSS and DILHR; administrative rules by DILHR.	Plumbers, soil testers, septage haulers, and drillers.
Surveyor (Constitutional Officer; duties under secs. 59.60, 59.63, 59.635, and 70.52)	Execute public surveys, maintain public survey records, and manage relocation/perpetuation of public land survey.	Registration by DORL-EBOAPED & LS and related administrative code for education, experience, and practice.	Private land surveyors, civil engineers, attorneys, and cartographers.
Treasurer (Constitutional Officer; duties under set. 59.20)	Maintain tax roll and list of delinquent taxes.	Indirectly by DOR through provision/approval of forms.	Appraisers, realtors, and landowners.
Zoning Administrator (Authorized under secs. 59.97(2)(bm) and 59.97(10)(b). Duties throughout sec. 69.97)	Maintain records and maps for administration of zoning ordinance.	Administrative rules by DNR for shoreland/floodplain/wetland zones; forms and procedures from DATCP for exclusive Ag Zoning.	Realtors, developers and landowners.

* Key to state agency abbreviations:

DATCP = Department of Agriculture, Trade, and Consumer Protection

DHSS = Department of Health and Social Services

DILHR = Department of Industry, Labor, and Human Relations

DNR = Department of Natural Resources

DOD = Department of Development

DOR = Department of Revenue

DORL-EBOAPED & LS = Department of Regulation and Licensing,

Examining Board of Architects, Professional Engineers, Designers, and Land Surveyors

DOT = Department of Transportation

TABLE 2
CITY & VILLAGE LAND RECORDS PROCESSING

OFFICER / AGENCY	PRIMARY LAND RECORDS FUNCTIONS	STATE OVERSIGHT *	PRIVATE SECTOR COUNTERPARTS
Assessor / Tax Commissioner (Prescribed under secs. 61.197, 62.09, 66.01, or 70.06; duties under sec. 61.27 and throughout Chapter 70)	Identify and describe taxable property and prepare assessment roll from data cards.	Examination, certification, manual, and forms by DOR under Chapter 70.	Appraisers.
Building Inspector (Authorized under secs. 61.197, 62.09, 66.01, or 70.06; duties under sec. 62.23(9)(a))	Issue and maintain building and zoning permits.	Subject to administrative rules by DILHR and DNR.	Developers, builders, and realtors.
Clerk (Prescribed under secs. 61.197, 62.09(1); duties under secs. 61.25, 62.09(11), and Chapter 70)	Complete and correct assessment role; prepare tax roll and related reports.	Procedures and forms by DOR under Chapter 70.	None.
City Engineer (Prescribed under sec. 62.09(1); may be delegated by city council; duties under sec. 62.14(7))	Maintain records of all city engineering projects, plats, sewers, streets, bridges, buildings, and survey control.	Administrative rules and funding by DOT and DNR for street and sewer improvement.	Private engineers, construction companies, and land surveyors.
Housing, Housing and Community Development, and Redevelopment Authorities (Authorization and powers under secs. 66.395, 66.40, 66.431, and 66.4325)	Prepare and implement housing and redevelopment plans and projects	Funding and administrative policy from DOD.	Developers, construction companies, and realtors.
Metropolitan Sewerage District (Authorized under secs. 66.20 to 66.26 and 66.88 to 66.918 for 1st class cities; powers under secs. 66.24 and 66.89)	Adopt and maintain plans and standards and manage properties and sewer facilities.	Administrative rules and funding by DNR.	Public utilities.
Metropolitan Transit Authority (Authorized under sec. 66.94, powers under sec. 66.94(9) - (22))	Adopt and maintain plans and records and manage facilities for transportation facilities.	Administrative rules, standards and funding by DOT.	Railroads, cab companies, and public utilities.
Planner / City or Village (Authorized under sec. 62.23(1)(e); powers and functions of plan commission under sec. 62.23(1) - (5))	Prepare and administer records, studies, and maps for master plan and related plans.	Dependent upon nature and scope of work program.	Developers, realtors, and attorneys.
Municipal Public Utilities (Authorization and powers under secs. 66.06 - 66.078)	Adopt and maintain plans and records for water, light, heat or power facilities.	Regulated by Public Service Commission.	Private utility companies.

TABLE 2 (cont'd)

OFFICER / AGENCY	PRIMARY LAND RECORDS FUNCTIONS	STATE OVERSIGHT *	PRIVATE SECTOR COUNTERPARTS
Treasurer (Prescribed under secs. 61.197 and 62.09; duties under secs. 61.26, 62.09(9), and 70.73)	Maintain tax roll as taxes are collected.	Procedures and forms by DOR under Chapter 70.	None.

TABLE 3

TOWN LAND RECORDS PROCESSING

Assessor (Prescribed under sec. 60.30; duties under Chapter 70)	Identify and describe taxable property and prepare assessment roll from data cards.	Examination, certification, manual and forms by DOR under Chapter 70.	Appraisers.
Clerk (Prescribed under sec. 60.30; duties under sec. 60.33 and Chapter 70)	Complete and correct the assessment roll; prepare tax roll and related reports.	Procedures and forms by DOR under Chapter 70.	None.
Park Commission (Authorized by town meeting under sec. 60.66; powers and duties under sec. 60.66(4))	Maintain plans, maps, and records of town park system.	Possible funding and standards by DNR.	Commercial recreational facilities.
Sanitary District (Authorized under secs. 60.71 and 60.72; powers and duties under sec. 60.77)	Maintain plans and records for water, sewer, and/or solid waste facilities.	Administrative rules, standards, and possible funding by DNR.	Private utilities.
Treasurer (Prescribed under sec. 60.30; duties under sec. 60.34)	Maintain tax roll as taxes are collected.	Procedures and forms by DOR under Chapter 70.	None.
Zoning Administrator / Building Inspector (Authorized under secs. 60.61 or 60.62; duties under secs. 60.61 or 62.23)	Maintain zoning maps and zoning and building permit records.	Procedures and forms by DATCP for exclusive Ag Zoning.	Developers, realtors, and attorneys.

* Key to state agency abbreviations:

DATCP = Department of Agriculture, Trade, and Consumer Protection
 DILHR = Department of Industry, Labor, and Human Relations
 DNR = Department of Natural Resources
 DOD = Department of Development
 DOR = Department of Revenue
 DOT = Department of Transportation

APPENDIX D

LAND RECORDS MODERNIZATION EFFORTS OUTSIDE WISCONSIN

Wisconsin is not alone in recognizing the need to modernize land records. That many of the following initiatives are recent reaffirms the urgency of this need.

Federal-Level Interest

- The **National Science Foundation** plans to appropriate more than \$10 million over the next six years for a National Geographic Information and Analysis Center at a major university to be selected by mid-1988. The Center would advance theories, methods, and techniques for geographic information systems.
- The **National Governor's Association** and others addressed the topic of "Piecing the Puzzle Together: Integrating Data for Decisionmaking" at a May 1987 conference in Washington, D.C.
- In 1986, the **Office of Charting and Geodetic Services** (National Oceanic and Atmospheric Administration, U.S. Department of Commerce) was designated as the lead federal agency for coordinating **Multipurpose Land Information System** projects, marking the first time since the mid-19th century that a federal agency has agreed to lead efforts to coordinate land information. The Office will most likely exercise this authority through the Federal Geodetic Coordinating Committee, which is already involved in a number of land records modernization activities.

State-Level Efforts

Several states have developed geographic information systems that can be applied to resource management and economic development by state and local agencies. These states include:

- **Illinois:** The Illinois Department of Energy and Natural Resources developed a Geographic Information System (GIS) in the early 1980's. The GIS includes a statewide mapping database for broad, general coverage at a relatively low cost, and contains numerous site- and parameter-specific mapping databases for different areas of coverage at various scales. Tabular data can be linked to the map files in order to be displayed as attributes on the maps. Illinois' GIS is flexible to allow for as many applications as possible.
- **Minnesota:** Since 1977, Minnesota's Land Management Information Center (developed by the University of Minnesota and located in the State Planning Agency) has been providing physical planners, policy planners, and others with geographic coverage of the entire state as well as broad range of land information services and products. Decision support is the Center's priority -- providing information as needed by decision-makers to help articulate the nature of a problem and assist with choices.

At least two states have established programs for statewide land records modernization:

- The **North Carolina Land Records Management Program** was legislatively established in 1979 and has succeeded in coordinating compatible mapping programs (i.e., on a common geographic reference system) in 64 of the state's 100 counties, as well as establishing a statewide land parcel indexing system. The program emphasizes services for local governments in the form of general guidance for land records management programs, assistance with development of RFP's, technical training, and, as available, financial assistance for land records modernization projects.
- A **Virginia Division of Mapping, Surveying, and Land Information Systems**, to be directed by a "State Coordinator," was legislatively established in March 1987 within Virginia's Department of General Services. The Division's first-year budget will be about \$105,000, increasing to about \$400,000 in the second year. North Carolina Land Records Management Program officials have offered to assist the Virginia State Coordinator in getting started.

Several more states have begun to implement or consider implementing land information systems, including:

- **Arizona;**
- **California;**
- **Colorado;**
- **Georgia;**
- **Hawaii;**
- **Massachusetts;**
- **New Mexico;**
- **Ohio;**
- **Oregon;**
- **Washington.**

Local-Level Efforts

Several excellent local land information systems have been implemented outside Wisconsin, including those in:

- **Forsyth County, North Carolina;**
- **Lane County, Oregon;**
- **Pinnellas County, Florida;** and
- **Wyandotte County, Kansas.**

As in Wisconsin, most of these local systems were developed primarily by a single agency or organization for specific programs. As outstanding as they are, none will be compatible with eventually developed neighboring systems until regional or statewide guidelines exist.