ACCESS TO SPATIAL DATA: THE POLITICAL POWER OF LEGAL CONTROL MECHANISMS

By

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A Dissertation Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

in Geography and Information Studies

at

The University of Wisconsin Milwaukee

August 2012

ABSTRACT

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The University of Wisconsin-Milwaukee, 2012
Under The Supervision of Professor Rina Ghose

According to the U.S. Supreme Court (Island Trees School District v. Pico, 457 U.S. 853, 1982), the Constitution presupposes that the free flow of information between the government and the public is essential to maintaining an informed citizenry, which in turn is essential to holding governments accountable. However, local governments are increasingly using various legal mechanisms to limit public access to geographic information (GI), and this in turn can potentially disrupt this balance. Licensing and copyright are two such mechanisms that local government agencies are using to limit GI access and distribution.

If information is power, whoever controls information, controls power. Therefore those who influence the political and legal processes that control access to geographic information control power. By using the theoretical frameworks of GIS and Society, Legal and Policy Analysis, Politics of Scale and Neoliberalism, a truly multidisciplinary investigation, new theories of the political nature of knowledge access may be developed.

This dissertation is composed of three papers. The first paper examines the growth and development of land records modernization in Wisconsin, and through the lenses of the Critical GIS and political economy, contributes to the body of knowledge within Critical GIS by examining one of the United State's first successful forays into modernizing land records. The paper documents the socially constructed relationship

between technology and geography. This historic examination of how one state successfully built a program through years of cooperation and conflicts among powerful actors and networks, at and between scales, during times of plentiful and lean government resources provides insights into issues that still plague data cooperation between groups with different agendas today.

The second and third papers focus on the legal and political processes that frame access to geographic information in Wisconsin and California. Through an examination of court cases in California and Wisconsin and the laws that impact GI access, suggested public policy to increase access to this government produced information is suggested.

This research will contribute to both the GIS and Society and Legal and Policy analysis literature by documenting the legal and political impacts of GI data sharing.

This Dissertation is dedicated to the following family members that did not live to see it completed:

Harry Danowski

Dennis S. Day

Barry Wykowski

Patricia Wykowski

Ken Bishop

Ronald Apel

Yoli & Bishop

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Acknowledgements

I am sincerely grateful to many people who have assisted me in the writing of this dissertation. Above all, I would like to thank my major advisor, Professor Rina Ghose for her continuous and unwavering support during the entire process. I would also like to acknowledge the extreme debt I owe to Professor and Dean Tom Lipinski who also believed in me and my project throughout. Both of these individuals have helped in innumerable ways and taught me much. Professor Elizabeth Buchanan also assisted and supported me throughout this work. My sincere thanks to all of you for your guidance, caring and friendship that have extended beyond my academic life. Professors Huxhold and Wu also assisted me in many ways and always supported this endeavor.

I thank Alrico Fernandes for assistance with the diagrams.

I am extremely grateful to my family who always believed in me, including my mother, sister, brother, cousins, in-laws and most especially, my husband, Mick. Mick always said “when you finish” when I said “if I finish”. This work would not have been possible without his support, vision, patience, financial assistance and love. Thank you all.

Introduction

The use of Geographic Information Systems (GIS) by local governments, especially for planning and policy making, has proliferated in recent decades. Although the technical issues of data sharing have been thoroughly studied and mostly resolved (Harvey and Tulloch, 2006), the legal aspects of data ownership and data sharing remain ambiguous. This dissertation examines the history and legal aspects of, and power structures surrounding geographic information (GI) in Wisconsin. The work is multidisciplinary, which has been recognized by the University Consortium of Geographic Information Science (UCGIS) as critical in understanding GIS and their impacts upon society. "A cross-disciplinary discourse is needed to elucidate the breadth of this research field. …UCGIS needs to facilitate interest and involvement in the topic of GIS and society research by diverse disciplines. Without a complete, multifaceted understanding of the consequences of GIS use, much money and effort may be wasted on technology and good intentions that result in limited benefits" (UCGIS, 2002, p.3-4). This field of research was recognized specifically as a priority in the first white paper published by UCGIS in 1996: "What implications does research on the relationship between GIS and society reveal with regard to the types of ethical and legal restrictions that should be placed on access to and use of GIS?" (UCGIS, 2002 p.4).

Prominent research studying legal and ethical aspects of access to spatial data includes that by Archer and Crosswell (1989), Cho (1998, 2005), Dando (1991, 1993), Dansby, Bishop, Onsrud and Milrad (1992), Lopez (1995), Onsrud (1992, 1995a, 1995b, 1998a, 1998b, 1999, 2000, 2004), Onsrud and Reis (1995), Pluijmers and Onsrud (1996), Onsrud and Lopez (1998), and the National Research Council (2004). Although they are

important, these studies don't look beyond institutional and legal aspects of GI usage, and they lack the holistic interdisciplinary approach identified as necessary by the UCGIS. The research herein examines the following main questions (rationale and sub-questions are addressed in the Research Questions section of this introduction, see also tables two and three):

1. Who or what controls the power over access to GI in Wisconsin? (Chapters two, three four)

2. What role has the history of the Wisconsin Land Information Program (WLIP) played concerning GI access in Wisconsin? (Chapters two and four)

3. What actors and networks have impacted the socio-economic and political processes both historically and currently in access to publically funded GI in Wisconsin? (Chapters two, three, four)

4. How have sequential diverse legal processes continually shaped and controlled access to GI data in Wisconsin? (Chapter three, four)

5. What impacts have recent court cases had on access to publically produced GI in Wisconsin? (Chapter four)

This case study employs theoretical lenses derived from the literature on politics of scale, neoliberalism, critical GIS and legal and policy analysis, and via a synthesized theoretical framework drawn from these literatures insight is provided into how power has been generated and manipulated.

Harvey and Tulloch (2006) suggest that the role of power (although not defined) merits particular examination in the context of the relationships and processes that determine data sharing, and this approach defines the current research. Content analysis of government mandates, legislation, court proceedings and political discretion in the formation of data access policies facilitates assessment of the successes and failures in

various arenas, while qualitative interviews clarify and bring perspective to the issues. Finally, the research examines the development of power through the controls of administrative, legislative and legal processes.

It is firmly established that information equals power (Morgan, 1970) and therefore the control of information represents the control of power. Through understanding how individuals, agencies and organizations have used legal and judicial and legislative processes to control or attempt to control public access to geographic data, new conceptions are developed regarding the location of the praxis of power over access to GI.

The dissertation is structured accordingly: Following this introductory chapter, I present my research findings regarding the above questions in chapters two, three and four as stand-alone papers. Each paper employs specific theoretical perspectives relating to different but similar aspects of the processes of power that affect access to GI in Wisconsin. The first paper (chapter two) addresses issues from GI Science research and describes how the confluence of neoliberal activities with networks of association impacted the WLIP, and demonstrates how the resulting framework influenced subsequent access to GI in Wisconsin. The second paper (chapter three) utilizes a legal and policy framework and examines the legal processes that have been used to effect change in access to GI. This topic is examined at federal, state and county levels via analysis of legislation and court cases in California. The fourth chapter documents a series of court cases in Wisconsin and how and when the various actors and associations became active. Together these chapters examine the processes that facilitate the locus of power regarding access to GI in Wisconsin. Chapter five then summarizes the findings

and concludes the dissertation, providing evidence of the significance and limitations of the research. The research is current to December 31, 2011 and does not reflect changes to laws or court cases after that date.

In this introductory chapter I discuss the major theoretical frameworks used in each chapter. The subsequent sections of the chapter define the research questions, study area and elucidate the research methodology.

Theoretical Frameworks

I integrate several bodies of literature discussed below. This integration provides a more nuanced evaluation of the socio-economic and political realms in which access to GI has evolved in Wisconsin.

GIS and Society

This body of literature provides the background for understanding the historical contexts in which access to GI evolved at all levels of government and the role of GIS in society and society on GIS production.

Prior to the early 1990s the dominant interpretation of GIS considered it as abstract mathematical tools (Goodchild, 1987, 1992; Frank, 1987), with little consideration of their impacts on and implications for society and with only limited scrutiny of the nature of GIS and how they are shaped by society. The first wave of criticism of this interpretation focused on the social impacts of the technology (Curry, 1991; Taylor and Overton, 1991; Smith, 1992a; Lake, 1993; Pickles 1995; Sheppard 1995). Taylor and Overton (1991) recognized that Geographic Information Systems were changing the discipline of geography (Schuurman, 2000), and they were critiqued for their positivist focus (Smith, 1992a; Lake, 1993), which was perceived as a means of

promoting positivism and quantitative methodology (Pickles, 1993). Critics also identified ethical flaws in the application of GIS, focusing on their use in military operations (Smith, 1992a), geodemographics (Goss, 1995, Curry, D. 1992; Curry, M., 1994, 1995a, 1995, 1996, 1997; Curry and Barnes, 1998), and surveillance enhancement (Crampton, 1995, 2001, 2003, 2004; Curry, 1995; Goss, 1995), and emphasizing the lack of attention to underlying social factors (Taylor & Johnston 1995), and the tendency to marginalize certain social groups (Aitken and Michel 1995; Rundstrom, 1995). Consequently, 'GIS and society' emerged as a distinct and broad research agenda concerned with the inter-relationships between GIS and society (Sheppard 1995; UCGIS 2002). The GIS research community's extensive body of literature about the social constructions of technology and science helps to understand the complex relationships between GIS and society.

Within the literature concerning GIS and society, critical GIS developed in the mid-1990s as a debate among social theorists regarding the social, political and epistemological implications of GIS (Schuurman, 2000; Lake, 1993; Pickles, 1995; Curry, 1995). Studies examined various legal issues and ethical implications of GIS, including privacy, liability, licensing, barriers to public access and intellectual property (Barndt, 1998; Cho, 1998, 2005; NRC, 2004; Onsrud, 1995, 1998a, 1998b, 1998c, 2003, 2004; Onsrud, Johnson, and Lopez, 1994; Stewart, Cho, and Clark, 1997).

Geographic Information Systems have been explored from various perspectives in the Critical GIS literature. Researchers have examined the technical developments through social theory (Schuurman, 2000), the use of Volunteered Geographic Information (VGI) (Elwood, 2008), and the democratization of GIS use (Harris and Weiner, 1998).

What is of particular relevance to this research is that the use of GIS needs to be examined within the social context in which it is developed. This includes considering the existing socio-economic and political landscapes as well as identifying the actors involved, for example, via Actor Network Theory (Harvey, 2001).

More recently, studies have examined the roles that the politics of scale have played in Critical GIS (Aitken, 2002; Elwood, 2004; Ghose, 2005). The history of the WLIP is intimately tied to politics, from the start of the program to the present day, as is the issue of access to GI. Because of this, the neoliberalization and politics of scale literature provide valuable perspectives regarding access to GI in Wisconsin.

Neoliberalism

This body of literature provides the political context in which my research is situated. Neo-liberal ideology emphasizes free market capitalism with minimal state intervention (Brenner and Theodore, 2002). This is perhaps best characterized as a *process* of *neo-liberalization*, rather than the end-state more commonly referred to as neo-liberalism (Peck and Tickell, 2002). These neoliberal doctrines replaced Fordist-Keynesian economic and welfare policies with deregulation of state control over major industries, assaults on organized labor, reduction of corporate taxes, the privatization of public services, the criminalization of the poor, increased international capital mobility, and increased public-private partnerships (Brenner and Theodore, 2002). Such activities started in Wisconsin in the 1980s, and they continue today. Processes of neo-liberalization were and are affected by the existing political, institutional, and regulatory frameworks in existence when they began. Brenner and Theodore (2002, p. 14) refer to

the “established institutional arrangements [that will] significantly constrain the scope and trajectory of reform” as path-dependency. As such, these extant political, institutional and societal forms and power relations will also be reflected in the resulting neoliberal policies. During neoliberal reforms, some of these institutional and political organizations will suffer partial or total destruction or massive change, while others may be created or enhanced for similar reasons. The result is not a constant transition from Fordist-Keynesian policies to new neoliberal forms, but is an uneven process that is multiscalar, messy and open-ended.

The neoliberalism literature also examines material and political efficiencies in governments. With the privatization and depletion of budgets, many local governments have regarded GIS as a costly state mandate. By charging more than the actual cost of reproduction for GI, some local governments have hoped to recoup their investment. In this context, Wisconsin is a textbook example of the effects of neoliberalization on local governments.

Politics of Scale

Human geographers have questioned both the theoretical notion of space as well as the assumption that scale is a mathematical construct. In particular, Henri Lefebvre’s pivotal work ‘Production of Space’ stimulated discussion of the production of scale through the political-economic processes of society (Lefebvre, 1991; Smith, 1992). Scholars assert that scale is neither ontologically given nor possesses definable geographical territory and, rather, is constructed through processes of social and political struggle under temporal and geographical constraints (Swyngedouw, 1997). Some

scholars view capital as the main driving force in the construction of scale (Harvey, 1996; Smith, 1992), while others view the household or individual as significant scales (Marston, 2000). These views arise from the premise that scale, as a social construction becomes part of daily life in the transactions we all perform. Life, like scale, is created and influenced by politics, economics, and capitalism at all levels from the global to the local (Delany and Leitner, 1997; Ghose, 2005; Sheppard, 2002; Smith, 1992; Swyngedouw, 1997).

The actors, processes and effects of these interactions between and among scales become places of power or "spaces of dependence" (Cox, 1998), sometimes trapping actors in a scale of their own creation and sometimes allowing others to move freely between scales (Agnew, 1997; Cox, 1998, p.2; Ghose, 2005, 2007; Herod and Wright, 2002; Leitner, 1997; Leitner et.al, 2002; McMaster and Sheppard, 2004; Miller, 1997). Utilizing the political process to maintain their "spaces of dependence," actors create a "space of engagement" (Cox, 1998, p.2). These actors wield great influence in "…the process of scale construction as capital, and political networks are seen as powerful forces" (Ghose, 2007, p.1964). Combining forces to achieve "control over a geographic area" (Cox, p.7) requires the construction of a network of associations (Cox, 1998).

According to Leitner *et al.* (2002), the literature on networks initially ignored similar issues to those not considered in the literature on the social construction of scale. Namely, the *spatiality* of networks was ignored, highlighting nonhierarchical relationships (e.g. ANT theory) or stressing hierarchical relationships (e.g. social network analysis) (Lin, 2009). Leitner *et al*. (2002) argue that geographic or thematic ties affect actors across space, and influence how the network evolves. The socio-economic and

political events that shape the networks' territorial and social extent also need to be considered (Leitner *et al*., 2002). Through this, the concepts of scale theory and network theory are linked into that of "scaled networks" (Leitner *et al*., 2002).

Networks are "scaled" because they exist in geographic space (Lin, 2009). They also evolve within governmental and societal hierarchies and markets, and therefore they respond to and also shape those entities (Ghose, 2005; Leitner *et al*., 2002). A scaled network can be treated as equivalent to the scale of the geographic area encompassing its members and, like the construction of space, can transcend the boundaries of existing hierarchical modes of governance and can thereby challenge the dominance of existing political power configurations (Leitner *et al*., 2002). Therefore a network's scale is not pre-determined; rather it is a result of the processes of its environment, whether this is the outcome of protest, struggle, or common interest.

This is reflected in the use of the terms "territorial" and "thematic" networks by Leitner *et al*. (2002). "Territorial" networks link together actors in a common geographic area, while "thematic" networks link together actors from different places with common concerns and problems (Leitner *et al*., 2002). Scaled networks, like the politics of scale, are part of the contestations over control of political, social and economic space, and they go beyond the boundaries dividing the spaces of hierarchical modes of governance (Leitner *et al*., 2002). Together, these theories provide meaningful lenses through which to view the roles of politics and networks in influencing access to GI in Wisconsin.

Together, consideration of the neoliberalism and politics of scale literature illuminates how politics and networks interact to create the conditions in which places,

actors, politics, and economics collide. Politics of scale relates primarily to the individual actors, geographic location and theme of land records modernization, while neo-liberalism theory is concerned particularly with economic conditions during the time periods of interest. Both bodies of theory are concerned with the influence of political and legal processes on power relations, which were and are fundamentally involved in determining access to GI. This framework helps to illuminate the political, institutional, societal, and power relations involved in creating the various legal schemes developed to control GI access in Wisconsin. These frameworks are utilized in Chapter two.

Legal and Policy Analysis

"Policies are the manifestations of the choices society has made about its future" (First, 2006, p. 131). To assist in policy decisions, policy studies must provide timely information to society's decisions makers. Social science research has been used in the briefs and rulings of legal decisions for decades, from *Brown v Board of Education* (1954) to *Grutter v Bollinger* (2003). Social science research has also played a key role in drafting and evaluating legislation (First, 2006) although it doesn't always align.

Louis Brandeis, former associate justice on the Supreme Court, recognized that judges should evaluate available research because judges must consider the wider social results of their decisions (Gray, 1963). Roscoe Pound showed the need for the relevance of sociological research on the ways laws operated in practice (Cushman and Cushman, 1958). However, the issue remains contentious about the relationship between the law and social science research today. This is because such research has been misued in the past (First, 2006).

Passing laws creates state policy and the any challenges or changes to that law will make more state policy (First, 2006). "Obvious, subtle and interrelated effects resulting from…policy will last for generations." (First, 2006, p 132). Policy studies include scholarship about the people, groups and governments that make choices regarding legislative and legal choices, including the options considered and not considered and the impact of these choices, short and long term (First, 2006). Knowledge and the creators of policy can enhance and influence public policy (Golan, 2004; Faigman, 2000). Therefore knowledge of the people, place and their roles and positions of power provide evidence of their influence.

Policy studies come from and bear upon multiple disciplines by linking facts and fact based theory across disciplines to create a common framework of explanation (Wilson, 1998). Crow, Levine, and Nager (1992) describe the benefits and problems of interdisciplinary research. The benefits include the ability to discern the complexity of the subject, assisting in clarifying meaning across disciplines by using precise language and producing unexpected data via different disciplinary methods.

However, the disciplinary differences remain and there is suspicion of interdisciplinary work lacking vigor (First, 2006) and presents challenges for this research. There still exists mistrust and misunderstanding across disciplines and misuse of research. Interdisciplinary work encounters difficulties in the study of the law and its dependence on legal precedent (First, 2006).

Policy analysis studies the policymaking process and investigates the incidents and cases that have led to a particular court decision, a state statute or a particular policy

(First, 2006). Studying the policymaking processes and the impact of those processes that influenced the policies could be traditional legal research "if applied to a court case, but it is also a policy analysis when applied to other items such as state statute" or GI access policies (First, 2006, p 144).

This research applies a traditional legal approach by analyzing court cases and adds a policy analysis by including political influences that impacted state statute after the relevant court cases. Policy research conducted after decision-making seeks to evaluate the effect court decisions/statutes/policies have had on the issue at hand. The research in chapter three represents an interdisciplinary case study of policies and court cases related to GI access in Wisconsin.

Legal Issues: Public Access

The raison *d'etre* for public access to government information is to allow public evaluation of public officials' conduct, to make available information about public policy, to protect against secret laws and decisions and to encourage informed participation in public affairs (Day and Maene, 2006; Solove, 2004; Cate, et al., 1994; Friedley and Colbert, 1991; Braverman and Heppler, 1981). Prior to 1966, there were no federal laws concerning public access to government information, but the prevailing opinion was that the U.S. constitution implied such rights (Day and Maene, 2006; Henrick, 1977; *Board of Education, Island Trees Union Free School District No. 26 v. Pico* 457 U.S. 853, 1982). The Watergate crisis of 1974 spurred the U.S. Congress to write the federal "Government in the Sunshine" laws, effectively strengthening the right of public access to government information (Solove, 2004; Henrick, 1977). Freedom of

Information (FOI) laws had been enacted in all 50 states and the District of Columbia by 1983 (Solove, 2004).

Regarding GI, the National Research Council (2004, p. 161) states that "Government accountability and transparency require agencies to ensure that the ability to control scare geographic data never becomes 'outcome determinative' for any political or judicial process. Transparency is important to agency adjudications and rulemaking, to petitions to Congress for new legislation, and to mount court challenges to illegal government acts."

Collectively these laws and policies establish the public's right to inspect government-produced information, unless the government can show that the records are not public (Wells and Tsui, 2005).

Legal Issues: Open Records in Wisconsin

State governments are allowed to decide the issues of access to government information for all levels of governments within their borders. The Wisconsin legal system determines policy, law and mandates within the state. In Wisconsin, as in most states, open records law protects the right of access to public records. Wisconsin's policy is consistent with federal FOI laws and policies.

Since the most detailed GI is produced at the county level in Wisconsin, the Wisconsin Open Records law plays one of the most important roles in determining access to GI in the state. The interpretation of where, or if, GI falls under this law has been a contentious issue in many states, including Wisconsin, since before the formation of

WLIP, and public access to the digital form of this data was one of major goals of the of the WLIP (interviewee E, 2007).

Access to Government Produced GI: the Debates

Current debates about access to government-produced information seldom progress beyond entrenched positions based on ideology and emotion, wherein access policies are riddled with contradictions. The polarized debate over charging for data arises from the two competing goals that 1) all information should be available to everyone in an "information commons' vs. 2) capitalist arguments and business strategies based on paying for what you value and need (Longhorne and Blakemore, 2008). Charging for information is a complex issue, and only recently have studies been made of "Return on Investment" (ROI) in GI.[1] Determining the value of public information is seen as one way of justifying decisions to charge or not charge excessively for GI.

In a case study published in 2012 of the regional geographic information systems initiative serving the seven-county Minneapolis-St. Paul (Minnesota) metropolitan area (Metro GIS), it was determined that a quantitative ROI measure was not suitable since much of the information needed to perform such analysis, such as the numbers of people in county government using GI, the amount of time spent using GI, or for what purpose the GI was used, was simply not available, making it impossible to compare the actual cost of producing the GI with the investment return. It seems reasonable to expect that many, if not most other county governments would encounter similar problems with such

[1] *see Building a Business Case for Geospatial Information Technology: A Practitioner's Guide to Financial and Strategic Analysis, 2007; Measuring Public Value of Geospatial Commons: A Metro GIS Case Study, 2012*

a methodology. Establishing the monetary value of the use of GI is therefore an ongoing problem and one to which there appears unlikely to be an answer in the near future.

For some producers and users of government agency GI, tensions will remain concerning the extent to which producers can generate sufficient capacity from selling data, services, and value-added products to satisfy demand regardless of fears of unfair competition and monopolistic control over the supply chain that arise from near-monopolistic supply of GI by a single, legally-mandated government agency (Longhorne and Blakemore, 2008). It is argued that the cost of creating GI necessitates recouping that investment by selling the GI at costs far higher than the cost of reproduction precisely because GI is produced at the expense of the taxpayers and only those who use it should be required to pay for it (NRC, 2004). The legal issues surrounding charging and public access to GI have led to at least thirteen states writing specific GI laws allowing for the charging of fees in excess of the cost of reproduction, particularly for commercial use (Wells and Tsui, 2011). What this argument fails to consider is that it is precisely because the taxpayers paid for the GI in the first place that they, as consumers of the data, no matter the purpose (for profit, not for profit, educational use, whatever), should not be charged twice for the same product, which in this digital age can be reproduced endlessly at minimal cost to the producer.

The re-use of GI is another area of contention. Some government data producers fear the increasingly sophisticated and demanding dependency relationship in which it is difficult for them to understand the extent of the repurposing of their data, and they fear legal liability for any downstream "unauthorized" use (Interviewee Z7, 2010; Longhorne and Blakemore, 2008). Ironically, at the same time, the use of GI explodes in such

applications as Google Maps, Microsoft Maps and GPS navigation systems, creating even greater demand for the data.

Legal Issues: Copyright in GI

One particular aspect of intellectual property – copyright - pertains significantly to control of government-produced geographic information. One integral component of copyright is the conception of rights and responsibilities. The rights, which are extended as soon as an original idea showing a minimal level of creativity becomes fixed in a tangible medium, allow the holder to copy, display, distribute, adapt, and perform a protected work (Minnow and Lipinski, 2003), while the responsibilities are to uphold the rights of public access. The aim is that there is a balance between the two, so as to "promote the progress of science and the useful arts…" (U.S. Constitution, Article 1, Section 8 Clause 8).

Copyright protects originality, and the U.S. Supreme Court has found that in lists and databases it is only the arrangement of facts that can be protected, not the facts themselves (see *Feist Publications, Inc., v. Rural Telephone Service Co.*, 499 U.S. 340 (1991)). It is generally believed that GI and databases fall under this categorization of originality and, historically, cartographers and producers of GI have relied on copyright as the most effective way to protect the intellectual property in their work, although since the late-1980s many have been using license agreements to further control access.

With very few exceptions, federally produced government information does not fall under copyright protection (Dansby, 1994; Cho, 1998). Under certain circumstances,

some states allow copyrighting of public information, including geographic information, but others do not (Fishman, 2004).

State government approaches to geographic data distribution vary widely (Cho, 2005). "Some provide access rights on the basis of an exception to open records law, others depend on the nature of the request that is made." (Cho, 2005, p. 73). Some states treat geographic data and other types of digital databases as being the same (Cho, 2005), while others have enacted specific legislation concerning distribution of GI or they treat GI as part of a "software system" (National Research Council, 2004). "Federal law permits state and local governments to assert copyright in works containing GI (if they otherwise meet the requirements for copyright protection). When consistent with local law, state and local governments may also maintain geographic data as secret, or restrict their use and redistribution" (National Research Council, 2004 p. 134). As such, there are place-specific policies that either impose prohibitive use conditions or provide open access to GI. Additionally, these policies often change over time as individual actors in powerful positions themselves change over time.

Legal Issues: WLIP

List of Acronyms of Wisconsin Land organizations

Acronym	Name of Organization	Period of Existence
WLIB	**Wisconsin Land Information Board**	**1989-2005**
WLIP	**Wisconsin Land Information Program**	**1989-present**
LIO	**Land Information Officer**	**1989-present**
GIO	**Geographic Information Officer**	**2005-present**
WLIA	**Wisconsin Land Information Association**	**1989-present**
DOA	**Department of Administration**	**N/A**

The Wisconsin Land Information Program (WLIP, see table 1) is a county-based program enacted in 1989 to modernize land records information in the state of Wisconsin. Each of the seventy-two counties in Wisconsin participate in the program. The general history of the program is given below. The table of acronyms will assist in understanding the various actors involved in this history.

Catalyzed by the 1978 Larsen Report, which was intended to modernize land records in the state, the Wisconsin Land Information Program was unique in its inclusion of a broad range of actors from diverse backgrounds in the processes of its creation. UW-Madison, the City of Milwaukee, the Southeastern Wisconsin Regional Planning Commission, the Register of Deed Association, the Realtors Association, various towns, cities, surveyors, planners and private companies all worked individually and collectively to bring the existing unshared "silo" systems prevalent in local, state and federal agencies into the modern age of data compatibility and sharing. The results included a list of existing statutes that required alteration or new ones that required passage in order to implement the WLIP. Identification of the existing or required new statutes was accomplished by a seven-person subcommittee of the Wisconsin Land Records Committee, which took two years (1985-1987) to identify over 600 relevant provisions in the state statutes (Massey, 1987). Among the final results was the stated determination to comply with the federal Freedom of Information Act and all other Wisconsin laws, including the Open Records Act, so that the new digital GI could be accessible to all potential users (Holland, 1994).

In 1989, enabling legislation created the WLIP, which in turn provided each county in the state the opportunity to develop a Land Information Office (LIO) and

develop policies and procedures in line with the WLIP legislation. The result is that each county (72 in total) now has individual policies and procedures regarding access to GI in the state. As is the case with most legislation, interpretation varies, and this includes whether or not GI is subject to open records law. Since over twenty years have passed since the implementation of the WLIP, many changes have occurred both in the legislation concerning the activities of the program and the actors involved with the day-to-day operations. These changes include modification or re-interpretation of the initial provisions that the GI be accessible to the public under the open records law. There have been no court cases in Wisconsin concerning access to government-produced GI, cost of GI or the legality of copyright or licensing GI, which has resulted in flagrant violations of open records and copyright laws. By contrast, there are several relevant court cases specifically involving the cost of government-produced GI in California and whether or not GI falls under the California Open Records Act. These cases will be described in detail in chapter three since they are of relevance to the situation in Wisconsin. Additionally, one series of court cases concerning databases, copyright and public access to tax assessment records in Wisconsin (WIREdata) also has had a significant impact on GI access policies in some counties in the state, so these cases will also be discussed in chapter three.

In general, the legal issues concerning GI include issues of public access to government-produced information at all levels of government and where GI falls into this spectrum of information. Describing the California Open Records Act and examining recent court cases dealing specifically with GI in that state will illuminate the legal processes and difficulties involved in the debates about GI and access to government-

produced information. The WIREdata lawsuit and resulting legislation provide insights into powerful actors and organizations in Wisconsin which were not previously known to operate independently in the field of GI access.

Research Framework

By using a framework combining the theories of Politics of scale, Scaled Networks, neoliberalism and legal/policy analysis, I propose to consider integrally the social, political and economic conditions under which access to GI has developed in Wisconsin. This framework establishes Wisconsin as the "space of dependence" (Cox, 1998) and delimits the territorial network within which the GIS thematic network (Leitner, *et al*., 2002) drove the scalar battles over time. Within the state of Wisconsin, the actors or networks that have influenced the legislative and court processes, both successfully or not, ultimately control access to GI and therefore control power. These actors include individual legislators and state and local agencies (primarily counties) that create either the laws influencing access to GI or the GI data producers themselves (county LIOs) along with the various organizations that influence these actors. The Wisconsin Department of Administration, the Wisconsin Land Information Board and the Wisconsin Land Information Association have historically been the primary agents controlling the WLIP. County boards and LIOs specifically have the most control over access to GI, which in theory follows the laws that established the WLIP and is in accordance with all other existing laws. Other groups that have more recently been involved include the Real Estate Association, the Register of Deeds Association and the Wisconsin Counties Association. Examining the processes each group utilized in this context assists in determining where they perceive their power to reside and/or how

powerful they perceive their opponent(s) to be. The frameworks of Politics of scale, Scaled Networks and Neoliberalism provide the historical, socio-political and economic contexts of the creation and continuation of the Wisconsin Land Information Program, while the framework of legal/policy analysis allows for an examination of the institutional frameworks within which access to GI is governed. Together these frameworks reveal the complex social processes involved in access to GI in general and in Wisconsin in particular.

Ambiguities exist in the laws governing access to GI, even in those states with specific legislation. California is one such state and opposing decisions in recent cases concerning access to local government produced GI is further evidence of the need for clarity. These cases are useful because they may have significant impacts on policies concerning GI data access in Wisconsin. One series of cases examines whether or not GI falls under the California Public Records Act (PRA) or can be licensed, the California PRA has similar wording to Wisconsin's Open Records Law and many LIO's in Wisconsin believe that access to GI is determined by this law. Although another state's case law is not binding, it could be used as persuasive precedent in any case in Wisconsin (Mersky and Dunn, 2002). The other series of cases in California deal with the legislative history (among other issues) regarding access to GI, which could also be critical to any Wisconsin lawsuit since the original WLIP legislation included specific declaration of policy concerning access.

Research Questions

My main research question is: Who or what controls the power over access to GI in Wisconsin? The WLIP clearly is the main actor in the production and distribution of GI in Wisconsin, and therefore I aim to answer the main question through several sub-questions concerning the Program and related legal and political actions to reveal the politics and power relations of GI access in Wisconsin. The following sub-questions seek to address different, but related aspects guided by my research framework.

In chapter two I address these specific questions: What is the history of the WLIP and how does this shape access to GI in Wisconsin? Who were the actors and what networks formed in the creation of the WLIP and how did these relationships change over time? How did the program change over time in response to internal and external shocks and how was "place" important in the development of the WLIP? How did neoliberal changes in state government affect access to GI? Did the struggles of the WLIA and other powerful state actors impact the goal of data sharing in the state? What lessons can be learned from this history? (Table 2).

These questions illuminate GI policy formulation in the state and examine where and how the Program was created, who the actors were and what networks developed, and who and what within these networks wielded power. Given that one of the primary goals of the original Program was to ensure public access to GI, these are important factors in GI access, as suggested by the literature on spatial data infrastructure development. This set of questions also pays attention to the potential influences of broader social, political, and economic conditions. Chapter two examines these questions in detail, providing an account of the history of the Program, the Wisconsin

Land Information Association, and the Wisconsin Department of Administration and their interactions from the 1980s to 2005.

Table 1. Research Questions and Methods

Research Question	Method
What is the history of the WLIP and how does this shape access to GI in Wisconsin?	1. Semi-structured interviews 2. Document analysis—legislative history; laws creating the WLIP; books; journal articles; newsletters; meeting minutes
Who were the actors and what networks formed in the creation of the WLIP and how did these relationships change over time?	1. Semi-structured interviews 2. Experiential documentation
How did the program change over time in response to internal and external shocks and how was "place" important in the development of the WLIP?	1. Semi-structured interviews 2. Document analysis—legislative history; books; journal articles; newsletters; meeting minutes 3. Participant observation
How did neoliberal changes in state government affect access to GI?	1. Semi-structured interviews 2. Document analysis—state documents; newsletters; meeting minutes; books

Chapters three and four examine these questions: What is the law concerning GI and GI access in Wisconsin? What is the intent of the law? What is the history of the laws governing GI access in Wisconsin? Which laws do local government data producers perceive to control access to GI in Wisconsin? What court cases have had or may have the most impact on GI access in Wisconsin? What impact has WIREdata had

on GI access in Wisconsin? Who or what controls power in GI access in Wisconsin (Table 3)? It is presumed that GI falls under open records in Wisconsin, but without a court case that is not established as a fact. This leaves local government agencies free to copyright or license their data. The WIREdata lawsuits, while not directly involving GI, concern tax assessment records maintained in database format and used extensively in GIS applications at the county level. The outcome of the WIREdata lawsuits directly impacted GI access in Wisconsin. Court cases in California directly involving GI access, one presently before the Supreme Court, could have significant impact on access in Wisconsin. Chapters three and four provides a detailed legal/policy analysis of the existing laws and these court cases governing access to GI in Wisconsin. These chapters also describes the actors and networks responsible for recent changes to Wisconsin laws governing access to GI, and identifies new powerful actors in the GI data access scene in the state.

Table 2. Research Questions and Methods

What is the law concerning GI and GI access in Wisconsin?	1. Document analysis—legislative history; federal and state open records laws; laws creating the WLIP; books; journal articles; newsletters; meeting minutes 2. Experiential documentation; participant observation
What is the intent of the law governing access to GI at the federal level and in California and Wisconsin?	1. Semi-structured interviews 2. Document analysis—federal, California and Wisconsin laws; legislative histories of California and Wisconsin; books; journal articles; legal databases

What is the history of the laws governing GI access in California and Wisconsin?	1. Document analysis—federal, California and Wisconsin laws; legislative histories of California and Wisconsin; books; journal articles; legal databases
What court cases have had or may have the most impact on GI access in Wisconsin?	1. Semi-structured interviews 2. Document analysis—federal, California and Wisconsin laws; legislative histories of California and Wisconsin; books; journal articles; legal databases 3. Participant observation; experiential documentation
What impact has WIREdata had on GI access in Wisconsin?	1. Semi-structured interviews 2. Document analysis—WIREdata court proceedings; journal articles; newsletters 3. Participant observation; experiential documentation
Who or what controls power in GI access in Wisconsin?	1. Semi-structured interviews 2. Document analysis—legislative history; federal and state open records laws; laws creating the WLIP; books; journal articles; newsletters; meeting minutes 3. Participant observation; experiential documentation

Study Area: Wisconsin

Overview of Wisconsin Land Records Modernization efforts

This research is focused upon the study site of Wisconsin, which had been at the forefront of efforts to modernize land records in the US (Koch et al., 2001). Public agencies, cities, universities and private sector groups worked individually and

collectively to institute a progressive system that was formalized in 1989 through the creation of the Wisconsin Land Information Board (WLIB, see table 1). Wisconsin Acts 31 and 339 (1989) assigned the board responsibility for implementing the Wisconsin Land Information Program (WLIP) (Holland, 1994).

The Program was designed with a "distinct local government orientation" (Holland 1994, p. 6) focused on county government. "The design and intent of the legislation is to provide flexibility and discretion for local governments in developing their own land information programs" (Holland, 1994 p. 6). While county participation is voluntary, all 72 Wisconsin counties participate in the Program. Every county that participates is required to establish a Land Information Office (LIO) (Wisconsin Statute 59.88 (3)). 2005 was the sunset date of the WLIB, but the Program itself, along with the LIOs continues. The Department of Administration's Division of Intergovernmental Relations now governs the WLIP.

In 1989 a new organization, the Wisconsin Land Information Association (WLIA) was formed. The original members were drawn from a variety of professionals at all levels of government and in the private sector (Holland, 1994). The goals of this non-governmental organization were to forward the momentum of land records modernization in the state and to represent all the membership to the state government. The WLIA worked with and against the WLIB over the succeeding years in a variety of ways through various actors in leadership positions. Each actor influenced the direction of the WLIA and its Board of Directors and membership through discursive means, the results of which affected the WLIP and WLIB in assorted ways, especially during a period of conflict and ultimate resolution in the late 1990s and early 2000s. The networks formed

and re-formed over time in the form of the WLIA and WLIB Boards. These network formations also involved scale issues between counties and state agencies in the form of the Department of Administration (DOA) and the legislature, which because of neoliberal reforms were trying to take control of the WLIP funds away from the WLIB. The WLIA, which saw itself as representing the counties (Anonymous, 2007), vigorously opposed the removal of the WLIP funds until a new Democratic governmental administration was elected. Without the membership's knowledge, the WLIA Board of Directors agreed to end the WLIB, retain the grants to local governments, and create the position of the state Geographic Information Officer (GIO).

Overview of Legal issues in Wisconsin

The actions taken by the WLIA indicate the strong role that this organization plays in the state of Wisconsin in influencing GI policy at all levels of government. Other major influences are the open records law, copyright law and the influence of other states' legal opinions and court cases. This is recognized in the agreement signed between the counties and the Department of Administration governing grant money returned to the counties from the DOA. Following the original agreements in 1989, and continuing today, each county "…agrees to observe and follow the statutes relating to the WLIP and **other relevant statutes**" (emphasis added; Holland, 1994, p.11; Wisconsin DOA, 2011). Therefore the open records law of Wisconsin, court cases in other states concerning GI access which could be introduced in legal proceedings, and Attorneys General Opinions all are relevant to GI access in Wisconsin.

Other researchers have studied parts of Wisconsin regarding access to spatial data at the local government level (Ventura, 1995; Tulloch et.al, 1995; 1996, 1997, Tulloch, 1998; Hart, 2000, Tulloch and Fuld, 2001; Tulloch and Shapiro, 2003; Harvey, 1995, 2000, 2001, 2003; Harvey and Tulloch, 2006) but no research has been conducted previously to evaluate the state-wide, ongoing issue of spatial data infrastructure and related public access to GI. Harvey and Tulloch (2006, p. 765) "…think the issue of power relationships calls for more attention. The 'innocent activity of data sharing' (Campbell and Masser, 1995) involves significant issues of ownership and control, ultimately involving questions of power. Given its long history of land records, Wisconsin is an excellent site in which to examine the issues of power and how it is expressed in laws and court cases and to highlight those agents and networks that influence access to GI.

Overview of Court cases impacting access to GI

This research investigates court cases that involve access either to digital spatial data or to digital database files, specifically tax assessment files. The first cases are from California, and are relevant not only because they specifically address issues of access to spatial data but also because of their potential significance for access to such data in Wisconsin, whose Attorney General has followed California law previously (73 Op Atty Gen 87). The California cases examine the roles of the Public Records Act and whether GI data is subject to this law. The second series of cases examined concern access to tax assessment data held within a database format and are specific to Wisconsin and are commonly known as the WIREdata cases. These cases, while at first glance not

appearing to directly involve spatial data, have had far-reaching impacts on access to digital spatial data in the state.

Research Methods

In order to understand the complex relations and processes of legal, social, political and cultural contexts that this research study embraces, a mixed methods approach and a case study design were employed (Stake, 1995; Denzin and Lincoln, 2000; Yin, 2003). Case study research focuses on unique events, but does not attempt to generalize its observations to universal truths. Instead, information about a particular case is used to illuminate larger theoretical questions or to refine or reconstruct existing theory (Burawoy 1991; Yin 2003). In this research I focus on the case of Wisconsin counties, state agencies, the Wisconsin Land Information Association and private associations and industries involved in Geographic Information production and the use of various legal mechanisms to limit access to publically produced GI.

This research employs a qualitative methodology of semi-structured, intensive interviews in order to expose a diversity of experiences, opinions and perceptions (Valentine, 1997). This method is combined with policy analysis to illuminate the major issues involved in sharing GI in Wisconsin. Combining these two methodologies follows Burawoy's (1991; 2000) extended case study methodology. Utilizing policy analysis helps to overcome the issues of validity and reliability to which semi-structured interview methodology alone is subject (Brink, 1989). Including stakeholders in the interviews allowed me to obtain their views on existing policies concerning access to GI and led to insights that could not be obtained from policy analysis alone. As a sub-method to the

case study I utilized legal and policy analysis, examining court cases and legislation impacting access to GI in Wisconsin the effects these policies have had has been documented.

This research utilized forty-one targeted semi-structured interviews. After identification of the first set of interviewees based upon experiential knowledge of the actors involved, other actors were added via "snowball sampling" whereby informants help to identify other actors who may contribute to the study. Participant observation during various meetings (WLIA, ESRI Wisconsin User Group) provided complementary evidence along with broader contextual understanding (Kearns, 2005). Archival research (e.g. licenses, meeting minutes, policy documents, legal documents, state laws, newspapers articles) assisted in developing a detailed understanding of the formation of networks and of the role that the WLIA and other associations played in the use of legal control of GI access. This also informed interview questions, along with providing a valuable verification of other data sources (Yin, 2003).

Policy, as distinct from law, refers to the purpose of the law and the means by which it attempts to achieve this purpose (Kwaw, 1992). "The passing of a law makes it state policy" (First, 2006, p. 132), and challenges to the law in court and those decisions will also make state policy (First, 2006). The analysis of both statutory and judicial decisions allows for thorough legal analysis (Kwaw, 1992), although it is easier to discern a legislative body's purpose in making laws than to discern the policies that judges consider in deciding cases (Kwaw, 1992). In a lawsuit, judges will consider other interests, which are termed extralegal and beyond that of the parties to the litigation (Bernstein, 1992).

Policy analysis is the process of identifying the relevant issues in, or related to a policy (First, 2006). Existing knowledge and the creators of policy can influence public policy (Golan, 2004; Faigman, 2000). Policy changes and grows; it accumulates piece-by-piece and decision-by-decision, with one policy perhaps raising more policy questions (First, 2006). Examining the evolution of laws and the policy developed to institute those laws, in the context of the actors and networks that influenced the processes, is the basis of this analysis. This multidisciplinary approach yields a "…literally…'jumping together' of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork of explanation" (Wilson, 1998, p. 7). This said, disciplines often disagree and there is often considerable concern about potential misuse of research across multiple disciplines. In particular, in legal and policy analysis the dependence on legal precedent is often misunderstood (First, 2006). Nevertheless, it is necessary to examine those with the power to craft policy from the standpoint of the disciplines from which they hail and which inform the body of knowledge surrounding those specific policies. The ultimate goal of policy is to create a better society (First, 2006), and to do so it is necessary to examine the policymaking processes and the environment in which these decisions were taken. This provides power to those actors and networks that determine policy.

A type of policy analysis incorporates examination of court cases and statutes concerned with a specific topic "…on which there is as yet no national consensus" (First, 2006, p. 155). The research conducted in chapter three represents a case study, utilizing policy analysis, and examines the effects of court decisions, statutes and the history of the Wisconsin Land Information Program which governs GI access in Wisconsin.

Purposeful sampling was used to stress the search for 'information-rich cases' (Patton, 1990). Forty-one interviews were conducted, including county Land Information Officers, the (former) State Cartographer, present and past WLIA presidents and board members, county board members, legal counsel to relevant court cases, UW researchers, researchers from non-Wisconsin institutions who have studied the WLIP, business owners and Wisconsin Department of Administration officials (past and present).

Interviews were tape-recorded and abstracts of each interview were created. Interview abstracts were analyzed in an iterative way (Mason, 1996) and important themes were identified. The parts of the abstracts from which important themes emerged were then transcribed. Each text was read from beginning to end to highlight keywords, and in the process I made notes of events, processes and activities that appeared important. The abstracts were then examined again, focusing on internal consistency or contradictions. After this, the abstracts were examined again, this time looking for answers to the questions that I raised in my research. As such my analysis is strongly inductive (Silverman, 2000).

Finally, I should address the issue of differential positionality between the researcher and the research subjects. In policy studies "…values must be confronted and not ignored" (First, 2006, p. 139). Social values relate to the goals of a society, and those goals are often produced through public policy. Evaluating those policies involves both seeking and organizing information and considering the strategies and research tools that are chosen. Acknowledging biases and using mixed methods does not reduce the values upon which the research is based (First, 2006). Conversely, many researchers (e.g. Ley and Mountz, 2001) contend that seeking totally objective data collection and analysis is

impossible. Rather, it is important to be self-reflective and reflexive in order to accomplish a rigorous research analysis (Bailey, et al, 1999; Baxter and Eyles, 1997). Thus it is imperative to document how my positionality has influenced the data collection and analysis.

Having worked with the majority of the people involved with this research as a digital spatial data librarian for seven years, and being known in the community created a set of issues between the study informants and myself. Because of my experience working with this group of people, I had an insider's role, which I believe proved beneficial in my research and allowed me easier access to people and documents than others might have been privileged to.

Knowing that there is a wide range of opinions on the issues I am researching, and that they can be controversial, it remained my responsibility to respect the differences between informants, while simultaneously developing a mutually trustworthy working relationship with them (Katz, 1994). Some informants were aware of my strong opinions concerning public access to government-produced data and they may have provided answers they believed I would like to hear. I was aware of at least two potential informants who know my opinions well, and I did not include those potential respondents in the study. Given this, I tried to be more inclusive and increase the polyvocality in data collection and analysis.

Some people I interviewed did not know me professionally, and therefore to them my position was one of a student and outsider. As an example, I did not know one of the people credited with founding the WLIP. This person often imparted information as if I

had no background knowledge of the situation or of the controversies I was exploring. This was helpful in many situations to elicit background information, although the information obtained was perhaps given in the context of the overall success of the Program. I also located and interviewed researchers from outside the state to provide an outside objectivity of the Program and its influence both within the state and nationally.

Ultimately my strategies of research design and data collection are shaped by my professional background, experiences and experiential knowledge of the fields and the people I interacted with. In many ways, this research was easier for me than others to conduct because of my many previous interactions with informants. This facilitated access to them and in some cases probably resulted in interviews that may well have been refused to a person without my background. I also knew personally some of the most important actors in the story of the WLIP, and using their names certainly persuaded at least one of the “founders” of the Program to agree to be interviewed. This knowledge and my former position allowed me to minimize the issue of power differentials between informant and researcher (e.g. Ley and Mountz, 2001).

This research is not presented as a completely objective account. I am aware of my strong opinions regarding access to publically produced GI and that these views are shaped by my experiences. Therefore, I included detailed document analysis and interviews with those of opposing views to bolster my conclusions. By reflecting upon my roles in the process, I aim to achieve "reflexive management" (Bailey et al. 1999) which will produce a thorough and integrated analysis. It is hoped that by utilizing this method, synthesizing subjective input of interviewees within the broader socio-political

historical contexts in which the actions occurred, along with document analysis will provide valid, critical qualitative research.

Conclusion

This research is inter-disciplinary in scope and therefore aims to influence the literature in both GI Science and legal and policy analysis. Chapter two has already been published (Day and Ghose, 2012) and the two papers from chapters three and four will be submitted, in each discipline. By examining the issue of access to publically funded GI in Wisconsin via combined theoretical frameworks, a conception of where power lies in controlling this access has been developed. It is hoped this understanding will assist in future research and policies that control this access.

Chapter Two

The Wisconsin Land Information Program: the Contexts of Power, Politics And Scale

Introduction

Geographic information has commercial, socioeconomic and economic value (Longhorn and Blakemore, 2008). According to Daratech, in 2004 the global geospatial technology industry, comprising software, data, services and hardware, was worth $2.82 billion, with an estimated seventeen percent growth projected for 2005 (Daratech, 2006). Although GIS technology is used widely in many fields, it still finds its predominant use in public agencies (Foresman 1998; Cavric et al. 2003; Gilfoyle and Thorpe 2004). While many studies have examined the adoption of GIS within these agencies and their political, economic and social settings, (for examples see Fox 1991; Campbell and Masser 1995; Sahay and Walsham 1996; Nedovic-Budic 1998; Cavric et al. 2003; Gilfoyle and Thorpe 2004), few have studied the programs that were originally developed to modernize land records, and which often resulted in the adoption of GIS at the local government level.

Most U.S. states now have some form of governmental body coordinating overall GIS goals and objectives, often organized as top-down, state-level administered, but few states had any formally recognized body for land records modernization in the 1980s. While Wisconsin was certainly not the first state to develop land records modernization, [in the late 1970s New York and Minnesota had state-level systems, organized around environmental needs], only one of its cities Milwaukee, had a fully functioning program

based on a broad spectrum of parcel (or Cadastres, which describe the rights, interests, and value of property) -based information, and the grass-roots effort developed is unique.

Wisconsin developed a statewide program in the 1980s, based at the county level, with buy-in from academics, surveyors, registers of deeds, property listers, real estate professionals, title company professionals and utility company employees, among others. The Wisconsin Land Information Program (WLIP), created in 1989 by Wisconsin Acts 31 and 339, provides an opportunity to examine the growth and development of land records modernization in Wisconsin, and to highlight the egalitarian beginnings of the program. This paper, through the lenses of the Politics of Scale, Critical GIS and neoliberalization theories, will contribute to the body of knowledge within Critical GIS by examining one of the United States' first successful forays into modernizing land records and the issues confronted by the many different constituent groups. This 'historic' look at how one state successfully built a program through years of cooperation and conflicts among powerful actors and networks, at and between scales, during times of plentiful and lean government resources will provide insights into issues that still plague cooperation between groups with different agendas and struggling with data sharing today.

Specifically, the objectives of this paper are, first, to examine where and how the Wisconsin Land Information Program was created, who the actors were and what networks developed, and who and what within these networks had power. Second, how did the program change over time in response to internal and external shocks and how was "place" important in the development of the WLIP? Third, what lessons can be learned from this history?

Methodology

In order to understand the complex relations and processes of legal, social, political, and cultural contexts that this research study embraces, a mixed methods approach and a case study design were employed (Stake, 1995; Denzin and Lincoln, 2000; Yin, 2003). Wisconsin was selected for several reasons. First, Wisconsin has been at the forefront of efforts to modernize land records in the US and the state has largely been hailed as successful (Koch et al., 2001). Second, the program in Wisconsin began as an egalitarian, grass-roots based, bottom-up participatory network of academic, non-profit, utility, business and government agents, a system which has not been replicated in other states. Wisconsin was also the first state to develop a unique method of generating funds to support the continuation of the Program, a funding mechanism which has since been applied in other states. The overseeing of the distribution of those funds during the first fifteen years involved complex and messy social, economic and political processes. Examining these processes in detail may assist other newly developing GIS funding programs to identify more efficient methods to support the system.

It has been more than two decades since the enabling legislation created the WLIP, and approximately four decades since the first initiatives to modernize land records in Wisconsin. The location of the University of Wisconsin in the state capital, Madison, played a significant role in the development of the Land Information Program. Ideas that were first explored or developed at the University were transferred to state government agencies and eventually taken up in the legislature, with many becoming law. Some seemingly minor decisions made by individuals in key agencies or with political influence had enduring consequences for the WLIP. Finally, those involved in

creating the WLIP are now retired/retiring and the unwritten/unpublished information about the genesis and evolution of the program needs recording before it is lost.

In this study, forty-one intensive semi-structured interviews were conducted with people from various departments within local, state, federal and regional planning commission agencies, private companies and academics directly or indirectly involved with the Wisconsin Land Information Program. These individuals were provided anonymity and are referred to as interviewee a,b,c, etc. In addition I analyzed state statutes, Wisconsin Land Information Association newsletters, Wisconsin State Cartographer's Mapping Bulletins, minutes of the Wisconsin Land Information Board and the Wisconsin Land Council's meetings, reports of the Wisconsin Land Records Committee, newspapers, and conference meeting reports. Utilizing multiple methods assists in verification of evidence and allows for "triangulation" of results (Yin, 2003).

Theoretical Framework

Politics of Scale

Space, according to Lefebvre (1991) is a social construction and is not simply mathematical, objective science. If it is true that space is a social construction, and "the production of scale is implicated in the production of space" (Marston, 2000, p. 219), then scale is also a social construction and not just that of a hierarchy or ranking (Cox, 1998; Ghose, 2007; Herod and Wright, 2002; Sheppard and McMaster, 2004; Swyngedouw, 1997). Scale is created and influenced by politics, economics, and capitalism at all levels from the global to the local (Delany and Leitner, 1997; Ghose, 2005; Sheppard, 2002; Smith, 1992; Swyngedouw, 1997). While political economists

consider mobility of capital to be of primary importance (Harvey, 1996; Smith, 1990) others remind us that the household itself can be a scale (Marston, 2000) and that it is important not to privilege one scale over others (Swyngedouw, 1997). The transactions of scale, as social constructions, are part of daily life at all levels, and they are protean, with processes, outcomes and affects on individuals dependent upon the scales at which the interactions take place (Ghose,2007 ; Swyngedouw, 1997). "Scale becomes the arena and moment, both discursively, and materially, where sociospatial power relations are contested and compromises are negotiated and regulated. Scale, therefore, is both the result and outcome of social struggle for power and control." (Swyngedouw, 1997, p.140).

This struggle for power is evident in many transactions, including those of political processes through which political institutions, actors, and networks function (Agnew, 1997; Ghose, 2007; Herod and Wright, 2002; Leitner, 1997; Leitner et al., 2002b; McMaster and Sheppard, 2004; Miller, 1997). Actors, in particular, can influence the processes of scale construction, and political networks can become powerful forces (Ghose, 2007). Cox recognizes that the institutional center in the political arena is the state (1998), and also suggests that local social relations are situated and encompass place-specific affairs where there are no alternatives elsewhere, as what he terms "spaces of dependence" (1998, p.2). These spaces exist within and between scales, and the boundaries and actors can be porous (Cox, 1998; Ghose, 2007). Relationships between different scales and spaces of dependence also exist (Cox, 1998). The *political* process of organizing and securing their place, in order to maintain a "space of dependence" Cox calls the "space of engagement" (1998, p.2). To achieve the desired outcome of "control

over a geographic area" (Cox, 1998, p.7) requires the construction of a network of associations (Cox, 1998). These networks are composed of actors from local interest groups who attempt to influence state agencies either directly or indirectly through resources available to them (Cox, 1998; Ghose, 2005).

Policy network theory examines the relationships between state and society through public policy formation via the relations between key actors, the structural relations of institutions and how networks operate and affect policy (Leitner, et al., 2002b). Frequently applied to the EU, and favorably received publicly in Germany and Britain, network forms of governance have been described as "…collective and consensual, unlike hierarchical and market modes of organization and governance." (Leitner, et al., 2002b, p.280). Views on policy networks range from one of fluid, flexible, and self-coordinated (Leitner et al., 2002b; Mayntz, 1993) to an idealized continuum of few participants with some groups purposely excluded (Marsh, 1998) to one of "issue networks" which have "…a large number of participants, fluctuating interaction and access for the various members; the absence of consensus and the presence of conflict; interaction based on consultation rather than negotiation or bargaining; [and] unequal power relationship in which many participants may have few resources, little access and no alternative." (Marsh, 1998, p.14). These theoretical views of policy network theory help to expose the realities of actual network construction. Actual networks do not exist in isolation but work within and are linked to hierarchical dominance and existing modes of governance (Hay, 1998). These networks exhibit a susceptibility to hierarchy, exclusion, and inequality in contrast to claims made in policy literature (Leitner and Sheppard, 2002).

Two major themes within the policy network literature are of particular relevance: the role of actors in shaping policy networks, and the embeddedness of policy networks in the broader social context (Leitner et al., 2002b). As with many actor-network theories, there is debate in policy network theory between the affects of the actors themselves and how they determine policy outcomes (Dowding, 1995) and the concept of structure and agency within which the actors are placed (Rhodes and Marsh, 1992). Rather than relying on any of these external theories Hay (1998, p.38) argues that we need to examine "…the self-understanding of network participants as to the type of organizational form which provides the setting for such actions [because it] is in part constitututive of the process and practice of networking." Understanding how the actors within the network see not only the form of the network itself, but their role in the processes that create and maintain the network is vital to understanding the success or failure of a network.

Secondly, policy networks often reflect the societal characteristics of the places in which they form. State structures, organizational configurations, which actors are included or excluded from the network, and access and control of resources all influence network formation, structure and policy outcomes (Daugbjerb and Marsh, 1998, Leitner et al., 2002b). The network itself, like the actors and the scale, are socially constructed. To understand the policies affecting the processes, one must closely examine the network itself and not simply the discourse in the policies.

In addition to policy networks, network theory can be expanded to include spatial scale. Leitner et al., (2002b, p.285) created the concept of scaled networks, in which "…certain actors are centrally located and have more potential influence over the

network as a whole, whereas others are more peripheral. Yet, if this is true within the *social* space of networks, it must also apply to the *geographic* space which networks span to link distant actors."(emphasis in original). Scaled networks co-evolve within hierarchies (governmental and societal) and markets and therefore respond to and also shape those entities (Ghose, 2005; Leitner et al., 2002b). Therefore a network's scale is not determined in advance, rather it is a result of the processes of its environment. Regardless, the scale of any given network can be the equivalent of the geographic scale encompassing its members, even if this happens to match an already existing geographic hierarchy (Leitner et al., 2002b). Two types of scaled networks have been proposed: thematic networks link together actors from different places with common concerns and problems, whereas territorial networks link together actors in a common geographic area (Leitner et al., 2002b).

The effectiveness of network modes of governance can be related to their scale and robustness in the face of external shocks. Some analysts suggest it may be more difficult for larger-scale networks to succeed if the necessary facilitators for success - diverse cultural groups, those who do not share common values, or those who are geographically distant – are missing, such that face-to-face communication is difficult (Leitner et al., 2002b). This might lead to speculation that local networks should dominate large-scale networks, but this is not the case, because networks do not follow any scalar laws, rather they make connections where none existed before and create potentially new shared collaborations and spaces (Leitner et al., 2002b; Seeres and Latour, 1995). In creating these new spaces, networks may transcend the boundaries of

existing hierarchical modes of governance and thereby challenge the dominance of certain scale and political power configurations (Leitner et al., 2002b).

These studies show that scale and networks, as social constructions, are influenced by the underlying political, economic and temporal conditions in which they occur. It is the process of development across the porous boundaries of the networks, and the scalar interactions among actors that will particularly inform this study.

Neoliberal Theory

The decline of mass-production industries, Fordist capitalism and Keynesian welfare policies in the older industrialized world since the late 1970s has led to a rise of neo-liberal ideology that emphasizes free market capitalism with minimal state intervention (Brenner and Theodore, 2002b, p. v). The widespread implementation of neo-liberal ideology since the late 1970s is characterized usefully by Peck and Tickell as a process of neo-liberalization, rather than an end-state (more commonly referred to as neo-liberalism) (Peck and Tickell, 2002). Wisconsin was one of the first states in the U.S. to introduce such neoliberal "reforms" such as Learnfare, Workfare and Wisconsin Works (Conant, 2006). These neoliberal doctrines replaced Fordist-Keynesian economic and welfare policies with deregulation of state control over major industries, assaults on organized labor, reduction of corporate taxes, the shrinking and/or privatization of public services, the criminalization of the poor, increased international capital mobility, and increased inter-locality competition (Brenner and Theodore, 2002). It is important to remember that, while these changes were introduced in the 1980s and 1990s and continue today, they were also affected by the existing political, institutional and regulatory

frameworks established before they began. Brenner and Theodore (2002, p. 14) refer to the "…established institutional arrangements [that will] significantly constrain the scope and trajectory of reform as path-dependency." Thus, these existing political, institutional and societal forms and power relations will also be reflected in the resulting neoliberal policies. Some existing institutional and political organizations will suffer partial or total destruction or massive change through market-oriented reform initiatives while others may be created for similar reasons. This process of neoliberalization Brenner and Theodore, (2002) characterize as "creative destruction", and as the (partial) deformation and reformation of social and political power at various scales. These processes take place on "…aggressively contested institutional landscape[s] in which newly emergent 'projected spaces' interact conflictually with inherited regulatory arrangements…" (Brenner and Theodore, 2002, p.19). The resulting process is not one of constant transition from Fordist-Keynesian policies to new neoliberal forms, but is uneven, multiscalar, messy and open-ended.

Current neoliberal theories emphasize more efficient public-private governance. State agencies still play a significant role, but policy networks require that political decision making be flexible, dynamic, and efficient (Martin and Mayntz, 1991). Neoliberal governance is agreeable to empowering authority to experts removed from the democratic process to develop best practices, and is thus accompanied by a de-democratization of the political process (Leitner and Sheppard, 2002). In this view of neoliberal policy networks, self-organization is left to networked firms and professionalized network modes of governance; hierarchies are eliminated; collaboration prioritizes entrepreneurial values; and flexibility in the economy and political governance

is of great importance (Leitner and Sheppard, 2002). "These differences create a space where the implementation of networks can be contested." (Leitner and Sheppard, 2002).

Together, both politics of scale and neoliberalism theories convey how politics and networks interact to create the conditions in which place, actors, politics and economics collide. The former relies more on the individual actors, geographic location and theme of land records modernization, while the latter is concerned with economic conditions during the time period of interest. Both theories are concerned with the influence of political processes on power relations, which were fundamentally involved in the operations of Wisconsin's Land Information Program.

Critical GIS

Within the literature of GI Science, critical GIS emerged in the mid-1990s as a debate among social theorists regarding the social, political and epistemological implications of GIS (Schuurman, 2000; Taylor, 1990; Lake, 1993; Sui, 1994; Pickles, 1995; Sheppard, 1995; Curry, 1995; Runstrom, 1995). Critical GIS argues that the implementation of GIS is a socially constructed process, embedded in political, economic and social situations that cannot be ignored. While proponents of the technical side of GIS did not at first welcome the attention of social theorists, eventually a new research paradigm, called GIS and Society, developed under the guidance of the University Consortium of GIS (UCGIS),. Within this broader scope of research a number of topics were addressed including ontologies in GIS (e.g. Smith and Mark, 2001; Schuurman, 2006), public participation GIS (PPGIS) (e.g. Ghose 2001, Craig et al., 2002; Elwood, 2006), ethical and legal implications of GIS (e.g. Onsrud and Rushton, 1995), intellectual

evolution of GIS (e.g. Foresman, 1998; Mark, 1997; Harvey and Chrisman, 2004) and critical GIS (Schuurman, 2000, 2006).

PPGIS research shows the influence of non-governmental organizations and existing governing structures in influencing GIS development within what are often marginalized social groups (cf. Craig et al., 2002). These studies have examined institutional barriers, actors and networks formed, and power relationships developed during GIS implementation and use (Elwood, 2008; Sieber 2006). Of particular significance to the present study is the work of Ghose (2005, 2007) examining neoliberal governance policies and scaled networks of actors in urban revitalization.

Many studies have examined GIS adoption and implementation in public agencies (Obermeyer and Pinto, 1994; Campbell and Masser, 1995; Pinto and Onsrud, 1997; Gilfoyle and Thorpe, 2004). The majority of these studies examine the various factors that influence the failure or acceptance of GIS use within organizations (e.g. Obermeyer and Pinto, 1994; Campbell and Masser, 1995; Huxhold and Levinsohn, 1995; Gilfoyle and Thorpe, 2004). This body of work has demonstrated that successful adoption and implementation of GIS depends more on non-technological issues rather than technological factors. A number of factors at various levels - institutional, organizational, and individual - have been identified as influencing the success or failure of GIS adoption (Campbell, 1991; Croswell, 1991; Onsrud and Pinto, 1994; Obermeyer and Pinto, 1994; Nedovic-Budic and Godschalk, 1994, 1996; Cavric et al., 2003). For example, Obermeyer and Pinto (1994, pp. 71–85) indicate that institutional barriers play a role in hindering the adoption of GIS in planning agencies; organizational bias favors existing tools and the status quo, and professional bias favors traditional tools (e.g. words

and numbers) rather than geographical analysis and communication. Within this literature common organizational factors include the ideas of GIS champions, financial resources, training and technology support, and adaptable organizational culture, (Obermeyer and Pinto, 1994; Nedovic-Budic, 1998; Craig, 2005). While useful, these studies tend not to examine the wider social conditions that critical GIS indicates is important in understanding existing practices (Innes and Simpson, 1993; Aitken and Michel, 1995; Campbell, 1996; Sahay and Walsham, 1996; Nedovic-Budic, 1998). Critically for this research, GIS implementation literature does not address the inter-organizational roles that the critical GIS literature examines (Martin, 2000; Neodovic-Budic and Pinto, 2000).

Wisconsin Land Records Modernization

Figure 1. Map of Wisconsin

During the 1960s and 1970s land records systems were undergoing evaluation at both the federal and state levels within Wisconsin (Larsen et al, 1978). In 1973, the Office of Management and Budget released a 195 page report by the Task Force on Mapping, Charting and Geodesy identifying issues such as uncoordinated, single-purpose surveys, growing and changing requirements and increasing use of technology in the field (Larsen, et al., 1978). Federal land use regulations also appeared imminent. In Wisconsin, the City of Milwaukee and UW-Madison were also active. In 1972, in conjunction with the Governor's Land Use Task Force, key faculty at UW conducted a Land Use Seminar, during which a series of recommendations for land records management were developed (Larsen, et al., 1978). As a result of these recommendations, further study was undertaken by the Department of Administration and, acting on the recommendations of the seminar and Administrative studies, in 1973 the Legislature established the Office of the State Cartographer. This office, which was attached to UW-Madison, was charged with collecting and disseminating cartographic information, coordinating cartographic programs within the state and consulting with officials at all levels of government (Holland, 1994).

In Milwaukee, work on the City's Computer Graphics System began in 1974 and developed independently of UW, becoming fully functional within eight years. Neither effort was easy, and both involved convincing political power brokers and budget analysts that the leap into new technologies would be worth an initial investment of millions of dollars. In the case of the City of Milwaukee a cost-benefit analysis was prepared and the initial money came from a Community Development Block grant program, with no guarantee of further funding (interviewee L, 2009). The GIS

"champion" at the City of Milwaukee had a goal to bring Milwaukee into a new era of data sharing and technical capabilities that would see the City operate more efficiently and effectively (interviewee H, 2011). This vision was based on the City of Milwaukee, not the state-wide efforts that were the focus at UW. The City of Milwaukee became a leader at the national scale in its own right in the development of GIS and had little formal interaction with researchers in Madison until 1980, see map one.

In Madison, what started as UW researchers' recognition of the benefits of land records modernization, eventually was acknowledged and championed by the state administration via the first step in a long marathon: the creation of the State Cartographer's Office by the Legislature. This was the first of many demonstrations of the power of an idea of a group of researchers, and the effective upward "jumping of scale" into an "official unit" of government. This effectively started a chain of events in which these particular researchers became more and more involved in the arena of politics, power and land records modernization.

The location of the University of Wisconsin in Madison, the state capital, facilitated further cooperation between the state administration and faculty. In the mid-1970s a case study of Wisconsin was performed by the Wisconsin Department of Administration with the assistance of the Landscape Architecture Department faculty with funding from the Resource and Land Investigations Program of the U.S. Geological Survey and the Council of State Governments (Larsen, et al., 1978). The goals were to document the amount of public money being spent on land records and to suggest specific actions to address the range of issues at all scales of government agencies housing land records. This study was a material and discursive document, promoting the

concept of intergovernmental cooperation and respect for independent analysis by the University. [Many interviewees feel that this view is no longer held by the Legislature or the Administration.]

The report documented the costs to the citizens of Wisconsin of collecting and maintaining land records for the state during the fiscal year 1975-76 by all federal, state, regional, and local governmental units which were responsible for producing, collecting, and maintaining records about the land (Larsen, et al., 1978). The study demonstrated that the state government and the University of Wisconsin still cooperated in solving difficult and pervasive state issues (Larsen, et al., 1978), and the results showed that annual public expenditures by all governmental units and utilities on land records in Wisconsin were approximately $79 million, or $17 per person and $2.25 per acre per year (Larsen et al., 1978). Furthermore, local governments were spending $41 million of this annual total.

The Larsen Report spurred a wide range of activities and further studies (Holland, 1994), since there was now empirical evidence of the monetary costs to government at all scales, especially the local government scale, as well as understanding of the problems associated with land records collection and maintenance. Interest in the subject expanded beyond the University and Administration, and networks, both thematic and territorial, formed and grew. Faculty at the University continued research into land records modernization and land information systems technology into the 1980s, working in an inter-disciplinary fashion to demonstrate the integrative capacity of geographic information systems (GIS) (Holland, 1994). An international seminar at the University in 1984 on “Modernizing Land Information Systems in North America” attracted more

than 1,500 students, faculty and non-university professionals from Wisconsin and across the country (Holland, 1994). The seminar drew participants from diverse fields including private companies representing computer cartography, remote sensing and GIS, as well as utility representatives, realtors, surveyors, state agency representatives from the Departments of Resources, Administration, Revenue, Transportation, Geologic and Natural History Survey and others, local government representatives such as real property listers, zoning administrators, tax collectors, planners and more. This broad-based support helped to create a thematic network based on land records modernization, and a territorial network in the state of Wisconsin. [Some interviewees expressed the desire to become involved after the publication of the Larsen Report because they saw the need for change and wanted to be a part of it. Others, especially those in the real estate industry, were concerned that fees might be raised to access records consulted for business, and feared not being a part of the discussion so felt obligated to be "at the table" (interviewee N, 2008)]. At the close of the seminar an informal group of professionals, government employees, academics and other interested parties from within Wisconsin, about 40 in total, organized itself into the Ad Hoc Consortium for Land Records Modernization in Wisconsin (Holland, 1994). Later this group would become the Wisconsin Land Information Association (WLIA), a thematic and territorial network still operating in the state.

In 1984, in a move signifying both the *political* process of organizing and securing their place (Cox's "space of engagement") and representing the only place in which it could occur (Madison - their "space of dependence") the Ad Hoc Consortium recommended to then Governor Earl the creation of the Wisconsin Land Records

Committee (WLRC). By coincidence, a student who had been taking classes at UW in land information systems held an internship in the governor's office at that time, and asked the governor to support the creation of the WLRC (interviewee V, 2009). The 1985-87 biennial state budget included support for a task force to study land records modernization in the state and the Wisconsin Land Records Committee (WLRC) was officially constituted (Holland, 1994). The committee was composed of 33 members, serving at the pleasure of the Governor, and included representatives from the University, community, counties, towns, city governments, public utilities, private planning and consulting firms and state and federal agencies (Holland, 1994). The Land Records Committee, a thematic and territorial network based on land records modernization in Wisconsin, had gained "political momentum" (Holland, 1994, p.7) by 1985.

A diverse group of individuals, the Wisconsin Land Records Committee, took two years to deliver their final report to Governor Thompson in 1987 (WLRC, 1987). The report suggested the creation of a Wisconsin Land Information Program (WLIP), which would have "…centralized coordination yet distributed responsibilities" (WLRC, 1987, p 7) and which would be situated at the county level, where the majority of land records funds were being spent. The report also suggested the creation of the Wisconsin Land Information Board (WLIB) to develop a grants-in-aid program, prepare guidelines for implementing the multipurpose land records modernization, assess methods to resolve legal and administrative discrepancies, provide advice to public officials and agencies and to provide education, research and outreach to promote land records modernization (Holland, 1994; WLRC, 1987). The report also called for the establishment of the Office of Land Information to administer programs developed by the Board and to administer

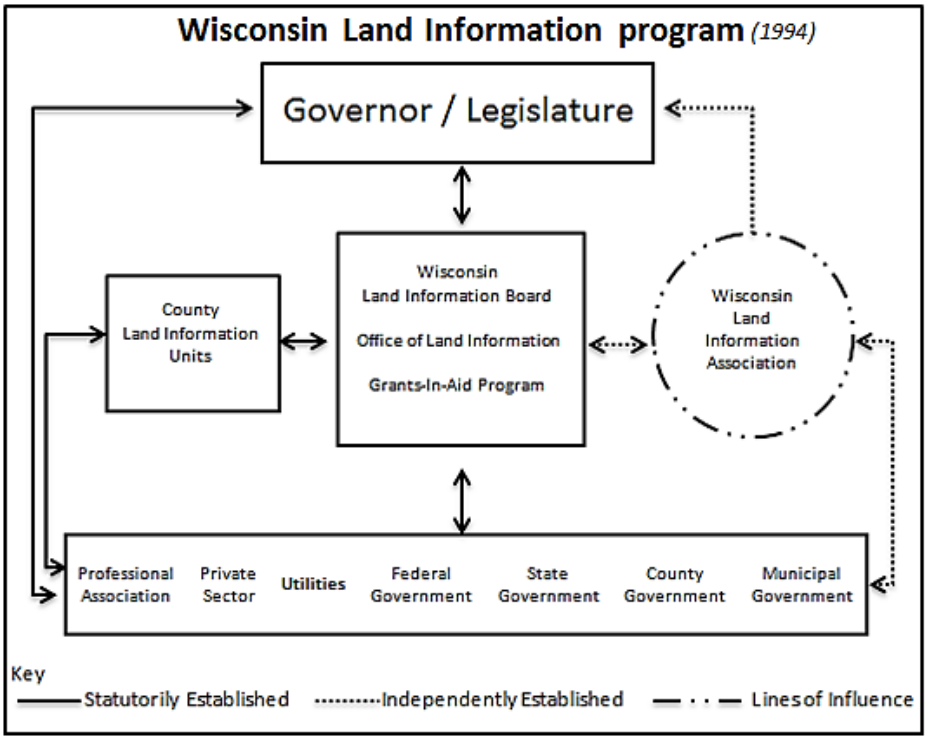
the grants in aid program, assist local and state agencies integrate land information for decision making, maintain a state-wide inventory of land records, serve as a clearinghouse for land information and assess the potential impact of new technologies on land records modernization (Holland, 1994; WLRC, 1987).

The grants-in-aid program was designed to help fund the development of local and regional multipurpose land information systems, with any local unit of government being eligible to apply for grants. The WLRC encouraged each of Wisconsin's seventy-two counties to establish a County Land Information Unit (WLIC, 1987). The WLRC deemed these units to be fundamental to the Land Information Program because they would serve as the primary contact between local governments 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 (WLRC, 1987). As a group composed of businesses, utilities, academics, state and local governmental employees, the WLRC represented the neoliberal attitudes of late 1980s Wisconsin towards reducing government influence and actively involving business in the process of restructuring government services to save money. Typically the businesses involved would assist local governments in creating multipurpose land records in new technological formats, primarily because the local governments did not have staff skilled to perform the work in-house (Koch, personal communication, 2006). [One interviewee wryly commented that "…the solution in Wisconsin is to have seventy-two solutions." referring to each county having its own Land Information Unit (Interviewee Z13, 2010)].

The WLRC originally suggested that the Land Information Board and Office be attached to the University of Wisconsin for purposes of administrative support only. The Committee believed the University provided 'neutral ground' for a program that involved numerous government agencies and private enterprises. The intent of housing the WLIP in the University was to "…increase efficiency and reduce bureaucracy" (Interviewee, M, 2008). The Committee wanted to ensure autonomous functioning of the Board and Office, as the Board had sole authority over its budget and granting authority**. "**The idea in the WLRC was to co-locate a number of land related agencies/offices at one neutral location. The university was seen as this neutral location…The idea for this "super" LIS [Land Information Service] office was torpedoed by the head of the WGNHS at that time. "He had a lot of clout in the state legislature and did an end run on the rest of the WLRC committee." (Interviewee M, 2006). What actually transpired was the moment of 'creative destruction' for the Land Information Board. Creating the place, or space, for the Board within the Department of Administration (DOA), which the legislature selected as its final site, lead to the Board's demise in 2005, following a prolonged period of conflict in the late 1990s, a time of roll-back neoliberalism in Wisconsin politics. During times of neoliberal policy reform, such ruptures within institutional frameworks often occur (Brenner and Theodore, 2002). Had the Board had been allowed to be housed within the "neutral ground" of the University and not within the "destructive" space of the DOA, it is possible that the neoliberal and institutional ruptures of the 1990s would not have affected the Program and Board as they did; "…the administration of the DOA was always frustrated by the lack of control it had over the state cartographer because he was housed in the University" (Anonymous, 2007).

The ad hoc coalition that proposed the WLRC study was gaining in political power and momentum itself. By creating a space of dependence, in the form of a shared vision for land records modernization among many different constituents, it now was creating spaces of engagement, and institutional memories. By stating their goals directly to the legislature in the form of the Final Land Records Committee Report (Holland, 1994), the coalition had engaged in the political processes necessary to bring the WLIP and WLIB to fruition, and had thus created a space of engagement. The coalition members also began to arrange a land information organization within the framework of the Urban and Regional Information Systems Association (URISA). In 1989, a new organization, the Wisconsin Land Information Association (WLIA) was formed, with its original members drawn from a variety of professionals at all levels of government and the private sector (Holland, 1994) see diagram 1.

Figure 2. 1994 WLIP Lines of Influence



In 1989 the WLIA proposed a funding mechanism for the WLIP that had been omitted from the WLRC report. This proposal called for an increase in fees collected at register of deeds offices on real estate transactions at the county level, making Wisconsin the first state in the nation to do this. The proposal also allowed the counties to retain part of the funds directly, instead of having all the funds be in the form of grants from the WLIB (Holland, 1994). Originally, $4.00 of the register of deeds' fee were retained by each county and $2.00 went to the WLIB for grant distribution; since 2001 $5 of every $6 stays in each county, with $1.00 designated for web display in that county (Koch, personal communication, 2006). WLIB grants were of four types: strategic initiative, contribution based, base-budget and educational, with $35,000 allocated yearly to those counties that did not retain that amount in real estate fees (now set at $50,000/year, but not yet implemented). To date, approximately $30 million in grants has been distributed, and counties have retained approximately $100 million in fees (Herreid, personal communication, 2010).

The WLIB was composed of four state departmental secretaries, those of Administration, Agriculture, Trade and Consumer Protection, Natural Resources and Transportation, plus four members from municipal government, four from public utilities and private businesses, the state cartographer, and advisory members including state agency representatives and county representatives The members were chosen by the Governor, and among their duties was to review project applications for grants in aid to local governments and determine which were approved (Holland, 1994). It is important to note the split between state agency representatives and county and municipal representatives on the Board, as these separate groups later formed important thematic

networks of association. The WLIB had control of a large amount of money, which eventually made it a target of the legislature when the state of Wisconsin experienced budgetary difficulties. The 'pot of money' being generated was coming not from the tax base but via the oversight only of the WLIB, not the DOA. According to the statues creating the WLIB, specifically statute 15.03, the board "…is attached to the department of administration", although "attached" is not specifically defined in the legislation. "They gave the Board way too much power; it was empowering to counties at first, but when the Board developed its [own] personality they created a monster." (Anonymous, 2007). This space of dependence was solidified in material means and the space of engagement was set. The result of this 'attachment' to DOA and not the University proved a determining factor in the scalar battles of power to come.

Wisconsin Acts 31 and 339 (1989) assigned the Board responsibility for implementing the WLIP, which was designed with a "…distinct local government orientation" (Holland 1994, p. 6), county government being its focal point. "The design and intent of the legislation is to provide flexibility and discretion for local governments in developing their own land information programs." (Holland, 1994 p. 6). There are two requirements of counties participating in the Program: 1) That they implement projects to modernize land records, and 2) That the information produced be in a format that can be shared (Holland, 1994). Although county participation was and is voluntary, all 72 counties in Wisconsin participate in the Program, and every county has been required to establish a Land Information Office (Wisconsin Statute 59.88 (3)). Many duties and functions are written into the laws governing LIOs, including the coordination and development of plans for county-wide lands record modernization, and the reviewing and

recommendation of projects by themselves and other local units of governments within their jurisdiction (Holland, 1994b). From early in the Program every county has been required to record and survey the work completed under the program, and thus the Land Information Offices have acted as the key local players in providing access to the grants provided through the WLIP. [The majority of the WLIA membership since 2001 has been county employees, whose numbers are more than double the number of state employees (excluding UW system employees) (Barrett, personal communication, 2010)].

State statute 16.967 required the WLIB to establish a state clearinghouse for access to land information, and to distribute an inventory of land information in the state. When this legislation was passed in 1989, it could not be foreseen that struggles would emerge in 1999 and later as the duties of the Board and the DOA changed under various new legislation. "Thus, it is the Board that currently has these arguably broader responsibilities with regard to state land information activities, yet it is DOA and not the Board that has the current permissive authority to develop and maintain geographic information systems relating to land in this state. Further, it is DOA, rather than the Board, that under the Governor's recommendation would be newly charged with the specific requirement to develop and maintain a computer-based Wisconsin land information system…"(Wisconsin Legislative Fiscal Bureau, 1999-01 Budget Summary, paper 195, p. 13).

Power struggles between the Board, the DOA and the Legislature over what became known as the Wisconsin Land Information System (WLIS) would be one of the many in the politics of scale played out in the state over geographic information in the years 1999-2004.

The funding mechanism for the WLIP and the WLIB originally had a Sunset date of July 1, 1996 written into the legislation by Wisconsin Act 39. Sunset provides for the automatic termination of a state agency, commission, board, or committee unless specifically reauthorized by a legislature. This process allows periodic evaluation by legislative or committee staff, public hearings, legislative committee recommendations, action on the floor of the legislature and decision by the governor to sign or veto a bill to reauthorize the unit (Kearney, 1990). In Wisconsin this process is used for boards, councils or committees, but not agency-level units of government. The Board used the power of information via annual survey results and its ties to a legislator to extend the first sunset provision, and the initial 1996 date was extended through successive biennial budget bills until the sunset was permanently set in the 2004 budget for July 1, 2005 . That a sunset date come up every two years for both the WLIB and the WLIP caused a series of problems and unwanted attention, especially for the Board in later years. "The sunset put them [the Board] on the radar screen. The WLIB was going before the joint finance committee every two years. Every single item of a budget doesn't get scrutinized, but with a sunset every two years and WLIA and WLIB coming to joint finance you get scrutinized." (Interviewee B, 2006).

The WLIP and the WLIB were successful in modernizing land information in Wisconsin. The grant programs distributed monies via the county Land Information Offices in each of the seventy-two counties and significant progress was made toward the goals of the Program prior to 1996 without political or capital interference. The WLIA was strong and was committed to working with the Program and Board on issues involving both. By 1996, however, there arose discussion about the details of the

Program and the distribution of the funds. Counties were asking: "whose money is it, state or county?; is each county entitled to a return of their share or is this program designed to supplement counties and municipalities with insufficient funds?; do we really need detailed grant applications, or is assurance of program compliance sufficient?" (Wisconsin Mapping Bulletin, 1997a, p.4) These were the first messy battles of scalar politics of power between the counties and the state, represented by the Office of Land Information Services (OLIS) by statute, but ultimately questioning the monetary power of the WLIB. The majority of these battles took place on the field of Wisconsin Land Information Association meetings and behind the closed doors of WLIA Board and WLIB meetings.

The strength of the WLIA as an organization was "…deeply rooted in the art of debate" (Wisconsin Mapping Bulletin, 1997a, p.4). The president of the WLIA in 1997 cited three avenues via which issues within the organization were resolved: consensus, majority, and the political system (Wisconsin Mapping Bulletin, 1997a). It was his opinion that consensus was the way that the majority of decisions were made, that communication was key and that this was what made the organization strong (Wisconsin Mapping Bulletin, 1997a). In 1997 he viewed the success of the organization in terms of the ability to "…reach consensus on most issues," and noted that majority (the decision by a greater number) had been "…relatively absent as a tool for the WLIA." (Wisconsin Mapping Bulletin, 1997a, p.4). In those years, with a diverse membership, and with divisions regarding the monetary distribution of funds starting to occur, discussion of the third option, the resolution by political process, is mentioned, but not elaborated upon.

In 1996 the political process may not have been a serious issue for the members of WLIA, but it was becoming a serious issue for the WLIB. The topic of land use planning was taking hold in a number of state agencies. The heads of these agencies were aware of the Program and the Board and knew that there was money and infrastructure in place supporting the operations. By replacing the Board with a land-use type group it was perhaps hoped that the funds in the Program could be diverted to land-use planning and not the much more broad-based goals of the Program. At a WLIB meeting on November 4, 1996 a proposal was made to terminate the WLIB and incorporate its mission within the Interagency Land Use Council (ILUC), which was chaired by the soon-to-be-appointed Secretary of the Department of Administration (DOA), a proponent of land-use issues who would head the same division in which the Board was housed (DOA).

The proposal from the ILUC called for a merger of the WLIB and ILUC staffs. The WLIB at first supported the proposed merger, but then switched to opposition as the result of dissent by one actor on the Board. This person, a county representative, persuaded the other members that the merger should be opposed because of the primary difference between the missions of the two organizations (Interviewee K, 2009). Whereas the mission of the ILUC was land use planning, by contrast, the mission of the WLIB was the development and maintenance of land information to support the information needs of many applications and systems (Wisconsin Mapping Bulletin, 1997a). The key difference to many on the Board at the time was the emphasis on land information being much broader than 'merely' land use. The WLIB, drawing on the network created when the Program was developed, contacted two key state senators and

an assemblyman from different political parties for assistance. An indication of the political power of one of the legislators and the Board, and another example of a relatively insignificant "powerless" Board thwarting the heavily politically and monetarily powered DOA, the proposal was withdrawn from the Joint Finance Committee, ostensibly because it was a non-fiscal policy item (Interviewee B, 2007). The committee further stated that legislation creating such an entity should be considered by other standing committees (Wisconsin Mapping Bulletin, 1997b).

Governor Thompson's budget, delivered to the legislature in February 1997 contained two major changes for land related issues, a victory for the political power of DOA. The first change was to centralize land information activities within the DOA. This included dissolving the WLIB and transferring its statutory functions and staff to the DOA. The second was to create a new Wisconsin Land Council (WLC or Council), whose purpose was to identify state land use goals, priorities and procedures for facilitating local land use planning and to make recommendations for improvements to the Governor. The proposed WLC, to be composed of 16 members, would replace the WLIB (Wisconsin Mapping Bulletin, 1997b). Signifying that if the DOA couldn't get the legislature to go along with its plans it could get the governor to do so, the scalar wars thus began in earnest, with the WLIB pitted against the DOA. Enmeshed in all of this were the counties and the WLIA, taking sides, creating alliances and networks within and against each "side", with each calling on their "own" networks, whatever they consisted of, as the political-scalar battles progressed.

If the WLIA thought they were not involved with politics up to this point, they suddenly found they were. The WLIB petitioned and won the backing of the board of the

Association, and the president of the WLIA at the time wrote letters to all members of the Legislature expressing the concern that a dissolved or merged Board and Council would severely damage the successful WLIP. The Association claimed any change would have the effect of jeopardizing the tens of millions of dollars the state had invested in the Program over the preceding years (Wisconsin Mapping Bulletin, 1997b). The Association hired a lobbyist in 1997 to look after the interests of the organization, the Program and the Board, and subsequent lobbyists assisted the Association in its political struggles with the DOA. "The lobbyist helped WLIA focus its energies, opened doors to certain legislators and, I think, to a certain degree, kept DOA and the Administration off-balance. I don't think DOA quite knew how to handle the lobbyist situation although it was not a completely adversarial relationship." (Koch, personal communication, 2006).

The power and networks of the Association and the Board were evolving as their struggles with the DOA, the legislature and the Governor intensified. Providing further evidence of the reach and power of the networks that the Board and Association had created within and among members and in the legislature, an amendment to the 1997-99 budget bill preserved an "understanding" agreed upon by the leadership of the DOA, the Board and the Association. The amendment retained for the WLIB its 1997 powers and duties, and also created the Wisconsin Land Council, which had a similar mission to the previous Interagency Land-Use Council. The amendment provided a common staff for the Board and the Council and declared that the Board and Council would share one Director. It also required them to enter into a memorandum of understanding related to cooperation and the avoidance of duplication of functions, established a sunset date of September 1, 2003 for both units, and provided authority to the DOA to develop and

maintain a GIS on the condition that any proposed activities and their funding were approved by the Joint Finance Committee (Wisconsin Mapping Bulletin, 1997c). This final action, having the Joint Finance Committee approve activities and funding, involved the legislature, and provided relief during material struggles within the space of engagement for a few years, for a few battles.

An analysis of the memorandum of understanding (MOU) between the WLC and the WLIB reveals evidence of the power struggles. The document outlines the responsibilities of each body regarding the state statutes concerning distribution of land information in the state, mandates access to shared staff, and states that the two bodies agree to cooperate. It also outlines the duties of the DOA, including that the Bureau of Financial Management will provide accounting and budget support to the Council and Board. The most powerful item in the document is the last line, which reserves the right of the Secretary of the Department of Administration to make any final determination in the event that the Board and the Council cannot resolve a dispute. Some observers interpreted this action as the DOA asserting both material control, via the Bureau of Financial Management, and outright control of the Board in cases of disagreement with Council. The Board was already on record as opposed to the merger of the Board and Council (Wisconsin Mapping Bulletin, 1997a), and by signing the MOU many Association members felt the Board was "giving in" to the DOA, which began a period of open confrontation. This was frequently characterized by comments such as "us vs. them" or counties vs. the state (generally in the form of the DOA, although other state agencies were often included) at Association meetings, and these discussions were frequently quite heated.

The WLC was composed of sixteen members and chaired by the Secretary of the DOA, as chosen by the Governor. Seven members were outlined in the statutes, including the secretaries (or designees) of the following state agencies: administration, agriculture, trade and consumer protection, commerce, natural resources, revenue and transportation, plus the state cartographer, who was the only person to sit on both the Council and the Board. The remaining nine members were appointed by the governor and represented interests of counties and the public. Most of the duties of the Council involved land use planning efforts, but it also established a technical working group to study and recommend legislation to implement a computer-based land information system and established a state agency working group to improve coordination of agency land use policy and plans, the very same language that existed within the legislation creating the WLIP and WLIB.

The state agency working group already existed to some extent under the Board, and four of the WLC committee members were previously on the Board. State agencies' support for the Board faded almost completely and switched to the Council. "Once the Administration led the charge for merger the dynamic [on the Board] became much different, permanently. State agencies, either openly or tacitly, had to support the Administration" (Interviewee K, 2009).

With the appointment of the executive director to the Board and Council in mid-1998, the relationship between the DOA, the Association and the Board became even more hostile. The new executive director was described in the Wisconsin Mapping Bulletin, a quarterly publication of the State Cartographer's Office, as "…a former dairy farmer, has a long record of local government experience…" but quite obviously no

experience with land records or land use (Wisconsin Mapping Bulletin, July 1998, p.1). The negative sentiment also stemmed partly from the fact that a well-known and well-qualified academic had applied for the position and had been rebuffed by the DOA. This candidate had the knowledge required to succeed, but was most likely rejected because it was believed by the DOA that his sympathies would lie with the Board, where his former academic advisor was at one time influential. The Association was not willing to deal with the new executive director, and "…no agreement with DOA could be reached because this was the evil …DOA" (Interviewee V, 2007). The new executive director was viewed as a "party man through and through; he was clearly doing the [administration's] bidding" (Interviewee V, 2007). The opinion of the Secretary of the DOA about the Board was similar. "Never have we had more problems than with the WLIB; they didn't understand politics, [the] government and political process of the state." (Interviewee B, 2006).

With the WLC in place and with other state agency personnel representatives on the Board itself, two camps soon emerged: those supporting the state agencies and those supporting the counties. These factions' hostility continued until the dissolution of the Board, and in the end "tore it apart" (Anonymous, 2007). The WLIA eventually came to support the faction that supported the counties, so in effect supported the WLIB and the WLIP, although it was always a contentious issue. "WLIA provided a forum for the counties to come together and share concerns and to develop the bottom-up approach; they felt it was their money and they should say how it should be spent. The state wanted a top-down approach" (Anonymous, 2007). The WLIA membership thus created the space for the counties, the space of dependence and also the space of engagement with

the DOA. While this is true, it is also true that it was not only the membership of county employees within WLIA *as a whole* with which the DOA ultimately engaged. By 2004, when the WLIA Board became dominated by eleven county, four business and one state representative, which coincided with the sunset of the WLC and WLIB, the DOA faced an even more united opposition. The *businesses* did not wish to lose the income from the counties that the Program provided and, in fact, required that they create.

Enter Neoliberalism

Throughout this time period (1980-2005), Wisconsin politics were beginning to be increasingly tied to those of the nation and the globe. Of particular interest was the shift in political tides in the nation that began in the 1980s in Washington with the election of Ronald Regan as president. This governmental shift towards "roll-out" neoliberalism was focused on a lowering of administrative costs, controlling the costs of entitlements and returning fiscal responsibility for social welfare systems to the states (Conant, 2006).

In January, 1987 Tommy Thompson became Governor of Wisconsin. He initiated a series of welfare reform initiatives during his three terms in office: Learnfare, Workfare and Wisconsin Works. To fund these initiatives "the bulk of the spending cuts came from reducing the budgets of state agencies" (Thompson, 1996, p.142). During the 1990s a combination of tax cuts and spending increases created an underlying deficit that was hidden by strong economic growth. By the time the 2001-03 budget was presented, the DOA put the deficit at $2.4 billion (Conan, 2006). The money funding the neoliberal

restructuring of Wisconsin's social welfare policy and the ensuing budgetary difficulties of the state lead, among other things, to the eventual raiding of the WLIB funds.

The 2001 budget presented to the legislature by Governor Scott McCallum introduced the largest proposed changes to the WLIP since its beginning in 1989. These changes included dissolution of the WLIB and the transfer of its authority to the DOA, allocation of program funds to Smart Growth (land use) planning and a proposed Wisconsin Land Information System (WLIS), and lifting of the 2003 sunsets for both the WLIP and the WLC. The result would be a change in the unique funding mechanism, which was originally set at $6 for every recorded real estate transaction in the state, with $4.00 staying in the county and $2.00 going to the state to fund the Program. The $2.00 would now go to the DOA instead of the WLIP Board, and could be used by the DOA as it saw fit, for comprehensive planning or to meet other budget deficits. To offset the loss of land information contribution-based, competitive grant funds, which would no longer be available to counties, the counties would collect and retain an additional $1 per document-filing transaction. By promising additional money and less paperwork to the counties the DOA was in essence trying to entice the counties and the WLIA to join their network and abandon the Board. In addition to the other powers in the proposed budget, the DOA would be given the authority to approve land information modernization plans and grants, award base grants (those for counties not retaining $35,000/year in real estate transaction fees) and in some years education-based grants which previously had been a function of the WLIB. These proposed changes, would significantly reshape the state's land information program and make the DOA more directly responsible for policy and compliance (Wisconsin Mapping Bulletin, 2001a).

As a material matter, in 2000 total recording fee collections were $8.1 million. The proposed $1 fee increase would boost that to $9.45 million, of which $6.35 million would be retained by counties, and approximately $300,000 would be returned to counties collecting less than $35,000. The WLIB's contribution-based grant program would suffer dramatically from lack of funds and might disappear—simplifying life for a county, since there would be no grant applications to submit. However, the additional $1 per transaction retained by counties would offset the loss of the grant dollars. Funds for statewide initiatives might only exist in some years when fee collections were high (Wisconsin Mapping Bulletin, 2001a).

In some ways it is surprising that in 2001 the WLIA and counties in general were still supporting the WLIB, given that the transaction fees retained by the counties was guaranteed, without the extra work of applying for grants to get some of the money back. The unity of their support is attributed to two factors: the president of the WLIA from 2000-2001 was an academic from Madison who supported the Board, and there was a general perception among county employees that the DOA was 'taking over' 'their' money.

The actual 2001 state budget made significant changes to the WLIP/B, but not as proposed by the Governor, and it seems the WLIB still had a network of friends in the legislature. The WLIB was not dissolved, the sunsets of the WLIB and the WLC were left intact at September 1, 2003, and while $1 was added to each document transaction fee, this was to be spent on developing, maintaining and ensuring public access to records related to housing. The WLIP lost $900,000 at the state level: $400,000 transferred to "general purpose revenue" funds, and $500,000 to be devoted to increasing the funds

available for local comprehensive land use planning grants (Mapping Bulletin, 2001b). This loss of funds (often quoted at $2 million stolen from the counties) “to the state” significantly deteriorated relations between the counties, WLIA and the DOA. The battles continued for the next two years while behind the scenes a quiet change was taking place in the leadership of the Association.

In 2001 the then past-president of the WLIA, an academic, was negotiating with the DOA on several issues, and with authorization from the WLIA board of Directors. The results were near-agreement on reforms in funding, more state money for WLIS and a new structure for a governance mechanism (Interviewee V, 2009). Despite this, the new president and WLIA Board rejected this direction and decided to fight openly with the DOA. It seemed to one interviewee that “…they rejected what had been worked out on principle…”(Interviewee V, 2009). This may partly be explained by the changing make-up of the WLIA Board. In 1999-2000 three members of the nine member board represented state, university or city employees. This represented a large cross-section of interested parties that had a broader vision for the Program than the merely monetary. By 2001, however, the WLIA Board was composed of seven members from county governments, one from a regional planning commission, the past president (from academia) with the president drawn from county government.

By 2001 the business faction had decided that they could benefit from less government involvement with the Program, and election of business people to decision-making positions on the WLIA Board had a profound impact on the outcome of events. Another factor that doomed the WLIB was that the WLIA Board and members never effectively made the case that land use planning is simply another use of land

information. When the Program was first developed, the case for the broad use of land information across multiple fields was one of the most important attractions for disparate stake holders. Not capitalizing on this key concept and constituent base and the network it created cost the Program state-wide projects which would have been of lasting benefit.

On January 1, 2003 Democrat Jim Doyle took office as state governor, the first Democrat to hold the office since Thompson's election in 1986. In Doyle's proposed budget the sunset provisions for the WLIB and WLC were moved to September 1, 2005, funding for the Office of Land Information Services (created to serve the administrative functions of the WLIB and WLC) was cut entirely, eliminating six staff positions and $1.5 million of WLIP funds was transferred to the general purpose revenue funds.

In August, 2004, with one year remaining before the sunset and a $3 billion budget deficit in the state, the WLIB and WLC and leaders in the DOA along with a select group from the WLIA Board worked to forge recommendations dedicated to preserving the WLIP and comprehensive planning grants, while at the same time recommending the removal of some of the administrative overhead for both. Marking a turn-around from the previous bitter feuding, forged by a new administration in the Governor's office and new leadership in the WLIA, but not without alleged open and flagrant material threats from the DOA (Anonymous, 2007) and highly controversial within the WLIA, the report sent to the legislature included the following:

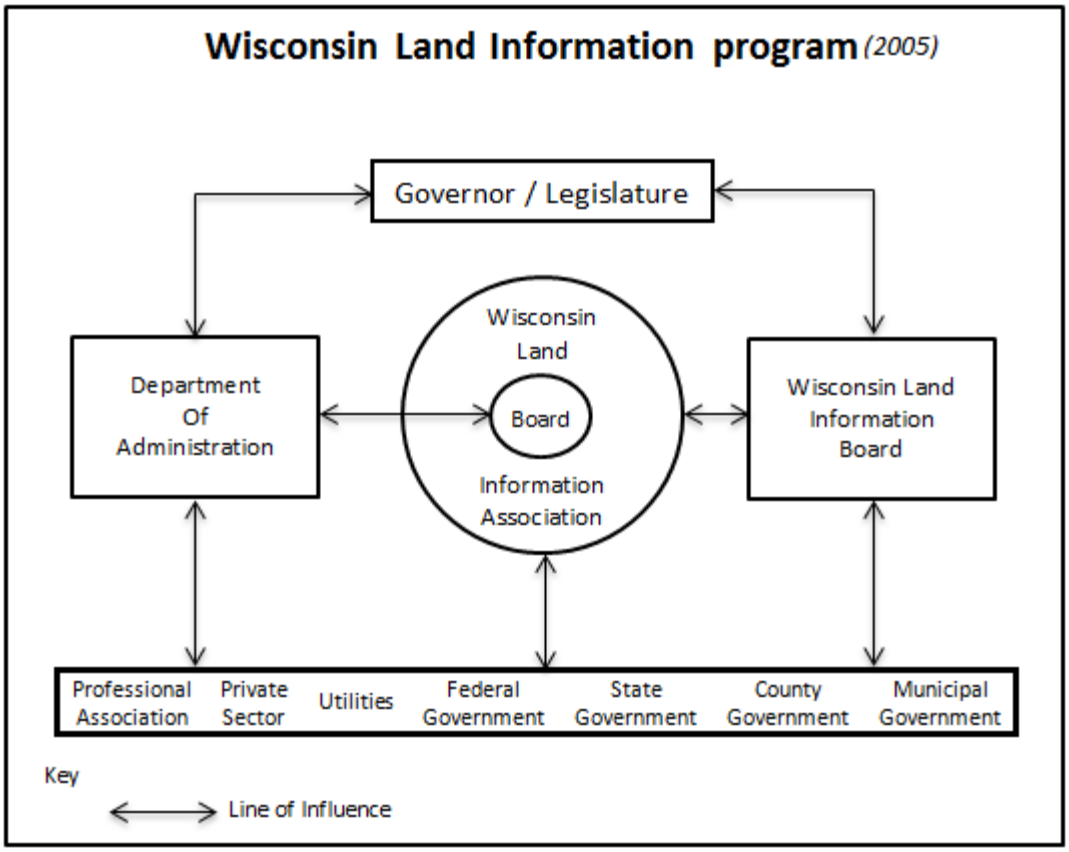
- Ensure that the eligibility level for base budget grants to counties was raised to $50,000 annually.
- An annual amount was dedicated to fund comprehensive planning.
- An annual amount went to the DOA to administer the grants program
- Appoint a Geographic Information Officer (GIO) within the DOA to be an advocate for the WLIP and coordinate state agency GIS efforts.

- Create an appropriate committee or council (through the DOA Secretary) to offer advice on land information issues

Many within the WLIA felt that the WLIA Board had "sold out" the WLIB and its vision to the DOA and the new administration, but those on the WLIA Board felt they had made the best deal they could given the circumstances. They had been told by the negotiating parties from the DOA that their attorneys had looked into the legislation and they felt they could take "all the WLIP monies, including the fees retained by the counties" (Anonymous, 2007). The WLIA Board did not know if this was true but their lobbyist said he "didn't doubt it" (Anonymous, 2007). Ironically, the deal reached was "almost identical to that worked out [by the past president] in 2001" (Interviewee V, 2010).

The report was accepted by the Governor and enacted, with the WLIB and WLC ceasing to exist on September 1, 2005, and all other aspects of the report subsequently enacted. There remains bitterness between counties and the DOA, but it is less intense than in the past. A new statewide strategic plan for GIS in Wisconsin is underway, including stakeholders from all levels of government, the WLIA and private businesses. This is in many ways similar to what occurred in the 1980s, before the development of the WLIP and WLIB, see diagram two.

Figure 3. WLIP 2005 Lines of Influence



Conclusion

The Wisconsin Land Information Program started through research into questions about land records management in the state. These questions were being raised at the federal level, and some states were addressing them in the 1970s via a top-down approach that created state-wide systems that generally failed in the long term, although Minnesota created a state-wide system that succeeded and still is operative. URISA was instrumental as a forum within which those interested in and experimenting with the subject could get together and discuss projects, successes and/or failures.

In Wisconsin during this period, one individual in the City of Milwaukee and another at the Southeastern Wisconsin Regional Planning Commission created systems that worked for their individual areas prior to the development of the WLIP. These systems were not replicated or studied by the academics in Madison, and an unacknowledged turf war appears to have developed with the UW working everywhere except southeastern Wisconsin. The concept of "champions", those who introduce new technology, encourage its use and join technology user groups supporting the spread of its use to other organizations, applies to all the people involved in Wisconsin in the 1970's. So, while the UW academics avoided studying southeastern Wisconsin, the people involved in this part of the state were invited to participate in all activities in the statewide program and had influence in the final outcomes.

It is doubtful that the WLIP could have been created outside of Madison in the 1970s and 1980s. The abilities and resources of the academics to study the problem from many angles, the close association with the state government centered in Madison and the connections between "town and gown" were numerous and friendly through the beginning of the 1980s. Professionals in the state who dealt with land records trusted the academics and the research they were producing that showed that a new approach was optimal. The administration and the legislators of that time also trusted and worked with the academics. It is highly unlikely anything like this could have developed in a later time period.

The WLIP, as developed as a system for the state, was unique among those developed elsewhere at the time in that it was based upon inclusion of everyone involved in land records management. Any individual who worked with the data, in any capacity

was invited to participate in the process of overhauling the existing dysfunctional system. The Larsen Report of 1978 was the catalyst. The UW academics brought together all the players in the state and made them stakeholders in the process via the Wisconsin Land Records Committee (and the subsequent WLIA), thus creating a network, both thematic and territorial. This network created political power via individual ties to state legislators and hard work on the part of the individuals in the network. Creating a unique funding mechanism was crucial for the final development of the Program, giving power to the WLIB.

The DOA, an existing and powerful agency within state government and under whose authority the WLIB existed, by chance, was not interested in the operations or material matters of the Board while the economy of the state seemed healthy. It was only with the appointment of a new director, which coincided with state budget deficits, that the WLIB became a target. The inability of members of the boards, both of WLIA and the WLIB to accept that land use is an application of land information and to pursue that line of reasoning and cooperate with the DOA from the beginning lead to many years of conflict.

Power shifted among and between the WLIB, the DOA and the WLIA Board. In the beginning the WLIB controlled its own destiny and that of the counties via control of the strategic initiative grants. The DOA, with a new director, then asserted its power in the late 1990s and early 2000s through the political and legislative process to acquire some of the Program funds and re-direct them to comprehensive planning purposes and the general revenue fund. It wasn't until the 2000s that the WLIA realized its power, and then it seems some members acted without the knowledge of the entire membership or

even the majority of the Board, albeit under the presumption of saving the Program from complete eradication.

In the end what does all this mean? The confluence of neoliberal activities with networks of association impacted the scalar battles between the WLIB, the DOA and WLIA Board. The result is that what once began as an egalitarian, grass-roots, socially just, forward-thinking program has shape-shifted. While the WLIP is certainly still a viable and functioning program over-all, it is now less concerned with issues such as state-wide initiatives and open access to data, and is more focused on the day-to-day struggles of employees, cannot see the "big picture" issues for the state and seldom reaches consensus on many issues. In place of the WLIB there is a GIO and the Wisconsin Geographic Information Council (WIGIC), two barely known bodies that have had little effective impact upon the state. The very egalitarian nature of the Program, the structure of it, based on counties ["…the answer in Wisconsin is to have 72 answers." (Interviewee Z13, 2010)] is what ultimately led to the demise of the vision that was the inception of the Program. By giving so much power to the counties, and through them money to the business community supporting them, the Program ended up with no oversight, little direction, and few over-arching goals, with the result that Wisconsin is no longer a national leader in Land Information. The Program, like so many things, came down to money. It never would have started without the "fee" not being at the expense of the taxpayer. The struggles with the DOA were over who controlled the money, what it should be used for, and whether or not planning information is land information. But whose money is it anyway? Not the counties', nor the state's. It is the property owners, who become taxpayers, whom in this democracy the county represents (Interviewee Z12,

2010). This fact seems to have been lost. In the end, the egalitarian goals of the Program, promoting statewide initiatives, have been subverted by economics, to the loss of the citizens.

Chapter Three

Access to Geographic Information in Wisconsin: Law, Politics and Power in Wisconsin and California

Whereas the previous chapter described the formation and power relationships of the Wisconsin Land Information Program (WLIP), this chapter focuses on the power of the political process and its role in access to spatial data, particularly as compared to the power that the Program itself conferred upon Wisconsin. In the process of creating the Wisconsin Program, legislation enacted over several years assigned the counties the duty of creating computer-generated land information. Through these pieces of legislation, the counties also were given control over the dissemination of this data to the public. In Wisconsin access to the digital land information created by county governments is generally determined by a county board or a committee over-seeing a Land Information Officer (LIO). Boards or committees often consult the local corporate counsel in determining the final access policy, and in many, but not all cases the LIO is consulted to obtain copies of other counties' or agencies' policies and licenses for comparison in the process of creating a final document. The result is that many documents are similar, but some are unique.

California, like Wisconsin empowers counties to distribute GI data and it is here where the most current court cases have arisen, which are discussed in this chapter. There are seventy-two counties in Wisconsin and, as with most legal and policy issues, there are differing interpretations of the laws that over-see both the Program itself and the open records law, which applies to documents, including maps. The intersection of these two legal frameworks informs the policies that ultimately determine access by citizens, businesses, other governmental agencies and non-profit organizations. The laws and

legislative histories of the Program itself and the open records law in the state are broad and written so that state citizens can benefit from access to information. The question remains what is the overall policy goal of these various pieces of legislation. What factors and/or forces have distorted these laws/policies for their own purposes and how does this confer power to the actors or networks involved?

Methodology

In this study, forty-one intensive semi-structured interviews were conducted with people from various departments within local, state, federal and regional planning commission agencies, private companies and academics directly or indirectly involved with the Wisconsin Land Information Program and Association and the attorney representing one of the defendants in a series of Wisconsin cases that have impacted access to GI in the state. These individuals were provided anonymity and are referred to as interviewee a,b,c, etc. In addition I analyzed federal and state statutes (California and Wisconsin), Wisconsin Land Information Association newsletters, Wisconsin State Cartographer's Mapping Bulletins, minutes of the Wisconsin Land Information Board and the Wisconsin Land Council's meetings, reports of the Wisconsin Land Records Committee, newspapers, books and conference meeting reports. I also performed extensive searching of legal databases LEXIS and Westlaw to obtain documents including legislative history, court case decisions and legal briefs. Utilizing multiple methods assists in verification of evidence and allows for "triangulation" of results (Yin, 2003). By searching both LEXIS and Westlaw I have maximized the "closure" in a legal sense. Closure is defined as finding the same authorities over and over. Finding a relevant case over repeatedly in multiple sources indicates that one has found the right

cases and if there were other relevant cases they would have been found (Cohen, *et al.*, 1989). Cohen, et al., (1989) state that the "most independent research tool is computer assisted research" (Cohen, *et al.*, 1989 p 606).

Overview of Legal Issues Concerning Spatial Data

Legal aspects of access to spatial data have been studied by numerous researchers, including Archer and Crosswell (1989), Cho (1998, 2005), Clapp. (1990), Dando (1991, 1993), Dansby et al. (1992), Lopez (1995), Onsrud (1992, 1995a, 1995b, 1998a, 1998b, 1999, 2000, 2004), Onsrud and Reis (1995), Pluijmers and Onsrud (1996), Onsrud and Lopez (1998), and the National Research Council (2004).

This paper examines which processes in particular influence access to digital spatial data in Wisconsin, and which actors in the state exert power over these processes. This is accomplished by examining the relationships between and within networks of actors involved in the political process that controls access to GI through the use (or non-use) of legal mechanisms such as copyright, intellectual property rights, and licensing. This in turn provides insights into how powerful actors have unknowingly or otherwise manipulated local government authorities' policies regarding public access to geographic data, which is a public right under open records laws and under rights provided by intellectual property laws.

As suggested by Harvey and Tulloch (2006), this research examines the role of power relationships in the act of data sharing and in the context of issues of ownership and control. The research examines legislation and the actors who influence it, local government mandates, and political discretion in the formulation of data access policies.

Finally, this research examines the development of power through control of the political process concerning access to land information in Wisconsin via legal and legislative processes. It is widely asserted that information equals power (Morgan, 1970) and it follows, therefore, that the control of information yields control of power. By understanding how individuals, agencies and organizations use various legal processes to control public access to geographic data, new theories can be developed about the political nature of access to knowledge and knowledge production.

Use of Geospatial information is ubiquitous not only in our daily lives but also in the daily planning/policy making activities that shape governance, yet the access to digital spatial information data for citizens remain quite uneven. This includes public domain information which should be freely available, yet is packaged and sold at great profit to citizens and organizations. Control of powerful spatial information also confers great power on the actors, as it is a means to control political activism and citizen participation.

Much research into legal GIS issues has focused on legal remedies for undesirable social implications stemming from dissemination of GIS and georeferenced databases (Cho, 1995, 2005). Prominent themes include violations of privacy resulting from the abilities of individual actors and events (Cho, 1995, 2005; Onsrud, 1995), legal responsibility for inappropriate and harmful uses of GIS (Stewart et al., 1997), liability issues (Cho, 1995, 2005), barriers posed by charging the public for the use of spatial data (Barndt, 1998, Onsurd, 1998b), the use of licenses to limit access to public data (NRC, 2004), and the recognition of intellectual property rights as the reward one receives for

creative effort (Cho, 1995, 2005; NRC, 2004; Onsrud, 1995a, 1998a, 1998b, 2000, 2004).

Geographic information is used to assist economic development, determine and protect property rights, support education, maintain the nation's physical infrastructure, protect the environment, develop natural resources, support health care, protect national security, facilitate taxation, and ensure the safety, health, security, and property of individual citizens (National Research Council, 2004). While the majority of geographic information is produced at the federal level and is in the public domain, often the richest and most detailed information is produced by local level governmental agencies. Democracy requires government transparency and accountability, and every model of GI dissemination that is adopted reflects both the underlying data policies in that jurisdiction and the legal regime governing such transactions (Cho, 2005).

Federal Open Access Laws and Policies

The rationales behind public access include allowing the public to evaluate the conduct of public officials, to provide access to information about public policy, to protect against secret laws and decisions and to encourage informed participation in public affairs (Solove, 2004; Cate et.al., 1994; Braveman and Heppler, (1981). According to the U.S. Supreme Court, the Constitution presupposes that the free flow of information between the government and the public is essential to maintaining an informed citizenry, which, in turn, is essential to holding government accountable (*Island Trees School District v. Pico*, 1982; *Doe v. Ashcroft*, 2004). "In general, as our sunshine laws and judicial doctrine attest, democracy abhors undue secrecy, in recognition that public knowledge secures freedom. Hence, an unlimited government warrant to conceal,

effectively a form of secrecy *per se*, has no place in our open society. Such a claim is especially inimical to democratic values for reasons borne out by painful experience.", vacated by *Doe v. Ashcroft*, 2004).

During the Watergate crisis of 1974 Congress rewrote the federal "Government in the Sunshine" laws that strengthened access to government information (Solove, 2004; Henrick, 1977). By 1983, Freedom of Information (FOI) laws had been enacted by all 50 states and the District of Columbia (Solove, 2004). In *Golan v Holder* (2009), the district court concluded that "In the United States, that body of law includes the bedrock principle that works in the public domain remain in the public domain. Removing works from the public domain violated Plaintiffs' vested First Amendment interests. (*Golan v Holder*, 2009, p. 1177)

The *Freedom of Information Act* (Pub.L. 89-554, 80 Stat. 383 (1966)), codified at 5 U.S.C. section 552 and its later amendment by the *Electronic Freedom of Information Act Amendments* (Pub.L. 104-231, 110 Stat. 3048 (1996)) require that 'records' of the U.S. government, unless classified, are available to the public for the marginal cost of reproduction and are therefore in the 'public domain'. The Office of Management and Budget (OMB) Circular A-130 (50 FEDERAL REGISTER 52730, December 24, 1985), the regulation which implements the Paperwork Reduction Act of 1980 (46 FEDERAL REGISTER 10451, February 3, 1981) requires federal agencies to disseminate government-initiated information to the public in a timely and equitable manner and at the cost of dissemination. The National Research Council (NRC) summarizes the reinterpretation of this act by OMB in 1984, 1996 and 2000, whereby the legislation directs federal agencies to "[a]void establishing, or permitting others to establish on their

behalf, exclusive, restricted, or other distribution arrangements that interfere with the availability of information dissemination products on a timely and equitable basis." (NRC, 2004). 'Government information' is defined in Circular A-130 Revised as "information created, collected, processed, disseminated, or disposed of by or for the federal government." (OMB, 2011, 6 (i)), a definition that is significant for the discussion of licensed geographic information procured by the federal government (NRC, 2004).

Specifically concerning GI, the National Research Council states, "Government accountability and transparency require agencies to ensure that the ability to control scarce geographic data never becomes "outcome determinative" for any political or judicial process… Transparency is important to agency adjudications and rulemaking, to petitions to Congress for new legislation, and to mount court challenges to illegal government acts." (NRC, 2004, p. 161). Taken together, these laws and policies establish a presumptive public right to inspect government records, unless the government can show that the records are not public (Wells and Tsui, 2005).

Copyright, Geographic Information and Compositions

Copyright holders obtain exclusive rights to copy, display, distribute, adapt, and perform a protected work (17 U.S.C. §106). These rights are extended as soon as an original idea, which shows a minimal level of creativity, becomes fixed in a tangible medium (17 U.S.C. § 102). With very few exceptions, federally produced government information is not allowed to be placed under copyright protection (*Kermac v Compagnie Generale Transatlantique*, 1959). Some states allow copyright of public information, whereas others do not (*Seago v. Horry County*, 2008; *CFAC v Santa Clara County*, 2009). In terms of GI or databases, it is important to remember that copyright

protects originality, not hard work (‘sweat of the brow’) (*Feist Publications Inc. v. Rural Telephone Service Co.,* 1991).

Traditionally, cartographers and producers of GI have relied upon copyright to protect the intellectual property of their works. When the Supreme Court ruled in *Feist Publications Inc. v. Rural Telephone Service Co.* (1991) that facts in a compilation were not copyrightable, but that a slight amount of creativity, including the selection and arrangement of facts, would be protected, many believed that GI arranged within a database would fall under copyright protection, even if the facts themselves would not. “A "compilation" is a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship. The term "compilation" includes collective works.” (17 U.S.C. § 101). Uncertainty about the precise amount of creativity required to warrant copyright protection makes definitive statements about GI and products difficult, if not impossible (17 U.S.C. § 102). Maps and photographic images often have been found to be copyrightable. Other people may extract, copy and use the factual information contained in the work as long as the creative expression is not copied. These works, like factual databases, are said to have “thin” copyright (Karjala, 1995).

Section 107 (17 U.S.C. § 107) contains the provisions for ‘fair use’ of copyrighted materials. It explains when certain uses are allowed, for purposes such as criticism, comment, news reporting, teaching, scholarship, and research (Lipinski, 2010). Four factors are considered to determine if a use is ‘fair’: (1) the purpose and character of the use (whether commercial, nonprofit, or educational), (2) the nature of the work (factual or

otherwise), (3) the amount and substantiality of the portion used in relation to the whole and, (4) the effect of the use upon the potential market for or value of the copyrighted work. (17 U.S.C. § 107) These provisions are relevant to this discussion because many non-federal public sector GI data producers are often concerned with the liability of downstream use of "their" work, whereby they could be sued for errors (see *Aetna Casualty and Surety Co. vs. Jeppeson and Co, 1977)* misuse of GI (see *Zinn v State of Wisconsin, 1983),* and potential redistribution and creation of inappropriate derivative works (defined as misappropriation, the intentional, illegal use of the property or ideas of another person for one's own use or other unauthorized purpose, (Law.com, 2012)). This is one reason to license but since government is immune from tort it is unclear how this justifies how it is used.

In *NBA v Motorola, 1997* the Court found that the "misappropriation of underlying facts -- would expand significantly the reach of state law claims and render the preemption intended by Congress unworkable." So, while the copyright doctrine protects a GI database's arrangement of facts, copyright itself does not address many of the concerns of the GI producers. "The doctrines of patent and copyright misuse provide potentially significant limitations on licensing and have no analogue in other fields of contract law or practice. Misuse doctrine is unclear, however. In practice, the doctrine reflects a judgment, often idiosyncratic, that some conduct by an intellectual property rights owner goes too far in exploiting the property right and that this wrongful conduct creates a defense to a claim of infringement by that rights owner against the licensee and against any other party." (RAYMOND T. NIMMER, 2 INFORMATION LAW § 11.36 (database updated in Westlaw May, 2012; Lipinski, 2012, forthcoming).

Obviously, and in the absence of a license, some GI uses would constitute fair use, for example using a factual GI database for teaching purposes. In this example the data producer would most likely be concerned about redistribution of the data beyond the walls of the educational institution.

Geographic Information as Public Domain Information

Dealing more directly with access to GI as public domain information, federal OMB Circular A-16 includes provisions for "improvements in coordination and use of spatial data" (59 FEDERAL REGISTER 17671, April 13, 1994, as amended). The Circular incorporates Executive Order 12906 (59 FEDERAL REGISTER 17671, April 13, 1994, and as amended by Executive Order 13286, 68 FEDERAL REGISTER 10619, March 5, 2003). Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure (NSDI), requires agencies to "adopt a plan…establishing procedures to make geospatial data available to the public, to the extent permitted by law, current policies, and relevant OMB circulars" (59 FEDERAL REGISTER 17671, April 13, 1994, p. 2). Like many federal laws, A-16 strongly favors the public availability and dissemination of GI acquired by the government (National Research Council, 2004). The NSDI is a vision for a nationally shared catalog of GI from all levels of government. Participation is mandated for federal agencies, and a number of programs have been instituted to encourage participation by state and local agencies, including unsuccessful ventures such as Geospatial OneStop, and The National Map. Among the many reasons why state and local governments failed to cooperate in these earlier ventures, one is the issue of licensing GI.

The *Guidelines for Providing Appropriate Access to Geospatial Data in Response to Security Concerns*, produced by the Federal Geographic Data Committee in 2004 recognizes the importance of public access to GI. "These principles are drawn from relevant policies, including Federal and state laws and related implementation instructions regarding freedom of information and public records' information management; the public's right to participate in government policy development and decision making; the publics' right to review information used in government decision making' the public's "right to know";…" (Federal Geographic Data Committee, 2004, p. 3).

Among the premises upon which the guidelines are based are the following:

1) Provide for the free flow of information between the government and the public essential to a democratic society. As expressed in the documentation regarding the enactment of FIOA: "A democratic society requires an informed, intelligent electorate, and the intelligence of the electorate varies as the quantity and quality of its information varies. . . ."[The FOIA] provides the necessary machinery to assure the availability of Government information necessary to an informed electorate." (H.R.Rep. No. 1497, 89th Cong., 2d Sess., 12 (1966), U.S.Code Cong. & Admin.News 1966, pp. 2418, 2429). "Although the theory of an informed electorate is vital to the proper operation of a democracy, there is nowhere in our present law a statute which affirmatively provides for that information." (S.Rep. No. 813, 89th Cong., 1st Sess., 3 (1965). It must be recognized that geospatial data often have value to organizations other than the organization that originates the data. The fundamental tenet of the National Spatial Data Infrastructure (NSDI) to 'build once and share or use many times' should be supported to the maximum feasible extent. This will continue the benefits that accessible geospatial data provide to the Nation's economic and scientific enterprises.

2) Provide and continue public access to information needed to implement and enforce laws and regulations for the protection of public health and safety and the environment, land management, and other public purposes.

3) Enable the sharing of information among organizations as needed to allow them to accomplish their missions and goals.

4) Promote the economical management and maintenance of government information and avoid duplication.

Numerous authors have examined state laws and determined that state government approaches to GI data distribution vary and are based on different justifications (Cho, 2005; National Research Council, 2004; Wells and Tsui, 2011). "Some provide access rights on the basis of an exception to open records law, others depend on the nature of the request that is made" (Cho, 2005, p. 73). Some agencies distinguish between 'services' and 'sales' (Wells and Tsui, 2005), whereas some make no distinction between GI and other type of digital databases (Cho, 2005) and others have enacted specific legislation concerning distribution of GI (National Research Council, 2004). "Federal law permits state and local governments to assert copyright in works containing geographic data (if they otherwise meet the requirements for copyright protection)" (National Research Council, 2004, p. 134). "When consistent with local law, state and local governments may also maintain geographic data as secret, or to restrict their use and redistribution" (National Research Council, 2004 p. 134). The result is that each state or local government agency creates policies that may place prohibitive use conditions or open access to GI. These conditions are place-specific and localized, but the underlying assumption, based on democratic principles as demonstrated in federal law and policies, would be in favor of the public's 'right to know' (Jefferson, T, 1791).

Licensing of Geographic Information: The Public Sector's Various Roles

A license is a legal contract between two parties under which the licensor allows the licensee to **use** a data collection (Cho, 2005; Tsui and Wells, 2005) and the licensee accepts certain restrictions on the use of the data (such as no copying or dissemination).

A license can be thought of as "permission" (Lipinski, forthcoming). Licenses are usually governed by state contract law, and in a negotiated license parties can usually dicker of terms and come to a mutually agreeable arrangement. Some agencies refuse to negotiate terms and leave the requester in a take-it or leave-it situation. Until ten years ago, it was uncommon for government agencies to license GI data. Some non-federal public agencies are now more inclined to do so to limit use of their data, limit liability or to raise revenue (National Research Council, 2004; Wells and Tsui, 2005). Typically licenses contain provisions including a statement of ownership. and copyright, product description and quality, warranties, disclaimers and indemnification, any restrictions on use or resale, length of the agreement and terms of renewal, cancellation terms, fees or in-kind exchange for use of data and responsibilities for updates and error notification (Wells and Tsui, 2005).

Licenses raise several issues when they are implemented by federal or other governmental agencies. Licenses can create state monopolies which reduce competition and cause economic inefficiencies (Wells and Tsui, 2005). These issues include antitrust considerations, restraint of trade, and the denial of the accountability required in a democracy by limiting access (Wells and Tsui 2005).

Historically, the federal government has been the primary producer of geographic data in the U.S., although value-added producers have used this public domain information to generate products and sustain multi-million dollar industries. There is no reason to imagine that this system will change substantially in the future, particularly in the sense that federal agencies undoubtedly will continue to acquire and distribute data. "Agencies can *acquire* geographic data by (1) having employees collect it, (2) hiring

outside contractors to collect it, (3) purchasing preexisting data from the private sector, or (4) obtaining a license to use preexisting or newly collected data." but, "Unlike the first three options, licensing does not give government unlimited rights to use and redistribute the data." (National Research Council, 2004 p. 34). Reasons why federal agencies may choose to use option (4) may include economic or temporal imperatives, the existence of a private market, national security, privacy concerns, specific one-time needs, enhancing derivative products, allocating risk, and as a vehicle for proper attribution (National Research Council, 2004). "In achieving specific objectives, licensing sometimes can be the most effective or efficient option." (National Research Council, 2004 p. 81). In such cases federal agencies are acquiring data under license, although they may or may not be distributing the data to the public under license.

Federal agencies can acquire data under license because of OMB Circular A-76, which implements the FAIR (Federal Activities Inventory Reform) Act of 1998 (Pub.L. 105-270, 112 Stat. 2382, codified at 31 U.S.C. §501). A-76 requires agencies to justify engaging in commercial activities and "The reading of A-76 most consistent with other statutory and regulatory directives is that when A-76 requires an agency to outsource the acquisition of geographic data, the contract may provide for either restricted or unrestricted rights in the data." (64 FEDERAL REGISTER 64 10031, March 1, 1999; National Research Council, 2004 p126). "…the Commercial Space Act of 1998 requires the Administrator of the National Aeronautics and Space Administration (NASA), when consistent with scientific requirements and other conditions, to acquire "space science data" from a commercial provider (42 U.S.C. Section § 14713). However, this section also states that "[n]othing in this subsection shall be construed to preclude the United

States from acquiring, through contracts with commercial providers, sufficient rights in data to meet the needs of the scientific and educational community or the needs of other government activities." (Pub. L. 105-303, title I, Sec. 105, Oct. 28, 1998, 112 Stat. 2852). In such cases the government acquires all satellite imagery from commercial sources under license. Some satellite data is available in the public domain but the resolution and scale are not as detailed as for data that is available commercially.

Federal Acquisition Regulations (FARs) are the provisions within the Code of Federal Regulations (CFR), Part 48, part 31 that deal with the acquisition of data (Federal Acquisition Regulation subchapter E General Contracting Requirements, Contract Cost and Principles and Procedures). The FARs distinguish between "data produced under federal contracts and data gathered at private expense." (National Research Council, 2004, p128). "Under the FARs, restrictions on a government agency's right to use or distribute data are appropriate when the government is not compensating the vendor for all of the costs of producing the data (as when the government acquires a nonexclusive right to use preexisting geographic data or when the government contracts to pay only a portion of the cost of acquiring new data)." (National Research Council, 2004 p. 129), as is the case with satellite imagery.

Even with the right to obtain data via license, the federal government is still required under the FOI Act and OMB A-130 to disseminate this to the public. The National Research Council, Committee on Licensing Geographic Data and Services (2004, p. 124) stated that: "Although we know of no cases expressly addressing the point, it is arguable whether data collected by private-sector firms and licensed to government fit this definition. Furthermore, A-130 nowhere mentions licenses or licensed

information. Nevertheless, the foregoing definition is quite broad. Furthermore, A-130 contains several references to data that are maintained by sources other than the government…we assume that A-130 applies to data that are acquired through licensing." 55 FEDERAL REGISTER 45893, October 31, 1990). One interpretation of the scope of A-130 is that "government information" is coextensive with the definition of "records" under the FOI Act. (55 FEDERAL REGISTER 45893, October 31, 1990).

State and local governments, operating under different laws and policies than the federal government, cite many reasons for choosing to license GI, including cost recovery, liability concerns, as a vehicle of proper attribution, and to control-third party redistribution and inappropriate derivative products (Dando, 1992, 1993; Dansby, 1992, 1994; Holland, 1997; Onsrud, 1999; National Research Council, 2004; GITA, 2005). The specific goal of cost recovery has never been fully realized (Sears, 2001; Joffe, 2003; National Research Council, 2004), and a 2003 study funded by the U.S. Geological Survey and conducted by the Open Data Consortium (ODC) found that most local agencies that sell or license public data have operated at a loss, with only a few earning even very modest revenues (Joffe, 2005).

"Liability in the use of geographic information has long been a subject of interest in the geographic information community." (Onsrud, 1999, p1). The use of warranties and disclaimers is becoming the norm among data producers seeking to minimize liability exposure, although this does not protect them entirely (National Research Council, 2004).

Why the difference between how the federal government and state governments treat dissemination of GI? The right of the states to decide policy for the distribution of

GI within their borders goes back to state's rights in general. These are enshrined in the tenth Amendment to the Constitution. Alexander Hamilton, in the Federalist Papers stated "But it will not follow from this doctrine that acts of the large society which are not pursuant to its constitutional powers, but which are invasions of the residuary authorities of the smaller societies, will become the supreme law of the land. These will be merely acts of usurpation, and will deserve to be treated as such." (Federalist Papers No 33, 1788). Therefore it is because the federal government, via FOI and OMB A-130 can dictate to federal agencies that they must comply, they have no authority over states (the "smaller society") dissemination policies. In an ideal situation, the rapid advancement of technology and information technologies, with which the law cannot keep pace, it would be beneficial to have one law and policy guiding access to GI rather than federal, state and local governments deciding individually. However, this is unlikely to happen.

Definition of Geographic Information

How GI is defined concerning access is important because authorities have different interpretations. Many federal, state, and local agencies provide Internet web sites where images of GI can be viewed. Layers of information can be turned off and on, items can be labeled, and the database *may* allow simple queries. Most people, including record custodians, consider this access to GI. While this type of access may be analogous to inspecting paper maps that were available in pre-digital days, in the modern world of GIS technology *viewing* images on a screen is not the same as having access to the data itself. GIS's use data that is composed of many files combined to create the images seen on the computer screen. When viewing an Internet GIS, what is usually visible is a

graphic image (in effect, a map), but the attached database file of attribute information about the map is generally not available for manipulation (other than turning a layer on or off), so GIS functions such as spatial analysis and complex database analysis cannot be accomplished by using the web sites. Spatial database analysis is one of the main reasons that government agencies use GIS. These governments often base policy decisions on the use of the GI. Citizens with the appropriate knowledge and GIS skills can only challenge or question government policies when they have access to the data and software itself. Access to this same information is vital to hold these government officials accountable for their decisions on everything from tax equality to zoning impartiality. Ghose and Elwood (2003), for example, document the local political context affecting the nature of citizen participation in and effectiveness among community-based organizations using GIS.

Wisconsin Law Pertaining to Access to Geographic Information

Access to Geographic Information in Wisconsin is governed by multiple laws. Wisconsin Statutes 19.31 through 39, subchapter II, Public Records and Property begins with a Declaration of Policy (19.31), which sets out the principles overriding the subsequent laws dealing with public records within the State. It reads, “In recognition of the fact that a representative government is dependent upon an informed electorate, it is declared to be the public policy of this state that all persons are entitled to the greatest possible information regarding the affairs of government and the official acts of those officers and employees who represent them. Further, providing persons with such information is declared to be an essential function of a representative government and an integral part of the routine duties of officers and employees whose responsibility it is to

provide such information. To that end, ss. 19.32 to 19.37 shall be construed in every instance with a presumption of complete public access, consistent with the conduct of governmental business. The denial of public access generally is contrary to the public interest, and only in an exceptional case may access be denied." (Wis. Stat. § 19.31 subchapter II, Public Records and Property, 2009, p1).

As indicated above, complete public access to governmental business records, except under exceptional circumstances, is the policy of the State, a policy consistent with federal FOI laws and policies. Section 19.32 provides definitions of "authority", "local governmental unit" and "record", with the last of these being "…any material on which written, drawn, printed, spoken, visual or electromagnetic information is recorded or preserved, regardless of physical form or characteristics, which has been created or is being kept by an authority. "Record" includes but is not limited to, handwritten, typed or printed pages, maps, charts,…tapes (including computer tapes), computer printouts and optical disks."

In Wisconsin, there has never been a challenge to the open records law in the context of GI, creating a power vacuum. There is no precedent in the context of GI. As a result, there is no judicial articulation of what constitutes adequate access to public records in the form of GI. This leaves open interpretation of the law regarding public access to GI, although the policy in section 19.31 of the Statutes would suggest that GI falls under the open records law. This becomes more obvious in the sections of the Statutes that follow, especially in the discussion of section 19.35, Access to Records and Fees. In 19.35 (1) (a) Right to Inspection it is stated that "Except as otherwise provided by law, any requester has a right to inspect any record. Substantive common law

principles construing the right to inspect, copy or receive copies of records shall remain in effect". However, Section 19.35 (1) (e) could potentially impact access to GI for those who do not have access to appropriate software, in that this section allows an agency to deliver to a requester in paper form any record that is not in a "readily comprehensible form", which could be interpreted to mean a GIS file. Another section that pertains to the meaning of "access to GI" is 19.35 (1) (g), which refers to records that "will be promptly published with copies offered for sale or *distribution*" (emphasis added), begging the question, "Is web-accessibility to GI considered distribution?" Given that web access does not allow access to the database the answer has to be no. Another question is then raised, is sale OR distribution acceptable? If so, can counties or other entities sell their GI and consider that appropriate distribution or argue that if they sell GI it meets the technical requirements of the open records law, if not the spirit of the law? Many people would argue that those agencies who utilize this practice have created a de fact precedent by selling legal documents as a form of distribution of public information. Or would selling the data via the web be an acceptable alternative? Any of these permutations would be plausible arguments to put before a court given the ambiguity in the law as written and the lack of case law on the subject.

One section of the State Statutes that has been addressed by the GIS community (Wells and Tsui, 2005) is 19.35 (1) (L) which "does not require an authority to create a new record by extracting information from existing records and compiling the information in a new format". The extraction of subsets of records or conversion into new formats is usually considered a "service" performed by local governmental agencies (Wells and Tsui, 2005; National Research Council, 2004) and is therefore allowed for a

fee in most states, including Wisconsin. The Statutes (19.35 (2)) even go so far as to provide for the use of agency facilities by any "authorized" person to inspect, copy or abstract a record. These facilities must be comparable to those used by employees and be available during established office hours, although the authority does not have to purchase or lease equipment or provide a separate room for this function.

Allowable Fees for Access to Information under the Wisconsin Open Records Law

The Wisconsin open records law allows for the charging of fees under certain circumstances. Wisconsin Statute 19.35 (3) (a) addresses when and how fees can be assessed for the copying of records. "An authority may impose a fee upon the requester of a copy of a record which may not exceed the actual, necessary and direct cost of reproduction and transcription of the record, unless a fee is otherwise specifically established or authorized to be established by law." A further section outlines other fees that are allowed, including fees for locating records and the direct cost of mailing records, and states that an authority may waive or reduce fees if it is in the public interest (19.35 (c)-(e)). For example, Jefferson County, Wisconsin, Policy for Distribution of GIS Data Sets states "Governmental and Educational: Jefferson County shall encourage more effective and efficient use of land records through data sharing by waiving fees for governmental units such as towns, villages, cities, state and federal agencies, universities, schools, sanitary districts, lake management districts or their consultants. Users receiving waivers shall agree not to redistribute data." This section of 19.35 on fees, together with the section on open records suggests that GI compiled by local governments, in keeping with the official State policy, should, in fact, be available upon request for the actual cost of reproducing the records (Holland, 1994). There is however, nothing in the State

Statutes that does not allow the option of licensing GI or any other information by any agency. Not all licenses would be detrimental to access to GI and some licenses would meet the needs of most producers. Licenses can be written to disallow commercial use, charge for the cost of reproduction only and require attribution. These features would alleviate the concerns most producers have, which is that GI is often not cited, is used for commercial purposes and is easily manipulated in "downstream" use. By utilizing a Creative Commons license or other similar license with the outlined features, the differing views could be appeased, although the issue of downstream manipulation still exists and fees in excess of the cost of reproduction are not addressed. Creative Common licenses allow for the control of attribution and non-derivative works and would therefore address the major concerns expressed by the interviewees. Another issue is that of "policing" the license, which many producers feel they did not have time for in the mid-2000s, let alone now with fewer staff due to the recession (Interviewee B, 2007).

Limitations upon access under the Wisconsin Open Records Law

There are certain situations in which it may be desirable for state agencies to limit access to public records in state law, and Statutes Section 19.36 outlines such situations, including (Section (1)) records that are exempt by state or federal law, except any portion that contains public information. Section (4) deals with computer programs and data, and indicates that computer programs themselves are not open to examination or copying but that the material produced by them is so accessible. In part, it is argued that this seems in conflict with Section 19.35 (2), which allows for the use of facilities and machines for copying, but, more importantly, it raises the question of how one could copy a GIS file without being able to "examine" the computer program. How can one make a copy of

the data produced by the software without using the software itself? This seems to indicate that the agency in question *must* provide the data to the requestor since the requestor will not be able to do so themselves, an interpretation that seems further justified by Section 19.36 (6), which requires that "the authority having custody of the record shall provide the information that is subject to disclosure and delete the information that is not subject to disclosure from the record before release."

Also appearing in conflict with Section 19.36, concerning access under the open records law, is Section 19.35 (l) (h), which specifically addresses access to electronic information. This section, referring to a Wisconsin Supreme Court decision reversing an appeals court decision concerning access to database records states that allowing "direct access…would pose substantial risks" and that PDF files would be sufficient (*WIREdata, Inc. v. Village of Sussex*, 2008, p. 447). Of particular interest in the context of access to GI is the argument that the release of information would pose a security risk to the public. Presumably this is based upon a federal Homeland Security program that designates certain information as "Critical Infrastructure Information". The intent of this program is "consistent with the CII Act of 2002, with State and local officials, where doing so may reasonably be expected to assist in preventing, preempting, or disrupting terrorist threats to our homeland" (6 C.F.R. § 29.4). The features that are part of most counties GI are 1) not of interest to terrorists 2) are observable to the human eye and 3) are observable on freely available websites such as Google Earth or county air photos. This argument has been used unsuccessfully in other lawsuits (*CFAC v. Santa Clara County*, 2009) as a device to restrict access to GI in other states (*Greenwich v. Freedom of Information Commission et al.*, 2005), so it was surprising to see it used successfully in Wisconsin.

What this Supreme Court decision (based on a technicality in the specific case itself) has effectively done is to allow public access not to database files themselves but to PDF files, which cannot be manipulated. Many state and local government records, including those containing geographic information, are currently kept in database format, and it can be argued that the Supreme Court's short-sighted, security-risk reasoning is flawed and limits public access significantly, in direct opposition to the principles of the open records law. The impacts on access to GI of the various WIREdata rulings will be further discussed in greater detail in a later section of this chapter.

Enforcement and Penalties for Withholding Records under the Wisconsin Open Records Law

The Wisconsin open records law includes penalties for withholding records from the public. State Statute 19.37 allows for penalties if an authority does not comply with a written request for release of a record(s). If the authority does not release the record(s), the requestor may seek, in writing, the assistance of the appropriate district attorney in the relevant county or that of the state attorney general (19.37 (1) (b). If the requestor is successful, the court can award attorneys' fees, damages, both punitive and actual, and any court costs in addition to a penalty (if the authority acts arbitrarily or capriciously) up. to $1000.00) (19.37). The question is, would a potential fine of $1000.00 be sufficient disincentive to dissuade an agency from withholding GI? The agency withholding the record would be responsible for paying the fine, attorneys' fees, and damages to the requestor if a court found that agency withheld records. Since licensing is legal in Wisconsin, it cannot be claimed that the mere fact of applying a license constitutes the withholding of a record.

Another issue that arises concerns the fees charged for purchase of GI. Some agencies (primarily counties) charge what can be argued are excessive costs for data; for example, in 2010 Marathon County charged approximately $38,000 for county-wide GI data, regardless of whether the use was commercial, governmental or non-profit. Since counties are required by law to collect this information (Wisconsin Statute 16.967) and since Statute 66.1102(1)(a), incorporating by reference Wis. Stat. § 59.72(l)(a), defines land information as:

> "any physical, legal, economic or environmental information or characteristics concerning land, water, groundwater, subsurface resources or air in this state. "Land information" includes information relating to topography, soil, soil erosion, geology, minerals, vegetation, land cover, wildlife, associated natural resources, land ownership, land use, land use controls and restriction, jurisdictional boundaries, tax assessment, land value, land survey records and references, geodetic control networks, aerial photographs, maps, planimetric data, remote sensing data, historic and prehistoric sites and economic projections"

such information then becomes public information and hence should be available under the open records act. In such cases, excessive fees are not allowed under the law, only the fees necessary for the cost of reproduction.

Wisconsin Land Information Laws

Historically, Wisconsin was on the forefront of efforts to modernize land records in the United States (Day and Ghose, 2012). Public agencies, cities, universities and private sector groups worked individually and cooperatively to bring about a progressive system that was formalized in the 1989 under the auspices of the Wisconsin Land Information Board (WLIB). Wisconsin Acts 31 and 339 gave the Board the responsibility of implementing the Wisconsin Land Information Program (WLIP) (Holland, 1994) and, although the Board ceased to exist in 2005, the goals of the Program

and the legislation creating it are explicit. The intent was to develop a "decentralized confederation of systems where those with existing land records responsibilities would continue to collect, maintain and keep custody of land information. Through integration, this confederation of systems will be tied by formal and/or informal data sharing agreements" (Holland, 1994b, p1).

To emphasize the desire of the creators of the Program that open access to GI should be encouraged, language was included in Act 339 that specifically empowered the Board to utilize program revenue for "Systems Integration" (Holland, 1994b, p2). A definition of this term was requested by the Legislature and it was defined as "…the coordination of land records modernization at all levels of government to ensure that the information can be shared, distributed and used by all participants, including state and local government, the private sector and taxpayers…" (Holland, 1994b, p2). According to Holland, in "Policy Objectives and Program Implementation in Light of Enabling Legislation, 1989 Wisconsin Acts 31 and 339", "the interpretation is meant to be literal and contextual in light of legislative and gubernatorial intent", and the policy objective of developing systems with shared data is "clear and unambiguous" (Holland, 1994b, p2). Thus, both by definition and by stated intent, by statutory authority Wisconsin's GI was intended, from the beginning, to be in the public domain.

The definitions included in Statute section 16.967 (1) are fairly broad (Holland, 1994b). 'Land information' includes "…*any* physical, legal economic or environmental information or characteristics concerning land, water, groundwater, subsurface resources or air in this state." Section 16.967 (1) (d) defines 'land records' as maps, documents, computer files and any other storage media in which land information is recorded.

While in existence, the WLIB was charged via Statute 16.967 (3) with a number of duties including the review and approval of projects and county-wide plans for land records modernization. The Board had direct oversight over the expenditure of funds from the Program, which were to be used explicitly for projects concerned with and plans for land records modernization. This funding was intended to provide an incentive for the development of the specific directives of the Program, including data sharing (Holland, 1994b).

Holland (1994) recognizes the critical role of the Land Information Office in relation to WLIP objectives, including that of data accessibility. He states, "While Counties and Land Information Offices have been given wide latitude and discretion in the implementation of their own land information program, they must also bear the burden of compliance. The very nature of an incentive based policy instrument recognizes and relies on the trust-worthiness of participants. In this Program, more so than in others, good faith and cooperation are crucial." (Holland, 1994b, p. 7). All Wisconsin counties have individuals assigned as Land Information Officers (LIOs), and some of those individuals exert considerable influence concerning GI access policies. Among these individuals, understanding that the statutes enabling the WLIP mandate to public access to GI appears to be inconsistent, and the mandate is often overlooked both in policy and in practice. Perhaps this is because over twenty years have passed since the inception of the Program and the original ideals have been forgotten, or perhaps it is because new people have taken on the jobs without awareness of the historical background, or it might be that the LIOs are more attuned to the issue from the national conversation.

Nationally, budget deficits have been cited as one reason that counties view GI as a necessary source of revenue (Joffe, 2005), as evidenced by thirteen states allowing for charging beyond the cost of reproduction for GI, primarily for commercial use (Wells and Tsui, 2011), at both the state and local level. It is recognized that many counties that charge excessive prices often view the requirements of dissemination as an "unfunded state mandate" (Interviewee Z7, 2008).

WLIP Recommendations and Requirements for County-Wide Plans for Land Records

To begin creating digital land information in Wisconsin, the WLIB initiated a program of county-wide planning and funding. The Board approved the plans, which in turn represented agreements between the Board and the counties to facilitate the Program objectives (Holland, 1994c). Eight principles were adopted by the Board to serve as the framework for accomplishing the objectives of the Program (Holland, 1994), and four of these principles are particularly relevant to this study. They are, (A) that the land information systems developed should be multi-participant and multi-purpose, operating at all levels of government and the private sector; (B) that a primary objective of the Program should be the "organization and *sharing* of land information" (emphasis added, Holland, 1994 p. 2); (G) that the Program should be reliant upon public to public and public to private partnerships and, most importantly; (H) that the Program should be based on *democratic principles*…

"Programs established in support of land records modernization shall be based on democratic principles consistent with the tradition of good government in Wisconsin. Particular attention should be paid to *open, public access to information*, governmental

responsiveness to the public, equitable treatment of all individuals, and protection of an individual's right to privacy." (emphasis added, Holland, 1994 p. 4). In addition, the agreement specifically states that the "County agrees to observe and follow the statutes relating to the WLIP and *other relevant statutes*" (emphasis added, Holland, 1994, p11). Thus, any of the data produced as a result of the county plans, approved by the Board, were subject to open records law. Counties are required to make this data available to the public, for the actual cost of reproduction of the records, although they can license the data. While there were perhaps few requests for the data when the Program began, some counties did receive Program funds yet charged vastly in excess of the cost of reproducing the records just a few years later, including in excess of $400,000 for for-profit use by Milwaukee County (Interviewee Z7, 2008). Since each county was required to address in detail the issue of public access arrangements in a distinct section of its plan (Holland, 1994c), there are no grounds for arguing that knowledge of this requirement was lacking!

Therefore, it appears clear from an examination of the open records land the laws implementing and governing the WLIP that GI was and should be publically accessible and distributed at the cost of dissemination. However, as demonstrated in the following section GI access is often contentious as laws are often interpreted differently. The issue of GI falling under open records law or if it is governed by specific laws concerning access are on-going and timely.

Relevant Recent Lawsuits Impacting access to GI

The following section examines court cases that involve access either to digital GI. The cases are from California and are relevant not only because they specifically

address issues of access to spatial data but also because of their potential significance for access to such data in Wisconsin, whose Attorney General has followed California law previously in an opinion regarding free access to public library material and services (73 Wis. Op. Atty. Gen. 87, August 17, 1984). The California cases are presented as the summaries and not discussed in detail.

Figure 4. Map of California

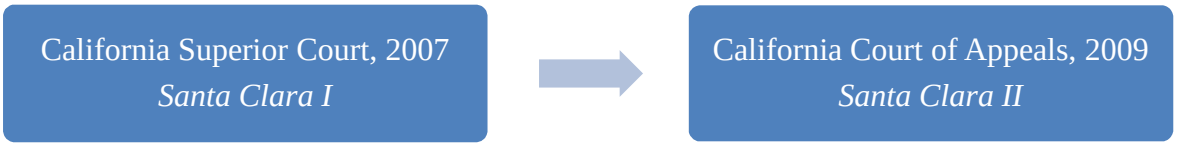
California First Amendment Coalition (CFAC) v Santa Clara County

CFAC v Santa Clara case map/time line:

Pre-2007: California First Amendment Coalition ("CFAC") requested geographic information from Santa Clara county. The county denied CFAC's request and refused to provide the geographic basemap.

2007: CFAC challenged the county's denial in California Superior Court. The Superior Court judge ordered the county to provide the data to CFAC. [*Santa Clara I*]

2009: The county appealed the Superior Court's decision to the California Court of Appeals. The Court of Appeals judge affirmed the lower court's decision. [*Santa Clara II*]



In the early 1990s, the County of Santa Clara (map 2), California entered into an agreement with private contractor to convert the county's parcel maps into digital form. The county issued a government bond to fund half of the contractor's cost up-front while negotiating an agreement to share subsequent costs with the Santa Clara Valley Water District (DiBiase *et al*., 2008). The agreement with the contractor stipulated that the County would own the copyright in the digital maps. The County and the contractor agreed to share equally any revenue earned from sales of the maps and database, and to make the product available to "…the broadest possible base of potential users, including, but not limited to, the real estate industry, the community development market, public safety organizations, private industry, government agencies and the general public." (County of Santa Clara, 1993 p. 1). The sales revenues anticipated were $300,000 in each of the initial five years of the database's development, and the County intended to use its share of profits from sales of the products to fund future updates and other GIS services (DiBiase *et al*., 2008).

This license agreement took effect in 1993 and after complaints about the legality of this situation under the California Open Records Act in 2005, a state legislator

requested the California Attorney General's opinion on whether the "…map. data maintained by a county assessor in an electronic format is subject to public inspection and copying under provisions of the California Public Records Act [CPRA, Government Codes §6250 et.seq.]." (Lockyer and Stone, 2005, p. 2). The Attorney General's opinion held that government agencies should respond in a timely manner to digital map. and database access requests and that the data should be provided at nominal cost (88 Ops. Cal. Atty. Gen. 153, October, 3, 2005). In a follow-up. study completed in 2006 by the Open Data Consortium it was revealed that 36 of 58 counties in California licensed digital spatial databases and maps at no cost or at the cost of reproduction, whereas 13 counties, Santa Clara included, continued to sell their data for higher costs despite the Attorney General's opinion (88 Ops. Cal. Atty. Gen. 153, October, 3, 2005). In October 2006, the California First Amendment Coalition (CFAC) filed suit against Santa Clara County (*California First Amendment Coalition v County of Santa Clara*, No. 1-06-CV-072630 (May 18, 2007), (herewith referred to as *Santa Clara I*), claiming that the maps and database were public documents that fell under the California Public Records Act, as held by the Attorney General. Santa Clara County argued that the digital spatial database and maps constituted proprietary software (which is specifically excluded from the Public Records law) and that the loss of licensing fees would undermine support for the County's mapping activities ((DiBiase *et al*., 2008).

In April 2007, while the Santa Clara I ruling was pending, Santa Clara County ceased sales of its spatial database and maps, citing concerns "…about alerting potential terrorists to the location of pipelines feeding San Francisco water from the Hetch Hetchy reservoir." (Wing, J., 2007). The County subsequently requested that the database be

designated as “critical infrastructure information” by the U.S. Department of Homeland Security, to which the CFAC replied that “…there’s nothing sensitive in the database that isn’t already available in other public information.” (Wing, 2007a).

In May 2007, *Santa Clara I* ruled that a digital database and maps are public records, and that Santa Clara County must provide public access to the data at reasonable cost. In June 2007, the County appealed that decision to the California Court of Appeals, (*County of Santa Clara v. Superior Court*, 170 Cal. App. 4th 1301,(2009) (hereinafter *Santa Clara II*)) stating that the further court action was necessary “…to help. us with the balancing act between the public’s interest in knowing and public safety.” (Skipitares, 2007). The State Appellate Court accepted the case in March 2008 and in February 2009, The three-justice panel of the 6th California Court of Appeal affirmed the *Santa Clara I* court’s decision and required Santa Clara County to comply with public requests for copies of its digital spatial database and maps, under the conditions of California's Public Records Act (PRA). The Court validated the California First Amendment Coalition’s (CFAC) demand for the data at no more than the cost of duplication, and without restrictions on use (Open Data Consortium, 2009).

In the appeal *of Santa Clara I*, to the California Appellate Court the County advanced several arguments in an attempt to justify the sales policy for its digital spatial database and maps, and to justify its subsequent withholding of the data with the claim that the parcel basemap was Protected Critical Infrastructure Information (PCII). *Santa Clara II*’s decision: states:

> I. Federal homeland security provisions do not apply here.
> … [there is] a distinction between submitters of critical infrastructure information

> (to DHS) and recipients of PCII (from DHS). The federal prohibition on disclosure… applies only to recipients of PCII. … the County did not receive PCII (it submitted its data to DHS in order to obtain PCII designation), the federal provisions do not apply.
>
> II. The proffered California Public Records Act exemption does not apply. …the public interest in disclosure outweighs the public interest in nondisclosure.
>
> III. There is no statutory basis either for copyrighting the GIS basemap. or for conditioning its release on a licensing agreement. …"end user restrictions are incompatible with the purposes and operation of the CPRA." (*Santa Clara III*, 2009, 393).

The Court's decision precludes county governments in California from using "homeland security" concerns as a tool to block public access to any or all of their GIS data, whether or not that data may have market value. This clarification of the Homeland Security Act's (6 U.S.C. § 133) application of the PCII designation is new ("de novo"). The Court pointed out a contradiction in the County's claim that PCII restrictions warranted refusing to distribute its GIS data, which was that if the County's GIS data was to be considered PCII, then the County itself could use it "only for purposes appropriate under the CII Act, including securing critical infrastructure or protected systems" since the federal law strictly restricts use of that data to the narrow purposes enumerated in the CII Act (6 C.F.R. § 29.3(b) (2007) (*Santa Clara II* at 386). The Court, observed that the "firms cannot use DHS [Department of Homeland Security] as a 'black hole' in which to hide information that would otherwise have come to light." (*Santa Clara II*, 386, n. 5, citing Bagley, 2006, 57)

The Court found in the public's interest in making county GIS data accessible. Citing case law (the Court noted, "If the records [that are] sought pertain to the conduct of the people's business, there is a public interest in disclosure." (*Santa Clara II*, 386,

quoting (*Citizens for a Better Environment v. Department of Food & Agriculture* (1985) 171 Cal.App3d 704, 715, 217 Cal.Rptr. 504 [emphasis supplied].)

The Court also limits county governments from copyrighting their GI data, or from using licensing agreements to restrict use of the data by the public. The Court stated that "Independently weighing the competing interests in light of the trial court's factual findings, we conclude that end user restrictions are incompatible with the purposes and operation of the CPRA [California Public Records Act]. The CPRA contains no provisions either for copyrighting the GIS basemap. or for conditioning its release on an end user or licensing agreement by the requester. The record thus must be disclosed as provided in the CPRA, without any such conditions or limitations. "(*Santa Clara II*, 2009, p. 34).

The Superior Court, citing the California Public Records Act, noted the following concerning the arguments of the County: "In its substantive arguments, the County maintains that copyright law protects its compilation of data as a 'unique arrangement.' The County seeks the right to demand an end user agreement upon disclosure of the GIS basemap, to protect its rights as the 'rightful owner' of copyrightable intellectual property in the map. (*Santa Clara II*, p. 30). …In sum, while section 6254.9 [California Government Code] recognizes the availability of copyright protection for software in a proper case, it provides no statutory authority for asserting any other copyright interest. As a matter of first impression in California, we conclude that end user restrictions are incompatible with the purposes and operation of the CPRA [California Public Records Act]. The CPRA contains no provisions either for copyrighting the GIS basemap. or for conditioning its release on an end user or licensing agreement by the requester. The

record thus must be disclosed as provided in the CPRA, without any such conditions or limitations." (*Santa Clara II*, p. 34). Given that the basemap is derived from a database of facts, and that facts, per se, cannot be placed under copyright, in addition to the fact that maps themselves have "thin" copyright, the Superior Court finding was consistent with the California Public Records Act.

Santa Clara County did not dispute the fact that that the GIS basemap. and data "are public records" (CPRA, Government Codes §6252, subd. (g).), and this acceptance also has bearing on a later case, also about access to GI in California: *Sierra Club v Orange County*. (Sierra Club v Orange County No. 30-2009-00121878-CU-WM-CJC, (June 21, 2010) hereafter referred to as *Sierra Club I*)). At issue in both cases is whether or not a county is exempted by the PRA from releasing GI data because the data itself is part of a 'software program' or a "computer mapping system", as listed in Section 6254.9 subd. (b). "As used in the Section, 'computer software' includes computer mapping systems, computer programs, and computer graphics systems (6254.9 subd. (b))." Yet, "[n]othing in this section is intended to affect the public record status of information merely because it is stored in a computer. Public records stored in a computer shall be disclosed as required by this chapter." (CPRA, Government Codes 6252, subd. (d).). CFAC argued that Santa Clara county could not "have it both ways", with GI constituting both a public record and computer software.

In this case, both parties referred to a 2005 opinion by the California Attorney General (88 Ops. Atty. Gen. Cal. 15, 3October 3, 2005), which starts by defining land parcels as units of real property and states further that electronic versions of them can be "…combined with other kinds of information for use in geographic information systems."

(88 Ops. Atty. Gen. Cal. 153 at p. 2). The opinion goes on to state that 'computer mapping system' "…does not refer to or include basic maps and boundary information per se (i.e., the base data complied, updated, and maintained by county assessors). But rather denotes unique computer programs to process such data using mapping functions—original programs that have been designed and produced by a public agency in (Section 6254.9). (See, e.g. § §6254.9, subd. (f) [distinguishing "record" from "software in which [record] is maintained"] (Santa Clara v Superior Court, FN 9, p. 31-32).

The Appellate Court determined that the main issue was not what "GIS consists of" but what a "GIS basemap. consists of", and concluded that the "county's own evidence is that the GIS basemap. is based, in large part, on data and it is only the data that CFAC seeks." (*Santa Clara v Superior Court*, 1301, 2009). Thus confirming CFAC's right under the PRA to have access to the GI. The Court stated "Section 6254.9, subdivision (a) provides: "Computer software developed by a state or local agency is not itself a public record under this chapter." The County conceded below that the GIS basemap. is a public record. The contrary arguments of its amici curiae notwithstanding, that concession appears well founded." (*Santa Clara II* quoting Cf. 88 Ops.Cal.Atty.Gen. 153, 157 (2005)). Thus, the Attorney General's opinion was a significant factor in *Santa Clara II*, while in a subsequent decision the legislative history was the determining factor. In point of law, an Attorney General's opinion is not legally binding, unlike that of a court decision (Mersky and Dunn, 2002). Nevertheless, the substantive finding that GIS data is not part of a 'software system' bears significantly upon broader issues of

public access to GI. This is because in other states, and specifically Wisconsin, the open records act is similarly worded, that data within a database is not part of software system.

Sierra Club v Orange County Cases

Sierra Club Case map/timeline

2009: Sierra Club requested geographic information from Orange county. The county required Sierra Club to sign an agreement and pay a licensing fee before the county would release the information.

2010: Sierra Club filed a petition against Orange County in California Superior Court. Sierra Club argued that the county may not force requesters to pay licensing fees or enter into agreements. The Superior Court judge sided with the county and denied Sierra Club's petition. [*Sierra Club I*]

2011: Sierra Club appealed the decision to the California Court of Appeals. The appellate judge affirmed the lower court's decision. [*Sierra Club II*]

2011-present: After losing in the Court of Appeals, Sierra Club appealed the decision to the California Supreme Court. The Supreme Court granted review and parties have submitted their briefs. The case has not been argued and is currently pending.

Another case in California, Sierra Club v Orange County (map 2), (*Sierra Club v Orange County* No. 30-2009-00121878-CU-WM-CJC (June 21, 2010) hereinafter, *Sierra Club I)),* was initiated by repeated refusal by the county in 2007 of Public Records Act (PRA) requests by the plaintiff for GIS-formatted parcel basemaps. In August 2010, the Superior Court of Orange County supported the County's argument that the PRA exempts GIS databases from public record disclosure under the "software exemption" of

§6254.9, which states that "…computer software developed by a state or local agency is not itself a public record" and adds that §6254.9 subdivision b clarifies that " 'computer software' includes computer mapping systems, computer programs, and computer graphics systems." This conclusion was diametrically opposed to the State Attorney General's opinion upon which the basis of the *Santa Clara II* case reseted.

Sierra Club appealed the Orange County Superior Court decision, (*Sierra Club v Superior Court* 195 Cal. App. 4th 1537, hereafter referred to as *Sierra Club II*) claiming that "computer mapping systems" software is distinct from the GIS database, as decided by *Santa Clara II. Sierra Club II*, affirmed on May 31, 2011, that the software exemption applies to the GIS database, which is not itself a public record. While Orange County acknowledged that their "OC Landbase" GIS database does not contain software, they argued that GIS is a "computer mapping system," and that, by definition, GIS includes both software *and* data.

The court in *Sierra Club II* agreed that "computer mapping systems" was never defined in the PRA software exclusion, and it reviewed the legislative history to determine what the legislature's intent may have been. Early versions of Assembly Bill 3265 (that resulted in §6254.9) were opposed by the Department of Finance until the term "proprietary information" was replaced with "computer software", and "computer readable data bases" was replaced with "computer mapping systems" (Open Data Consortium, 2011), thus, allowing GI to be sold at higher cost.

The court in *Sierra Club II* observed that in the "Fiscal Analysis" section of legislative history of PRA the Finance Department's report stated, "The potential revenue

generated by the sale of computer programs, graphics, and *information data bases* could be substantial ..." From this, and from a memorandum by the City of San Jose, outlining the considerable cost of developing its Automated Mapping System database that initiated the proposed legislation, the Court surmised that the intent of the "software" exclusion was to exempt computer mapping system databases from the requirement that they be sold at no more than the cost of duplication (Open Data Consortium, 2011).

Sierra Club II acknowledged that the "standard of review" in defining "computer mapping systems" in Section 6254.9 was de novo (new), and discussed both the determination of the Legislature's intent to effectuate the law's purpose and the need to consider "…other aids, such as the statute's purpose, legislative history, and public policy." (*Sierra Club II,* p. 4 quoting *Coalition of Concerned Communities Inc. v City of Los Angeles*, 2004, 34 Cal.4th 733, 737). The Court declared that Section 6254.9's language "…is susceptible to both parties' interpretations…[and that] section 6254.9 contains its own definition of computer software. When a legislature defines the language it uses, its definition is binding upon the court even though the definition does not coincide with ordinary meaning of the words." (Sierra Club II p. 4 quoting *Cory v. Board of Administration (1997) 57 Cal.App4th 1411, 1423-1424*).

The Court declared that it was not within its domain to define "…what constitutes a GIS database, since the only question before us is whether or not the OC Landbase (an undisputed GIS database) is excluded from public disclosure under section 6254.9." (*Sierra Club II* p. 7). Significantly, the Court noted that the County distributes the GIS database to the public under license agreement and fee, with restrictions on disclosure

and distribution, and acknowledged that the GIS file does not contain any computer programs.

Orange County agreed to provide to the Sierra Club electronic PDF or print materials of parcel information that the Court correctly maintained the county "…cannot use [for] analytical, display and manipulation functions [in]…GIS software…" (*Sierra Club II)*, This is significant in the context of a similar Supreme Court case in Wisconsin (*WIREdata, Inc. v. Village of Sussex*, 310 Wis.2d 397 (2008)), which will be discussed in the next section. The main decision in this case then, hinges upon whether the OC Landbase in a GIS file format is exempt from public disclosure because it is part of a 'computer mapping system', as written in Section 6254.9. The Court found that the legislative history indicated that this section of the PRA was, in fact, written to "…authorize public agencies to recoup. the cost of developing and maintaining computer mapping systems by selling, leasing, or licensing the system." (*Sierra Club II,* p. 5).

The legislative history of the PRA that both the Fourth Appellate Court and presumably the Attorney General reviewed contains a Senate amendment dated June 9, 1988 which, in the definition of computer software, seemingly inexplicably changed the term "computer readable data bases" to "computer mapping systems" (CPRA §6254.9; *Sierra Club* II, p. 9). Notwithstanding this lamentable confusion between databases and mapping systems, a further amendment to the bill, dated June 15, 1988 added the sentence "Public records stored in a computer shall be disclosed as required by this chapter." (CPRA §6254.9). Although the intent of the latter is clear, the confusion of the former substitution made it unclear exactly what elements of the data, record or operations within the computer mapping system needed to be disclosed.

The Court commented that the legislative history further explains that the inclusion in the amended bill of the phrase ‘computer mapping systems’ was at the behest of the City of San Jose, an indication of the that city’s power, which sponsored the bill and which had developed computer mapping systems with the intent of selling or licensing the software for greater than the cost of duplication, hence allowing it to recoup. the software development costs. Nevertheless, a report by the Assembly Committee on Governmental Organization stated clearly that the bill “…draws a distinction between computer software and computer-stored information.” and “…declares that information is not shielded from the [Act] merely because it is stored on a computer.” (*Sierra Club II*, p. 9).

The California Department of Finance (CDOF) opposed the initial version of the bill, which incorporated databases within the definition of ‘computer software’, stating that this was “contradictory” to the intent of the law where nothing was intended to affect access to public records because they were stored in a computer (*Sierra Club II*, p. 10). The CDOF felt that the contradiction arose because databases were “organized files of record information subject to public records law” and allowing them to be licensed and sold would violate the public’s access under section 6250, even if revenue from the sale and licensing of information and databases could be “substantial” (*Sierra Club II*, p. 10). After the statute was revised, substituting ‘computer mapping systems’ for ‘computer readable databases’, the Finance Department dropped its opposition, even noting in the “Fiscal Analysis” section of the bill, in apparent cynical contradiction to its initial opposition, that “…revenue generated by the sale of computer programs, graphics, and

information data bases could be substantial depending on…sales or licensing agreement." (*Sierra Club II*, p. 11).

The *Sierra Club II* decision also acknowledges a controversial concept within the copyright law often applied to content of a factual nature, the sweat of the brow.

"Known alternatively as 'sweat of the brow' or 'industrious collection,' the underlying notion was that copyright was a reward for the hard work that went into compiling facts." (*Feist Publications, Inc. v. RuralTelephone Service Co., Inc.*, 1991, 352). This term is used frequently in the context of copyright protection and it generally applies to a person's labor, which, it is argued, is protected specifically as an original work in the production of a database or directory. In the United States, this doctrine had previously been rejected by the United States Supreme Court case Feist Publications v. Rural Telephone Service (1991), in which a telephone directory had been claimed to be under copyright protection but in which the Court had held that a listing of facts could not be copyrighted. "The 'sweat of the brow' doctrine had numerous flaws, the most glaring being that it extended copyright protection in a compilation beyond selection and arrangement-the compiler's original contributions-to the facts themselves. Under the doctrine, the only defense to infringement was independent creation." (*Feist Publications, Inc. v. RuralTelephone Service Co., Inc.*, 1991, 353).

The *Sierra Club II* court cited various reports attached to the legislative history specifically referred to "recouping the cost of developing the software" and "to allow agencies to recover developmental and maintenance costs …by selling or licensing computer software and data bases that have been developed sometimes at considerable

public expense. Passing such costs along to those who will use them for business-oriented purposes is in the taxpayers' best interest." (*Sierra Club II*, p. 11) This discussion of allowing a public entity to recoup costs of developing software a.k.a. "sweat of the brow" work for a database is contradictory to *Feist*, which clearly rejects that line of reasoning.

The Court held that the Legislature, when substituting 'computer mapping systems' for 'computer readable databases' in the statutory definition of computer software, had sufficiently narrowed the definition so as to retain public records access rights to most computer-held information but had specifically excluded computer mapping databases "…because their development is time-consuming and costly and the Legislature has made a policy decision that local governments should be allowed to recoup. some of their development costs." (*Sierra Club II*,, p. 13-14). This reasoning was used to justify the Court's decision that Orange County could charge for and license the GI.

The parties further argued that the Sierra Club relied too heavily on the Attorney General's 2005 opinion that a GIS database is not a computer mapping system under the PRA (88 Ops. Cal. Atty. Gen. 153, October, 3, 2005(2005) (*Sierra Club II).* The Court concluded that the AG's opinion considered only the language of the Public Records Act and did not "…examine (or even mention) its legislative history", resulting, the Court concluded, in "scant analysis of the issue" (*Sierra Club II*, p. 17). The Court went on to discuss various cases that disagreed with the AG's opinion on the difference between software and data, indicating that the AG failed to consider opposing cases to its interpretation of the PRA. The Court closed its discussion of the case with the chilling,

although accurate statement that "…opinions of the Attorney General are "not binding on" the courts." (*Sierra Club II* p. 18 quoting *City of Long Beach v Department of Industrial Relations* (2004) 34 Cal. 4th 942, 952).

What the Court failed to mention is the extensive legal analysis of court cases and statutes involved in putting together the AG's opinion, which did, in fact, examine the exception under 6254.9 of the PRA, 'computer mapping systems', and which followed "governing principles of statutory construction" under California law (88 Ops. Cal. Atty. Gen. 153, October, 3, 2005(2005 p. 8). It appears that the AG followed the existing law in his determination in favor of public access to GIS databases, while the 4th Court of Appeal followed the legislative history, which is no more binding on the Court than the AG's opinion, the only legally binding mandates being the laws themselves, which include statues and application by the court (Mersky and Dunn, 2002). The Attorney General's opinion was based on the case law, which, in theory, the court could have consulted or rejected the legislative history.

How courts determine the importance of AG Opinions and legislative history is obviously critical in understanding the differing opinions. Legally an Attorney General's Office is considered an "agency" when interpreting a law or court case in California (Sutherland, 2011; cases omitted, SUTHERLAND § 49:5 4976). According to Sutherland's Statutory Construction § 49:5 (7th ed., 2011, footnotes ommitted) "Courts should be extremely careful when construing statutes enacted specifically to prohibit agency action not to allow dubious arguments advanced by the agency on behalf of its preferred construction to thwart Congressional intent… Four factors have generally been considered in attempting to ascertain whether the legislature intended to delegate

interpretive authority: (1) the language of the statute; (2) the contemporaneous history; (3) any subsequent legislative history; and (4) an agency interpretation of the statute. If examination of those four factors does not reveal legislative intent, deference to the agency interpretation of the statute is still appropriate if the agency interpretation is based upon a permissible construction of the statute.". This is the obvious interpretation that the court in *Sierra Club II* applied. The legislative intent was available and should have been considered of greater weight than the AG Opinion. Sutherland's (2011) further states that "An agency's interpretation is not binding on the courts, and will not be upheld if it is clearly erroneous or there are compelling reasons not to follow it." providing further justification for the *Sierra Club II* ruling to ignore the AG Opinion.

The Court also addressed the earlier *Santa Clara II* case directly, concluding that the 6th Appellate court had not ruled on whether Santa Clara County's GIS basemap constituted a computer mapping system because the issue was raised only in an Amici curiae ("Friend of the court") brief filed by someone who was not party to the case but believed that the court's decision might affect its interests. *Sierra Club II* also noted that Santa Clara County had argued that public access should not be allowed under different sections of the PRA (section 6255), than those that the Court was considering in the Sierra Club case. Sierra Club II also noted that Santa Clara County had conceded to the earlier Court of Appeal that its basemap was a public record and that the Court of Appeal noted that this "…concession appears well founded." (*Sierra Club II*, p. 18). The *Santa Clara II* court had noted that it had taken notice of the legislative history but that it had not relied upon this in resolving the case. The court in *Sierra Club II* further asserted that proposed legislation which had been vetoed by the Governor in 1997, along with

other more recent, although failed bills intended to clarify the issue, indicated a desire by the Legislature to allow GIS databases to be considered part of a 'computer mapping system' (*Sierra Club v. Superior Court of Orange County,* 2011).

Sierra Club II court concluded with the statement that "…whether the increasing use of GIS data in our society requires reconsideration of section 6254.9's exclusion from disclosure is a matter of public policy for the Legislature to consider." (*Sierra Club II*, p. 9, quoting *Marriage of Tavares* (2007) 151 Cal.App4th 620, 628 [the Legislature, not the judiciary, determines public policy].

With differing opinions among the lower courts of California, its California Supreme decided to consider (1) whether the Sierra Club v Orange County and CFAC v Santa Clara County cases are, in fact, arguing the same points of law under the PRA, (2) whether GIS database information should be considered separately from software, and (3) whether or not the data within a GIS database is a public record (Sierra Club v Superior Court (Orange County) Case Number S194708 (2012)).

Conclusion

These two cases decided different, but related issues regarding access to GI. In *Sierra Club v Orange County* the court ruled correctly on legislative history. It appears that the California Open Records Act specifically excludes geographic information from disclosure at the cost of reproduction. The court looked closely at the legislative history to determine this outcome but it appears the court deliberately ignored other sections of the Open Records Act in order to come to this conclusion. By not embracing the entire objectives of the Act the court has avoided the main question and based its decision on

technical information from 1988. This court ignored previous cases where it was acknowledged that GI was a public record (*Santa Clara I*), instead choosing to cite the legislative history from 1988 concerning what constitutes a computer mapping system. Instead of seeking a solution to the more important issue of the Open Records Act the court ruled on an outdated version of technology that has little to no bearing on the existing realities of data reproduction and use today. Further, this legislative history, while important in determining the meaning of the legislature when the Act was written, is not mandatory precedent but remains an interpretive tool alone. "The report of the standing committee in each house of the legislature which investigated the desirability of the statute under consideration is often used as a source for determining the intent of the legislature. This is especially true when the committee sets forth its grounds for recommending passage of the proposed bill and its understanding of the nature and effect of the measure. Committee Reports represent the most persuasive indicia of congressional intent in enacting a statute. In that light, it has also been stated that absent contrary legislative history, a clear statement in the principal committee report is powerful evidence of legislative purpose and may be given effect even if it is imperfectly expressed in statutory language." (Singer and Shambie, Sutherland Statutes and Statutory Construction, 2A Sutherland Statutory Construction § 48:6 (7th ed.) (Westlaw Database updated December 2011) (footnotes omitted).

Although these two cases and the pending Supreme Court case were heard in California, they have had, as any state's Supreme Court cases may potentially have, significant impacts on policies concerning GI data access in Wisconsin. Although there are many reasons why the California cases have been influential in Wisconsin, four

situations stand out. First, many LIO's in Wisconsin believe that access to GI is determined by the Wisconsin Public Records Law, and there is compelling evidence for this understanding. Wisconsin's and California's public records laws are very similar in language, and Wisconsin AG's have cited California law previously on different issues (see WI OAG 26-84 (January 17, 1984); WI 73 Op. Atty Gen 87 (August 17, 1984)). Although another state's case law is not binding, it could be used as persuasive precedent in any case in Wisconsin (Mersky and Dunn, 2002). Persuasive precedent is defined as a precedent which a judge is not obliged to follow, but is of importance in reaching a judgment, as opposed to a binding precedent which must be followed. Persuasive precedents assist the decision maker in determining a case (Mersky and Dunn, 2002). Given some Wisconsin data producers rely upon the Wisconsin AG Opinions of the open records act in determining access to GI, as the California cases indicate, relying on this alone would not be sufficient and a court should go back and look at the legislative history of the WLIP to interpret the meaning of the legislature at the time the laws were written.

Second, individuals who have been employed as LIOs in Wisconsin since the mid-1980s are aware of the legislative history and of the intent of the 1989 legislation creating the WLIP, which states that "…systems integration is merely intended to ensure that information that is to be shared by governmental units, *citizens*, and the private sector is in compatible and standardized formats for exchange." (Holland, 1994, p. 2, emphasis added).

Third, although not binding on a court, the policy of the state of the Wisconsin regarding access to publically produced information is stated in the 2010 Attorney

General's Public Records Compliance outline which states "A requester requesting a copy of a record containing land information from an office or officer of a political subdivision has a right to receive a copy of the record in the same format in which the record is maintained by the custodian, unless the requester requests that a copy be provided in a different format that is authorized by law. Wis. Stat. § 66.1102(4)." (Van Hollen, 2010 p. 47).

Fourth, the expert witness in both California cases and their appeals gave a keynote presentation at a regional meeting of the WLIA in June 2008, after the CFAC v Santa Clara County lower court decision, highlighting the similarities between the two states' open records laws and the requirements under such laws to share public documents. The presentation was followed by an interactive discussion in which many LIOs and other interested parties in the state participated. The author attended both these WLIA presentations, and it was clear that most participants left the meetings convinced that GI data was subject to open records laws. At least four Wisconsin counties subsequently changed their access policies to be less restrictive and costly (interviewees C, 2008; A, 2007; H, 2009; Z 16, 2011).

Chapter Four

Impact of Court Cases and Subsequent Legislation to Geographic Information in Wisconsin

Introduction

As outlined in the previous chapter the California cases have impacted four county data access policies in Wisconsin and have the potential to impact any future lawsuits concerning GI. This chapter focuses on a series of court cases dealing with access to files stored in database format. These cases centered on Wisconsin's open records law and its application to electronic databases; the Courts, according to their jurisdictions, considered copyright, the cost and format of the requested electronic records and the procedure, timing, and extent of the records requested.

The *WIREdata Corporation* is a wholly owned subsidiary of the MetroMLS, Inc**.** These two companies provide real estate and real property record information to the real estate community for most of the southern half Wisconsin. (WIREdata corporation, 2012). WIREdata Corporation, in 2001, sued Assessment Technologies Limited (AT), another company, for access to the tax assessment data that AT collected and maintained in a copyrighted and licensed software developed by AT. A series of lawsuits and counter-suits continued until 2009. This paper discusses these lawsuits and the subsequent laws that resulted from them. These WIREdata cases, (map 3) while not directly involving GI, were of concern to Wisconsin GI professionals and this research because they involved information stored in databases, and because the

information, tax assessor's data, is typically combined within LIO offices' GIS databases to fulfill statutory requirements relating to both the Land Information Program and Registers of Deeds operations. This is significant because data used in GIS systems is stored in databases and there are no lawsuits directly involving access to GI in Wisconsin. Further, these lawsuits were discussed at a meeting of the Wisconsin Land Information Association in terms of how information held in databases is subject to the Wisconsin open records law.

This paper examines the one federal case, detailing information held in databases which is copyrighted (federal law) and a series of state of Wisconsin cases that deal with that state's open records law, among other issues. These cases, while at first glance not appearing to directly involve spatial data, have had, and could have, in the future, far-reaching impacts on access to digital spatial data in the state.

After the final WIREdata case two laws concerning access to land information were changed which should have significant impact upon access to GI in Wisconsin. This research shows that one of these laws was a direct result of the final Wisconsin Supreme Court case and has the potential increase access while the other law further complicates the issue.

This chapter also highlights the ways in which these Wisconsin court cases and the political responses to them, have been used as one mechanism to force access to GI. The examination of these political processes involves scalar construction in which the political institutions, actors, movements, and networks play a crucial role (Agnew, 1997; Ghose, 2007; Herod, 1997; Herod and Wright,

2002; Leitner, 1997; Leitner et al, 2002b; Miller, 1997). "Network formation is also dependent upon an actor's ability to navigate power structures and to form powerful alliances" (Ghose, 2007).

In the broader context, besides the California cases (chapter three), there are no recent, specific cases that deal with access to GI under open records laws in other states. This is significant because each state determines access to GI within its domain. Having fifty access policies to this information is not conducive to data sharing in general and potentially fatal in times of emergency. The situation in Wisconsin is complicated by the fact that the Wisconsin Land Information Program allows each county to determine access policies to GI, creating seventy-two policies which do not facilitate data sharing within the state. Other states similarly allow local governments to determine access policies creating an untenable situation in terms of GI data sharing.

Methodology

Forty-one intensive semi-structured interviews were conducted with people from various departments within local, state, federal and regional planning commission agencies, private companies and academics directly or indirectly involved with the Wisconsin Land Information Program and Association and the attorney representing one of the defendants in the WIREdata cases. These people were provided anonymity and are referred to as interviewee a,b,c, etc. In addition I analyzed federal and state statutes, (Wisconsin), Wisconsin Land Information Association newsletters, Wisconsin State Cartographer's Mapping Bulletins, newspapers, books and conference meeting reports. I also performed extensive

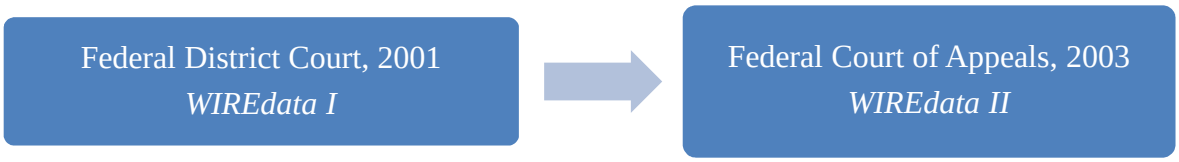
searching of legal databases LEXIS and Westlaw to obtain documents including legislative history, court case decisions and legal briefs. Multiple methods assists in verification of evidence and allows for "triangulation" of results (Yin, 2003). LEXIS and Westlaw searches have allowed "closure" in a legal sense. Closure is defined as finding the same authorities over and over. Finding a relevant case repeatedly in multiple sources indicates that one has found the right cases and if there were other relevant cases they would have been found (Cohen, *et al*., 1989). Cohen, et al., (1989) state that the "most independent research tool is computer assisted research" (Cohen, *et al.*, 1989 p 606).

Figure 5. Map of Wisconsin Counties

WIREdata case map/time line

The WIREdata cases can be mapped in two separate timelines as follows:

FEDERAL CASES: The first timeline begins in 2001 when Assessment Technologies sued WIREdata in federal court - the Eastern District of Wisconsin. The District court issued its decision in *WIREdata I*. WIREdata brought an appeal to the 7th Circuit (court of appeals), and the Circuit court decided *WIREdata II*. The parties could have appealed the case again, this time to the Supreme Court of the United States, but the case never progressed that far. Thus, the dispute brought by Assessment Technologies ended with *WIREdata II*.



STATE CASES: The second timeline begins in 2005 when WIREdata sued the City of Port Washington (and others) in Wisconsin Circuit Court. [Note: this decision is not cited in this paper so it not numbered]. The city appealed the circuit court's decision to the Wisconsin Court of Appeals, and the appellate court decided *WIREdata III*. *WIREdata III* was appealed to the Wisconsin Supreme Court in *WIREdata IV*. Again, the case could have been appealed to the United State Supreme Court. Instead, the case never went that far, and *WIREdata IV* was the end of litigation.

Overview of WIREdata cases

The first series of cases occurred at the circuit court level in Waukesha and Ozaukee Counties starting in 2001. In response to these cases being filed a federal

copyright case was initiated (*Assessment Technologies of Wis. LLC v. WIREdata, Inc.*, U.S. District Court for the Eastern District of Wisconsin (D.C. No. 01-C-789) (E.D. Wis. Dec. 23, 2002) (hereafter referred to as *WIREdata I*). This case was appealed and resulted in the second federal case *Assessment Technologies of Wis. LLC v. WIREdata, Inc.*, 350 F.3d 640 (7th Cir. 2003) (hereafter referred to as (*WIREdata II*)).

The Wisconsin circuit court reached opposite conclusions regarding whether PDF file format data complies with the Wisconsin Open Records Law when database files have been requested. The Waukesha decision found that the Village of Sussex had violated the Wisconsin Open Records Law by providing PDFs and the Ozaukee decision found that the City of Port Washington did not violate the Open Records Law for doing the same. This set up an appeal by both parties to the Wisconsin Court of Appeals where the cases were consolidated (*WIREdata, Inc. v. Village of Sussex*, 298 Wis.2d 743 (Wis. Ct. App. 2007) hereafter referred to as *WIREdata III*)). The Court of Appeals affirmed in part the Waukesha ruling and reversed in part the Ozaukee County ruling, ultimately determining that the PDFs were insufficient to meet the Open Records Law among other findings (*WIREdata III*). This finding was then appealed to and accepted by the Wisconsin Supreme Court resulting in *WIREdata, Inc. v. Village of Sussex*, 310 Wis.2d 397 (2008) hereafter referred to as (*WIREdata IV*). Each case will be discussed in detail below.

Discussion of WIREdata Cases

The assessment of property values for determining property-taxes is carried out at the municipal level in Wisconsin. Municipalities are statutorily charged with collecting

and maintaining information about properties within their jurisdiction, including the owner's name, the property's location, the assessed valuation, the square footage of improvements, the number and type of rooms, and other property characteristics. The three municipalities involved in the WIREdata case hired a private, independent contractor-assessor to perform their property assessments, and the contractor-assessor entered the raw data collected from site visits into "Market Drive", a searchable electronic database developed and copyrighted by Assessment Technologies (AT). Municipal tax officials were then given an electronic copy of the assessment data that they could view using Market Drive or MS Access (Duetch, A., Personal Communication, 2008; *WIREdata IV*, 2008).

In 2001, a series of open records requests were made to the three municipalities in the lawsuit by the WIREdata Corporation (WIREdata), a wholly owned subsidiary of Milwaukee Metropolitan Multiple Listing Service, Inc. WIREdata desired the raw property assessment data, in Excel format, which it then intended to repackage and sell in a format that would useful to the real estate community. In the requests to the municipalities, WIREdata specifically asked for the information in an "electronic/digital" format, which they later clarified to AT as a "database or comma-delimited format" (Duetch, A., Personal Communication, 2008; Farley, 2010, p. 1190). The municipalities involved had a license agreement with AT, under the terms of which they were not allowed to release the data in electronic format, so they offered to WIREdata copies of the relevant property information in paper format (*WIREdata II).* WIREdata expected this response because they had attempted to obtain the same data from the same assessor previously, without success, and they had specifically selected these three municipalities

in which the assessor worked in order to test the responses of the municipalities and potentially file an open records request (Duetch, Personal Communication, 2008).

Upon receiving word that the only copies available were paper records, WIREdata sued the municipalities to obtain the electronic assessment data. Claiming that the assessment data could not be extracted from its Market Drive software without infringement of its copyright or theft of its trade secrets, AT filed a counter-lawsuit against WIREdata in the U.S. District Court for the Eastern District of Wisconsin (*WIREdata I).*

Federal WIREdata Cases

The U.S. District Court (*WIREdata I*), ruled in favor of the municipalities and AT on the basis of AT's copyright infringement claim alone. This decision was appealed to the Federal Court of Appeals (*WIREdata II)*). The appeals court stated "that plaintiff had a valid copyright" (*WIREdata II*, 2003, p. 4) because the software satisfied the minimal originality requirement and that if WIREdata had wanted the data "sorted into AT's 456 fields grouped into its 34 tables" (*WIREdata II*, 2003, p. 5) that would be a violation of Assessment Technologies copyright. "But WIREdata doesn't want the Market Drive compilation." (*WIREdata II*, 2003, p. 5). Consistent with *Feist, WIREdata II* also found that extracting the raw data from the Market Drive software did not violate copyright law (*Feist v Rural Telephone Service Co* 499 U.S. 340,). The court opined that WIREdata did not request the copyrighted Market Drive compilation, but rather the information (the raw data) that had been collected by the tax assessors and which was in the public domain. By attempting to enforce the copyright in its software, AT was effectively

denying the public access to information that undeniably was not AT's to withhold (*WIREdata II*) . The court also noted that the information could be extracted using Microsoft Access or other programs without using the Market Drive software, an important finding that could have allowed WIREdata access to the information (*WIREdata II*). Importantly, in the particular context of GI, the Court asserted that for AT "[t]o try by contract [license] or otherwise to prevent the municipalities from revealing their own data, especially when, as we have seen, the complete data are unavailable anywhere else, might constitute copyright misuse." (*WIREdata II*, 2003, p. 6, 646-647)). The misuse doctrine is based on the copyright owner's attempt to extend the lawful monopoly conferred by copyright to unprotected subject matter or activities. If the copyright owner is deemed to have "misused" the copyright, the copyright will be unenforceable until the effects of any misuse have been eliminated (Digital Law Online, 2012). Additionally, the court dismissed as irrelevant the claims of "sweat of the brow" database protection and breach of contract (*WIREdata II*, 2003).

Of particular relevance to the current research, the Court noted the importance of the public interest in the context of federal copyright law, stating that, " [t]he public interest in [nonexclusive access to the intellectual public domain] is as great as the public interest in the enforcement of copyright." (*WIREdata II*, 2003, 436). In this respect, the court recognized the duality that was inherent in the copyright: that it involved both rights and responsibilities. There was both an ownership right and a public access right, with the balance of the two being essential to "promote the progress of science and the useful arts"; (U.S. Constitution, Article 1, Section 8 Clause 8).

Following the Federal Court of Appeals decision, the municipalities provided WIREdata with electronic portable document file (PDF) format copies of their assessment information. In this format, the information lacked the manipulability of the requested original raw data, and was essentially useless to WIREdata in the context for which they had intended to use it (Deutch, personal communication, 2008). Regardless, the municipalities filed motions for summary judgment in Wisconsin circuit court (as opposed to federal court), which resulted in differing opinions in the different jurisdictions (Waukesha County, Ozaukee County). These decisions were then appealed to the Wisconsin Court of Appeals.

WIREdata State of Wisconsin Cases

In 2007, the Wisconsin Court of Appeals considered all of the cases together as *WIREdata III*. Similarly to the Federal Court of Appeals, the State Court of Appeals ruled that the PDFs failed to satisfy the requirements of the open records law because they effectively denied WIREdata access to AT's databases. (*WIREdata III).* Significantly in the context of GI, the Court recognized that because the databases were created and maintained "…at public expense", it would be improper to deny the public the "value-added benefit of th[e] computerization." (*WIREdata III*, 2007 66).

The Court recognized that under Wisconsin Open Records Law, Section 19.36(4), while "…[a] computer program is not subject to examination or copying…the material used as input for a computer program or the material produced as a product of the computer program is subject to the right of examination and copying." (*WIREdata III*) and, WIREdata should have been allowed access to the property records databases. The

Court properly viewed the property records databases as the "material" created by the Market Drive computer program and, accordingly, the text of the statutes required that WIREdata be allowed access to the database to "examine and copy" the information (*WIREdata III*, (2007) 22, 63, quoting WIS. STAT. § 19.36(4)).

The Court suggested that one way to address open records compliance would be for municipalities to employ indemnity and hold-harmless clauses when contracting with independent contractors to work with records that are subject to the open records law (e.g. licenses). However, the court cautioned that contract provisions that limit a municipality's ability to comply with open records requests are against public policy, and would not be upheld (*WIREdata III* (2007), 22, 49).

The Court duly noted that "…[a]s technology advances and computer systems are refined, it would be sadly ironic if courts could disable Wisconsin's open records law by limiting its reach." (*WIREdata III*, (2007) 59, quoting *State ex rel. Milwaukee Police Ass'n v. Jones*, 2000 WI App. 146, 19). Clearly acknowledging the policy intent of the open records law, section 19.36(4), "…with a presumption of complete public access…" (WIS. STAT. § 19.36 (4) (2007–2008), the Court made a decision in favor of public access to government-held database information.

The Wisconsin Supreme Court Decision-WIREdata IV

The Village of Sussex and the private contractor appealed to the Wisconsin Supreme Court, requesting a review of the Appellate court decision. The particular issues that were presented to the Court for consideration and that are of direct relevance to this research were, (1) whether the municipalities denied the public records requests,

(2) whether private contractors are the proper recipients of such requests, and (3) whether an additional fee can be charged for responding to a request for electronic records databases, and whether some portion of the information should be considered confidential (Shanley, 2009).

The Wisconsin Supreme Court issued its opinion on the WIREdata case on June 25, 2008 (*WIREdata, Inc. v. Village of Sussex*, 2008, hereinafter *WIREdata IV*), partially reversing and partially affirming the earlier Court of Appeal's decision. The Court acknowledged the decision of the federal United States Court of Appeals for the Seventh Circuit concerning copyright, and ruled that extracting the raw data that WIREdata sought from the Market Drive software's database did not violate federal copyright law, and that there was no copyright restriction on WIREdata receiving an electronic version of the database (*WIREdata IV*, 2008, 24). The Wisconsin Supreme Court acknowledged that it had no authority to decide on issues concerning federal law (copyright) so its focus was on the Wisconsin public records law issues.

The Supreme Court explained its reasoning as follows:

"…the three municipalities denied the open records requests of WIREdata and, thus, violated the open records law; that the PDFs were insufficient to comply with such open records requests; that the open records law requires access to the computerized database; [and] that the "enhanced" demands did not require the creation of new records." (*WIREdata IV*, 2008, 406).

The court further stated that

> "The PDF files satisfied the open records requests of WIREdata, *as its initial requests were worded*. Our holdings in the present case are based on WIREdata's initial requests because the enhanced requests were not properly submitted to the relevant authorities. Accordingly, we need not address whether the municipalities' responses satisfied WIREdata's purported "enhanced requests" because

> WIREdata's communications with Pelkey and with the independent contractor assessors did not constitute appropriate enhanced requests to authorities" (*WIREdata IV*, 2008, 445, emphasis added).

The Supreme Court addressed the Appellate court's decision finding that WIREdata should, under the open records law, have been given access to the electronic records within AT's database and that the municipalities violated the law by not providing this data. The Supreme Court, however, disagreed with the Appeals Court that PDFs are "insufficient to comply" with the request for database records, *in this case*, although it acknowledged that the law requires access to the computerized database. This finding was based upon WIREdata's initial request for "electronic/digital" files, not the "enhanced" request for database or comma-delimited format, the request WIREdata made to the private contractor and not to the municipalities. (*WIREdata IV*, p. 5).

This finding that is disturbing in the context of open records law and access to database files specifically, the Supreme Court cautioned that allowing "…direct access to the electronic databases of an authority would pose substantial risks. For example, confidential data that is not subject to disclosure under the public records law might be viewed or copied." The Court further stated that "…it is sufficient for the purposes of the public records law for an authority, as here, to provide a copy of the relevant data in an appropriate format." (*WIREdata IV*, p. 97). What constitutes an appropriate format remained, however, open to interpretation. The Court also did not recognize that within a database "confidential data" can easily be redacted, as is required under other state statutes that deal with confidential information. In fact, it is easier to redact data from a database itself than from paper records produced from that database. The court's finding of "substantial risks" of direct access to the electronic data is clearly unfounded given

that the majority of the information is easily visible from public spaces such as the street or flying over an area and is in contrast to the findings of Santa Clara II.

In the second context that is of relevance to this research, the Court ruled that a private contractor is not an authority (*WIREdata IV*, 5) and that "…a municipality may not avoid liability under public records by contracting with an independent contractor assessor for the collection, maintenance, and custody of its property assessment records and by then directing any requester of those records to the independent contractor assessor who has custody of the sought after records." (*WIREdata IV*, p. 82). This finding is significant because, since the inception of the WLIP, many local governments' GIS databases, in addition to property assessment databases, have been and continue to be created and maintained by private contractors. The Supreme Court decision does not restrict this practice, but it makes clear that local authorities will be held responsible for meeting policy and legal contract requirements.

In the third context, whether an additional fee can be charged for responding to a request for access to electronic records databases, the court confirmed that an agency "…cannot make a profit on its response to a public records request." (*WIREdata IV*, 103). The original request to the municipalities for the digital files had been referred to the contractor, who had initially requested a $6,600 fee to program, test and export the data from the Market Drive software into a comma-delimited format. A fifty-cent per parcel fee was to be added to this, in addition to a fee for any redistribution, but the cost to be charged was later amended to a total of $3,100 (*WIREdataIV*, 101, 100). No fees were charged for the PDF's that WIREdata received from AT, so the court ruled that the municipalities did not violate the open records law. The court cited the open records law,

WIS. STAT. § 19.36(3) (a) as follows: “An authority may impose a fee upon a requestor of a copy of a record which may not exceed the actual, necessary and direct cost of reproduction and transcription of the record, unless a fee is otherwise specifically established or authorized to be established by law.” (*WIREdata IV*, 103). This confirms that authorities can charge a fee for access to database records, but not one that exceeds the actual cost of reproduction, unless permitted by another specific law that allows for the excess charge.

Analysis of the Supreme Court Decision

The Supreme Court effectively avoided the main issue at the heart of the WIREdata case, which is the apparent conflict between the open records law and copyright law, and left unanswered the question, “Does a municipality have to provide information in copyrighted database format under an open records request?” This sets up the dynamic of power between federal vs. state law and goes to the heart of the issue of federalism. If government produced information can be withheld under copyright law, then the public loses out on access to information that under the open records law they are entitled to. This could potential result in government entities shielding information from the public by placing information under copyright protection, at least the arrangement of the facts but not the facts themselves as is clear from Feist. It is presumed that the court will have to decide on this issue at some point in the near future (Farley, 2010). The Open Records Law, section 19.31 (WIS. STAT. § 19.31 (2007–2008)) “. . . is one of the strongest declarations of policy to be found in the Wisconsin statutes." (*WIREdata IV* quoting *Munroe v. Braatz*, 201 Wis. 2d 442, 449, 549 (Ct. App. 1996)), and other courts have opined that the concept of open access to records under the

open records law should prevail over copyright law. Writing for the Seventh Circuit Judge Posner observed: "Similarly, if the only way WIREdata could obtain public-domain data about properties in southeastern Wisconsin would be by copying the data in the municipalities' databases as embedded in Market Drive, so that it would be copying the compilation and not just the compiled data only because the data and the format in which they were organized could not be disentangled, it would be privileged to make such a copy, and likewise the municipalities. For the only purpose of the copying would be to extract noncopyrighted material, and not to go into competition with AT by selling copies of Market Drive. We emphasize this point lest AT try to circumvent our decision by reconfiguring Market Drive in such a way that the municipalities would find it difficult or impossible to furnish the raw data to requesters such as WIREdata in any format other than that prescribed by Market Drive. If AT did that with that purpose it might be guilty of copyright misuse, of which more shortly." (*WIREdata II*, p5).

To further illustrate this point in and in relation to the California cases, in *CFAC II* the Court observed "As a matter of first impression in California, we conclude that ***end user restrictions*** are incompatible with the purposes and operation of the CPRA [California Public Records Act]." (*CFAC II*, 399). This court continued "The CPRA contains no provisions either for ***copyrighting the GIS basemap*** or for ***conditioning*** its ***release*** on an ***end user or licensing agreement*** by the requester. The record thus must be disclosed as provided in the CPRA, without any such conditions or limitations." (*CFAC II* at 400, relying on *Microdecisions, Inc. v. Skinner*, 889 So.2d 871, 876 (Fla. App. 2004). In a case from Florida, *Microdecisions, Inc. v. Skinner*, 889 So.2d 871, 876 (2004) the court noted: "The Florida public records law, on the other hand, requires State

and local agencies to make their records available to the public for the cost of reproduction."

Specifically concerning GI, *Feist* (1991, p. 347-48), states that state or local copyright in the memorialization of physical realities is prohibited. For example, this would not permit a copyright in survey information or in basic records of land ownership. In Mason v. Montgomery Data, Inc., (765 F. Supp, 355) it was noted "In other words, when the copyright lies in the arrangement of facts, only the arrangement is protected by the copyright. Obviously, the plaintiffs could not copyright the information in the public records but they do purport to have copyrighted the arrangement of the information on the maps." And "Similarly, the instant case which deals with factual matters such as drawing the abstract, tract boundaries and the ownership, name and tract size, the facts themselves are not copyrightable but the expression of the facts and their arrangement may in some instances be copyrightable."

Ironically in the WIREdata case, there was, in fact, an easy way for the municipalities or AT to provide access to the requested data contained within the software, since the software was capable of exporting the data as Microsoft Access database files. "WIREdata would not be receiving a copy of the source code or object code which instructs the program to run—that is the Market Drive software. Instead, a copy of the Access database would provide only the factual assessment data, an output of a computer program…" (*Assessment Technologies of WI, LLC v. WIREdata Inc.*, 2003 WL 22721370 Reply Br. Defendant-Appellant. (7th Cir. Aug. 07, 2003).

WIREdata requested the data within the software, not the software itself, which is a computer program that under the open records law is "…in [section] 16.971(4)(c), not

subject to examination or copying under [section] 19.35(1), but the material used as input for a computer program or the material produced as a product of the computer program is subject to the right of examination and copying." (WIS. STAT. §19.36(4)). The Supreme Court would easily have found that the records exported as Access files would meet the requirements of the open records request because the data within the database is clearly not a computer program under state statute.

The Wisconsin Open Records Law (Statutes sections 19.35(1)(b), (c), and (d)) requires that copies of records, regardless of format, be "…substantially as good as…" the original copies used by authorities. Accordingly, the Wisconsin Public Records Law Compliance Outline (2007-2008, 2010) written by the Attorney General states that, "…by analogy, providing a copy of an electronic document that is "substantially as good as" the original is a sufficient response where the requester does not specifically request access in the original format." It is quite clear to anyone who uses database files that PDFs are not manipulable, and therefore not "substantially as good as" an Access file or a comma-delimited file. Why this was not made apparent to the Supreme Court or if, in fact, the Court purposefully chose to avoid the issue on a technicality is not known but can only be surmised.

Indeed the situation is sufficiently unclear that the Attorney General added commentary to the 2010 Wisconsin Public Records Law Compliance Outline citing the WIREdata case:

> "The Wisconsin Supreme Court declined to address the issue of whether the provision of documents in PDF format would have satisfied a subsequent request specifying in detail that the data should be produced in a particular format which included fixed length, pipe delimited, or comma-quote outputs…leaving questions

> concerning the degree to which a requester can specify the precise electronic format that will satisfy a record request to be answered in subsequent cases. Thus, it behooves the records custodian that records be provided in a particular electronic format or to state a legally sufficient reason for denying access to a copy of a record in the particular format requested" (Van Hollen, 2010, p 46).

The Attorney General came to the conclusion that, given the Supreme Court's apparent avoidance of the issue in the WIREdata ruling, agencies should continue to provide data in the electronic format in which it is requested. While this is advised, the Compliance Outline has no legally binding authority (Mersky and Dunn, 2002) and agencies may chose to ignore it, as many Wisconsin counties will probably elect to do in order to continue to raise revenue by selling land records.

While the Supreme Court acknowledges that information input and exported from a database is subject to the open records and also affirms that an agency may not charge in excess of the actual cost to reproduce a record, both valuable for the concept of access to GI, the decision raises questions that could lead to future court challenges concerning the file type that meets these requirements.

The Court avoided the issue at the heart of the case on a technicality, the initial request WIREdata made and therefore failed to meet the needs of discerning access to information stored in a database. By failing to address these concerns WIREdata and the real estate industry resorted to legislation to change the laws requiring access to information in particular formats.

Wisconsin Land Records Post-WIREdata

What perhaps most disappointed GI professionals and others who use database files, is that the Supreme Court did not specifically address whether PDF files would be

sufficient to meet an open records request to a government authority for a database or comma-delimited file. The Court reserved this question for a later case, indicating an application of its power. The decision thus leaves unclear what type of files GI professionals need to provide when confronted with requests for digital spatial data. The court found that "electronic/digital" files met the terminology of the initial request in this particular case, and then rationalized that it did not matter that the files "…did not have all of the characteristics that WIREdata wished." (*WIREdata IV*, p5). This rationalization led to direct action by the real estate industry, via the WIREdata Corporation, to work successfully to change the statutes that govern Chapter 19.35, the Open Records Law and Chapter 66, General Municipality Law, subchapter XI Development, section 1102 Land development; notification; records requests (2010). The changes to Chapter 19 dealt with contractors' records, with the goal to overrule the *WIREdata IV* ruling held, which was that the charge for a copy of records may not exceed the contractor's actual, necessary and direct cost of reproduction. The changes to Chapter 66 dealt specifically with land information and the format in which it may be accessed from local government authorities.

The two bills that Wisconsin realtors successfully introduced are what are known as "companion bills", i.e. two different bills with identical text that are introduced in each house, the Assembly and Senate. Although some bills have companion bills in the other house, most do not, nor is there any requirement that identical bills should to be introduced in each house. Indeed, passage of a separate companion bill in its respective house of origin, without the other companion bill being passed by the other house will prevent the bill from becoming law; the two chambers must agree on

passage/concurrence of the same bill in identical form, including amendments (Barish, 1994). In this instance, the bill that was acted upon by both houses (with an amendment in the Assembly before it continued on to the Senate) was 2009 Assembly Bill 638, which passed into law as Act 370 in 2011.

It is obvious from the drafting records of Wisconsin Act 370 (2009) that the attorney representing WIREdata Corporation, Alan Deutch, and the "…realtors who brought this to our attention…" (Senator Pat Kreitlow, who introduced the bill into the Senate, from an email from Kreitlow's staff dated May 19, 2009) were acting to change the legislation (AB 638) as early as September 9, 2008. The initial changes proposed were only to Chapter 19 of the Open Records Law, which concerned the fees that contractors could charge, and to Section 4, which concerned the format in which the data would be made accessible. At that time there was no language concerning land records.

Sub-section 4 of chapter 19 on Computers Programs and Data was proposed to include: "…the material used as input for a computer program or the material produced as a product of the computer program is subject to the right of examination and <u>copying and, if so requested, shall be computer-readable reproduced in the same electronic format or file types as normally maintained by either the authority or the authority's contractor,</u>…" (proposed language underlined, 2009 Drafting Request, March 30, 2009). What is of special interest in this drafting record is the inclusion of a LexisNexis (legal database) printout of the Wisconsin Code Archive Directory for chapter 19. In addition to the changed language incorporated into the search results, shown above, there is a small notation at the bottom of the last page: "send to: Deutch, Alan, Alan H Deutch SC Milwaukee, WI". Presumably this is because Mr Deutch initiated the change in language

or suggested the change in language after the WIREdata Supreme Court ruling. It is impossible to know exactly what role the attorney for WIREdata, Mr Deutch, played in the matter because a request to him for information was ignored, and such details are not included in the draft legislation documents. What is known is that the search on the LexisNexis database and the subsequent printout were sent to Mr Deutch on September 9, 2008, approximately 10 weeks after the court's decision that PDF's were sufficient to meet WIREdata's request. The realtors did not waste time changing the statute that the Supreme Court had dodged, not the question of the conflict between the open records law and copyright law, but that of their most material concern, access to the land records in the format in which they are maintained, at the cost of reproduction.

The next action involved a drafting request by Senator Kreitlow on April 27, 2009, asking only that chapter 19 should be changed. Action on the bills then stalled for several months, although a number of co-sponsors were found in both the Assembly and the Senate, and the companion bills were finally introduced as Senate Bill 426 on December 15, 2009 and Assembly Bill 638 on December 22, 2009, shortly after which they were referred to committees, at which public hearings took place. At the time of their introduction, both bills were intended both to update the open records law and to create a new sub-section of that law relating to the format and fees for obtaining copies of public records, as outlined above.

On January 20, 2010, the Senate Committee on Ethics Reform and Government Operations held a public hearing on Senate Bill 426. Among the list of people who made appearances advocating for the bill were Alan Deutch, Milwaukee, WIREdata Corporation and Peter Shuttleworth, Milwaukee, WIREdata Corporation. In appearance

for information only was Mike Lettman, Madison, Department of Administration Division of Enterprise Technology, the division in which the state Geographic Information Officer resides. Registered for information only was Sharon Martin, West Bend, Wisconsin Register of Deeds Association (Register of Deeds from Washington County). No one appeared or registered against the bill.

The list of people registered for the bill and for information only is important in understanding the role of power in the final passage of the law. The two representatives from WIREdata were obviously advocating for the law in response to the Supreme Court ruling. That a representative of the Register of Deeds Association was registered was significant in that a number of members of the Association are also involved in the Wisconsin Land Information Association, and because a number of Registrars of Deeds also hold the title of Land Information Officer in their respective counties. In addition, two WLIA members are assigned to a committee of the Register of Deeds Association, including one who is also a member of the Wisconsin Counties Association (WCA) and also a WLIA board member. Given these intimate linkages, it is astonishing that the WLIA and WCA subsequently appeared to be unaware of the new changes to the laws that affected land information, and that their representatives failed to bring the matter to the attention of the wider WLIA membership, although it appears that the representatives of the Register of Deeds Association did not even pass on the details of the bill to their general membership.

Apparently in response to information presented in the January 2010 hearing, Senator Kreitlow introduced an amendment specific to land information on February 22, 2010. "Senate Amendment 1 provides that the authority of a records requester to receive

a copy of a record that is in a different format than the one maintained by the record custodian is limited to a request to a political subdivision for a land information records. The term 'political subdivision' is defined to mean a city, village, town, or county." (Wisconsin Legislative Council Amendment Memo, 2009 Senate Bill 426, Senate Amendment 1). It is presumed that this amendment originated with or was influenced by the WIREdata representatives, although the reason for the convoluted language is unclear.

On February 24, 2010, a second public hearing was held by the Assembly Committee on Urban and Local Affairs. The only person registered for interest was David Callender, Madison, of the Wisconsin Counties Association. No one appeared either for informational purposes or against the bill. That a representative of the WCA appeared for the bill is of interest, because many members of the WLIA are also members of the WCA. Again it is surmised that the information contained within the bill was not passed on to the general membership of the WCA, hence failing to come to the attention of WLIA.

On March 4, 2010 Representative Kristen Dexter introduced to the companion bill, Assembly Bill 638, an amendment on land information. This contained wording similar to, although in plainer English (see below), to that in the amendment introduced in the Senate in February. The amendment was adopted in the Senate on April 7, 2010, and in the Assembly on April 13 of that year. The bill was then read for the second and third times in each house and was concurred in the Assembly and Senate on April 22. It was enacted on May 18, 2010 as Wisconsin Act 370 and was published (date of effective action) on June 1, 2010.

The specific amendment that concerned land information appeared in Chapter 66, whose final wording states, “Whenever any office or officer of a political subdivision receives a request to copy a record containing land information, the requester has a right to receive a copy of the record in the same format in which the record is maintained by the custodian, unless the requester requests that a copy be provided in a different format that is authorized by law.” Incredibly, as of October, 2011, no members of the WLIA legislative task force were aware of the passage of this law, neither were the President of the WLIA nor members of the State Cartographer’s Office, although members of the Department of Administration, the agency overseeing the Land Information Program, were aware (Interviewee Z 15, 2011). Whether by intent or otherwise, the placement of the land information legislation in a section on land development and records requests, rather than in the open records law or in the sections that govern the Wisconsin Land Information Program, allowed this absolutely critical piece of open access legislation to avoid detection by the groups most affected by it, and therefore avoided professional and/or public controversy.

An investigation of the Senators and Representatives who introduced the bi-partisan bills reveals that four of the eight had received campaign contributions from the real estate industry. According to the Wisconsin Democracy Campaign, the real estate industry represented the fourth largest contributor to the campaigns of two of these politicians, and although neither of these two actually introduced the amendments, neither had received contributions from the industry prior to the weeks preceding the votes on these particular bills (Wisconsin Democracy Campaign, 2011).

Among other things, what is ironic here is that, in a self-interested effort to direct revenues to its own members, the real estate industry, via the WIREdata Corporation, effectively changed the law so as to allow public access to local government authority land information at the cost of reproduction, thus accomplishing something that open-access advocates had for years failed to accomplish through selfless reason! Many local authorities remain opposed to providing data at the cost of reproduction, which WIREdata and its associates in the real estate industry well knew when they had the wording buried in an obscure sub-section of the law that no one in the WLIA monitored, and where it escaped the attention of the WLIA legislative committee and the WLIA lobbyist.

Wisconsin Act 314

Moving through the legislature at the same time as Act 370 was what was to become Act 314, which also had direct impact on land information in Wisconsin and whose passage shows the power of the influence of the Realtors Association in the Wisconsin political arena. In contrast to Act 370, Act 314 was initiated by members of the WLIA, and was "in the works" for at least four years, although it was not enacted (in 2010) until after the Realtors Association became involved following the WIREdata ruling.

Act 314 addressed the document recording fees that fund the Land Information Program, and established a flat fee of $25 per filing, or $30 if $5 of that $30 is used to redact social security numbers from electronic format records on the Internet. Of the $25

or $30 fee, the relevant county can retain $8 for land records modernization, an increase of $2 over the previous legislation.

Act 314 also included two other major changes affecting land information and LIOs. The first, under Section 16.967(7)(a), included language that requires a county to make "…public records in the land information system accessible on the Internet before the county may expend any grant moneys…" (sic). The second, a direct result of the *WIREdata IV* lawsuit, is a new section of Chapter 59.72(3m), which created in each county a Land Information Council (LIC) to oversee the Land Information Office. Under the direction of the relevant county board, each LIC consists of not less than eight members, including the county Register of Deeds, the county treasurer and, if one has been appointed, the county real property lister or his/her designee. In addition, each county board appoints to the LIC the following: a member of the board, a representative of the land information office, a realtor or a member of the Realtors Association employed within the county, a public safety or emergency communications representative, the county surveyor or a registered professional land surveyor employed within the county, and any other members the board designates. The inclusion of a realtor is the obvious link to the Realtors Association's assistance in the drafting and passage of the law.

One individual county Land Information Officer was particularly influential in the development of Act 314. For several years, this LIO and the Register of Deeds in the same county worked to have the recording fee that is collected when a property is sold changed from $11.00 dollars for the first page and $2.00 for each subsequent page to a flat fee of $25 (except for change of address which was exempt). Their numerous

attempts to change to this fee, which was a controversial issue within the WLIA, failed consistently. Within the WLIA, the main controversy concerned "fixing what ain't broke" (Interviewee D, 2008), and drawing the existence of the fee to the attention of the state legislature, whom it was feared, given previous difficulties, might potentially move to have it reduced.

Despite the lack of unanimity within the WLIA, the Land Information Officer in question worked closely with the Realtors Association (RA) lobbyist and several legislators on the formulation of Act 314. He describes the Realtors Association's involvement as "instrumental" in passage of the bill, and admitted that he worked with the Association's lobbyist "from the start" (Interviewee Z16, 2011). This cooperation was essential in getting the bill passed, as lack of communication with the realtors was thought to be why previous versions of the bill had failed to be adopted. In this instance, the Realtor's Association's lobbyist spoke at both Senate and Assembly hearings in favor of the bill, noting that, even though the group "normally opposes fees" but it supported this one because the Association needed and wanted access to this data in question (Interviewee Z16, 2011).

Thus, the realtors, having failed to gain access to land information in a manipulable format via the WIREdata Supreme Court ruling, were influencing the state's legal framework in an attempt to facilitate such access it in the future. The RA lobbyist's testimony and support were described as "the key" to the passage of Act 314 in 2010 (Interviewee Z16, 2011). Not coincidentally, the structure of the new county Land Information Councils, particularly the inclusion of a realtor on each LIC, was based on

the structure in existence in the "instigator" Land Information Officer's county at the time that the legislation was drafted (Interviewee Z16, 2011).

Discussion of Acts 370 and 314

Acts 370 and 314 were enacted within a week of each other in 2010, and they are testimony to the power of the Realtors Association and to the efficacy of the legal tactics that the RA employed after the "defeat" of the WIREdata. However, like all legislation, the Acts leave "gray areas" which an experienced and accomplished attorney might be able to exploit in order to limit access to land records in Wisconsin. Additionally, because Act 314 mandates that all 72 Wisconsin counties develop Internet-accessible land records, it may in effect counteract the Act 370 requirement that land information be made available in the format in which it is maintained. Internet files, like PDFs cannot be manipulated in a GIS. If counties have their land information available in an Internet-accessible format, their corporate counsels may argue that that format is one in which the data is *maintained,* and that providing such Internet access therefore meets the technical requirements of law, even though this format is analogous to PDF files or mere pictures of the data, and is not in a format that allows it to be manipulated by GIS software. Although the Attorney General's 2010 Wisconsin Public Records Law Compliance Outline states that, "…the Attorney General advises that agencies may not use online record posting as a substitute for their public records responsibilities; and that publication of documents on an agency website does not qualify for the exceptions for published materials set forth in Wis. Stat. Section 19.32 (2) or 19.35(l)(g)." (Letter from James E.

Doyle, Wisconsin Attorney General, to John Muench (July 24, 1998) (Wisconsin Department of Justice, 2010, p. 45), this outline is not legally binding (Mersky and Dunn, 2002) and is not a formal opinion.

These acts set up a situation analogous to the WIREdata Supreme Court decision (PDFs are acceptable) or could, if a case concerning GI was appealed to the Wisconsin Supreme Court, result in a similarly disconcerting finding by the Court. Alternatively, and the goal of Act 370 should be to reinforce the requirements of the open records law that GI be accessible to the public for the cost of reproduction and in a format that is useable. As often happens in the law, the ambiguities and the conflicting nature of these laws opens them to Court review. Given the history of data sharing in Wisconsin it is a decision most likely that will be made by the Wisconsin Supreme Court and the outcome is impossible to predict.

Conclusion

One of the main purposes of the Wisconsin Land Information Program was to improve data sharing of land information between multiple units of government and citizens. The laws creating the Program require that Land Information Officers abide by the existing laws of the State. These include the state Open Records Law. However these laws can be abused, as pointed out in *WIREdata II;* the issue of copyright misuse and licensing to control the downstream use of GI can be used to leverage other rights not recognized in copyright or contract law. Enforcing the laws as written is one of the main challenges to access. With no court case specifically regarding GI access in Wisconsin the impact of laws and court cases in other states have significance for policy

implementation within Wisconsin. The two cases in California, *CFAC v Santa Clara* and *Sierra Club v Orange County* are of interest regarding GI access in all states. As these cases produced conflicting results, there is little certainty as a result. Yet the California cases demonstrate that issues regarding access to GI will continue to arise until either the courts or legislatures address this issue in light of the technology and demands for access.

It is ironic, given the WIREdata ruling, that the Wisconsin Court of Appeals acknowledged this need to maintain currency with technology regarding open records "…[a]s technology advances and computer systems are refined, it would be sadly ironic if courts could disable Wisconsin‘s open records law by limiting its reach." (*WIREdata III*) . The apparent conflict in the Open Records Act regarding whether GI is a public record or not appears to be the main issue now present before the California Supreme Court.

The WIREdata rulings provided some clarity concerning copyright and licensing of data stored in databases in Wisconsin. The U.S. Court of Appeals warned against copyright misuse by data providers, including counties and municipalities that control data that is not available elsewhere. The majority of GI in Wisconsin, created by the laws of the WLIP, falls into this category and thus are subject by data providers to copyright misuse when the local governments attempt to use copyright or license as a means to deny access to GI. Twenty four counties in Wisconsin in 2009 claim they copyright their data, the latest year such data is available (Herreid and Wortly, 2009). Not all of these counties attempt to misuse copyright but might open themselves to such charges in a lawsuit.

The U.S. Court of Appeals and the Wisconsin Court of Appeals found that PDFs were insufficient to comply with the request by WIREdata because the data could not be manipulated in the same ways as which the data held by the authority was. That the Wisconsin Supreme Court disagreed, based only to whom the request was made and the original wording of the request, is an egregious mis-reading of the Open Records Law, in effect denying access to what is undeniably public data. Using a technicality to avoid a serious discussion of the convergence of technology with the law, when it is known that the law often lags behind technological changes, is an abdication by the Justices of their duty to uphold the doctrines of law, although it is not the role of the judiciary to legislate from the bench. In this case the Open Records Law which ". . . is one of the strongest declarations of policy to be found in the Wisconsin statutes." (*Zellner v. Cedarburg Sch. Dist.*, 2007 49; citing *Munroe v. Braatz,* 1996, 449) and has been disregarded. The Court further showed their lack of understanding of the subject of newer technologies and land records specifically, by declaring that the data within the databases could pose substantial risk if distributed in database format. This has been shown in the *CFAC v Santa Clara* case and also by federal policy concerning Critical Information Infrastructure to be untrue concerning basic geographic features on the land.

Overall, the WIREdata decisions advance the control of proprietary rights while mudding the legal landscape concerning the open records law. One way to address open records compliance would be for municipalities to employ indemnity and hold-harmless clauses when contracting with independent contractors to work with records that are subject to the open records law as suggested by the Wisconsin Appeals Court. Many counties already employ indemnity clauses in licenses and most employ a disclaimer on

any products displayed or distributed whether or not there is a license. Licenses that require attribution and indemnity clauses would offer the best legal protection to a local government and provided that restrictive terms of use are excluded, could provide the best option for GI distribution and access in Wisconsin. The problem with licenses is that while legally binding and therefore absolving the licensee of liability, the reality of GI use is such that many different sets of data are combined into one file in any project. Ultimately what would be most beneficial is metadata (including liability information) that continues with an individual layer for its lifetime and block publishing of the final product without some attribution on the final product. That way when multiple files are put together the issues of liability and attribution would be provided in any downstream use.

Unfortunately, the reality is that even with restrictions and licenses few local governments have the personnel or time to enforce them. This is especially true with recent cuts in budgets due to the economic downturn. Many local corporate counsels know little about copyright law/licenses for GI and virtually nothing about GI or the WLIP laws. They do know about open records law, primarily concerning open meetings but if challenged by attorneys with specialized knowledge would most likely have difficulties supporting existing policies. LIOs abdicate responsibility to higher authority when questioned about GI access presumably fearing criticism or aware of discrepancies with their policies and open records law and WLIP laws.

If no one enforces the licenses presently it is doubtful any future enforcement would occur. The local governments that do license are working on the “trust” principle—trust goes both ways—the data producers only provide data without license to

those they "trust" but "trust" those they charge/license to abide by it, with no enforcement. The question then is, why license? What kind of "trust" is this? Authoritarian, government-controlled trust? Trust in the legal system? Trust based on power/position? Does trust require power of one or both parties? Where does the power lie? In legal terms, power does reside in copyright/license, but if no one enforces these it is a false power, invalidating the principle of trust upon which it is predicated. So while the licenses/copyright appear to confer power with the trust it is actually powerless without the enforcement.

The laws created after the Supreme Court WIREdata decision concerning access to GI both increase access to GI. Whether that is viewing GI online at authorities' websites as provided by 314 or requiring data to be distributed in the format in which it is maintained by 370. Potential issues arise from the conflict of formats that GI is required to be maintained in each law. Act 314, by requiring authorities to provide internet accessible GI also therefore requires the data producer to maintain the data in that format. This could potentially invalidate the ultimate reason Act 370 was drafted; that the data be accessible in a format that can be manipulated by GIS. This conflict could be addressed in future laws, if the parties that maintain the data have the will to address it, but the issue will most likely be decided in a court of law. It is hoped a court charged with such a duty will see that the goal of both laws is to increase access to GI. Acts 370 and 314, while in theory clarifying the problem the Supreme Court created in *WIREdata IV,* did not solve the issue of access to publically produced data held in database format and creates potential new issues that could similarly be "resolved" on a technicality created between the laws.

Understanding the goals and motivations of actors and organizations that influence the legal and legislative processes concerning access to GI within the socio-political realm in which they are situated is necessary to understanding the formation of the power that they control. Access to information is controlled by copyright, license, policies and court decisions. Those who control these mechanisms utilize the power this control conveys. In Wisconsin, at the local level (county, municipality) GI professionals, along with their overseeing boards, control copyright and licensing decisions. Ultimately, however political power trumps control mechanisms at the local level. The power of many people, as an agent, created the WLIP through the political process and just as power created the WLIP, power became based in the resulting political and structural processes of the WLIP. The laws that created the WLIP were written to be inclusive and egalitarian so that all that were involved professionally with land records and more importantly, so that all state citizens could benefit from the Program. That the power conferred to the counties in the form of independent policy formation was abused by not adhering to the original goals of the Program regarding access to GI is the result of little oversight by the state level administrator's of the Program. In the early years this was the WLIB and in later years the DOA. No county was ever audited concerning use of the WLIP funds (interviewee D, 2007) and no county was ever challenged concerning licensing and charging beyond the cost of reproduction (interviewee Z13, 2010). This lack of oversight allowed the abuse of the power to continue until an outside group, the real estate professionals in the guise of WIREdata, to sue for access to similar land information that was in line with their interests. The WLIA, failing to address these issues and force one of the oversight bodies to abide by the principals of the Program and

stated laws of the State concerning access to GI, has failed in its obligation to the people of Wisconsin. This is further evidenced by the complete lack of discussion by members of the land information community on a listserv devoted to LIOs in the state after the decisions of the California lawsuits and the complete lack of knowledge of law 370 (interviewees Z16, 2012; Z17, 2011). The WLIA, created by the original founders of the Program and other interested parties does have changing membership of their board and is designed to be inclusive of all members opinions. The lack of a unified voice is a result of the disparate membership, from land information officers, real property listers, surveyors, state workers in many disciplines and academics etc. The organization is dominated by county level employees tasked with creating the layers outlined in the WLIP legislation. This has created a powerful class of individuals with the ability, if not the will, to affect changes in the laws concerning GI access. This power needs to be tempered by state law or policy to achieve the goals of the Program.

This research shows that for many individuals in position to control access to GI at the local level, providing GI at the cost of reproduction will not happen without a legal or court mandate. The WLIP was promulgated on the use of a "carrot", money coming to the counties and state and then redistributed back to the counties via the real estate transfer fee. The use of a "stick" will be required to get access to GI at the cost of reproduction. The concept "white knight" has been used in the context of a powerful advocate within organizations to promote the sharing of GI (Craig, 2005). While "white knights" can increase data sharing within the organization in which they work, they usually do not have enough influence at state and federal levels to fully advance state-wide or nation-wide GI data sharing. Perhaps it is now time for the concept of the "black

knight"(seen as "evil" to those who prefer to limit access to GI information) to enforce the existing laws concerning access to GI, whether through judicial or legal processes, especially at state-wide or national levels. The attorneys for WIREdata attempted this but unfortunately this case did not directly deal with GI and few policies have changed.

Until local units of government are specifically targeted for access to GI at the cost of reproduction the remaining policies will not likely change. The attorney general's guidelines on open records are just that, guidelines. It will likely require legislation specifically targeting GI or a court case against a data provider to get those that have power over access to GI to comply with existing or future laws. In an ideal world, national legislation would mandate GI data sharing between all levels of government and citizens. Given most state and local agencies view the intrusion of the federal government into their policies as anathema (Folger, 2012), federal or state legislation could be the "black knight" needed to spur the sharing of GI. This is unlikely to happen any time soon given the present political climate. In Wisconsin, the lack of will of the WLIA to demand data sharing, the most likely scenario is a court case to enforce existing laws, the open records law and Act 370 specifically. The question is who will be the "black knight"? The real estate industry is, at this point in time the most likely candidate.

The political process would be the best way to guarantee access to GI but must consider possible intentional or unintentional application of laws created. The other option, the judicial process is no guarantee that the existing legislative intent will be followed. Attorneys can easily find flaws in laws passed to deny or limit access. Any well organized and well financed group or organization may influence the political process. So where to find the best way to achieve access to GI? By involving all groups

in the process—those same groups who came together by the academics in Madison in the 1980s to create the WLIP and collectively working on iron-clad legislation and with the legislature, bi-partisan, to get it passed. Unfortunately the will (interviewee Z16, 2011) no longer exists and the polarized political reality of Wisconsin in 2012 simply will not allow for such an enlightened ideal.

Overall, the cases in California and Wisconsin expose the danger of not having current, specific legislation regarding access to GI. While California's law specifically allows for the charging beyond the cost of reproduction for "computer mapping systems" and presumably data from them, as an exception to the Public Records Law in that state, the differing rulings in the two cases show the need for current legislation that complies with the PRA. In Wisconsin the laws creating the WLIP do provide a clear mandate for sharing GI in compliance with the Open Records Law. Given that the situation of these two states, both with laws presumably addressing access to GI and the lack of compliance or knowledge of the laws, extrapolating this to the national level indicates the need for a federal law, mandating GI data sharing. While unpalatable to state and local agencies such a law would simplify the existing hodge-podge of state and local policies and laws.

Another option could be the broad adoption of Creative Commons licensing, allowing for attribution and downstream use of GI which could help alleviate the use of more limiting licenses in place in some counties today. Unfortunately there has been scant information provided to data producers about Creative Common licensing at the local level in Wisconsin (interviewees Z17,2012; interviewee Z16, 2012). If a method could be developed to indicate license terms within metadata for individual layers that were based upon Creative Common licenses the need for restrictive licensing could be

eased significantly. Until there is a state-level requirement for CC licenses the use of these licenses is unlikely to be broadly adopted. Any future legislation concerning the WLIP should include such a provision, either as a requirement for receiving funds through the Program or with enforced penalties for non-compliance.

The picture of GI access is messy, uncoordinated and not enforced by existing legislation or license in Wisconsin. The seventy-two counties have seventy-two policies on access to GI and this situation should not be allowed to continue. The legislation creating the WLIP empowered and financed the counties creation of the data but the lack of enforcement of the agreements governing the funds has created a lack of consistency in GI access. The laws further require adherence to existing laws, including the Open Records Law but this is either forgotten or ignored by many county agencies. Those counties that do share data cite the Open Records Law as the reason they do so (interviewee Z7, 2010).

Overall the structure of the WLIP, advocating local control at the county level has failed to produce a uniform data sharing policy as envisioned by the founders of the Program. Legislation, at the state or federal level, specifically targeting GI data sharing, whether at the state or federal level would go far to alleviate the lack of coordination.

Conclusion

Introduction

Existing research has shown that the technical issues of data sharing have been largely resolved (Harvey and Tulloch, 2006). However, the legal issues of data sharing still remain ambiguous; this is especially true of GI produced by governments at the local level. In-depth analysis of spatial data infrastructures and their impact on data sharing at the local level are largely absent. This dissertation has investigated this gap through examining the case of the Wisconsin Land Information Program and the networks that formed, which are scalar, legal and political, and that control access to GI in the state. By focusing attention on the issues in Wisconsin, I have explored where the power resides in control of GI, and contributed to the GI science and legal and policy literature concerning access to the most detailed GI available.

This was an extended case study of the history of the Wisconsin Land Information Program, the statutes that govern access to GI, as a social construction and relevant court cases that have impacted and will continue to impact GI access in the State (Burawoy 1991; Yin 2003). The intent was to expose the various legal/social/economic and political mechanisms that influence this access. This was accomplished by utilizing multiple theoretical frameworks. These include the politics of scale, neoliberalism, critical GIS and legal and policy analysis to articulate the complexities of access to GI. The combinations of these theories are complimentary and allow deeper exploration of the social construction of access to GI over time. In particular, I have examined the contexts in which GI access was created and impacted via actors/networks, court cases

and legislation in Wisconsin via two papers in the preceding chapters. In this chapter I summarize the major findings and discuss their significance, recommendations for the future and the limitations of this research.

Major issues were discovered by experiential knowledge; document analysis of licenses, meeting minutes, policy documents, legal documents, state laws, journal and newspapers articles, participant observation of meetings and analysis of forty-one semi-structured interviews. The following questions guided the data collection and analysis:

1. Who or what controls the power over access to GI in Wisconsin?

Access to GI in Wisconsin developed as a result of the laws that implemented and modified the Wisconsin Land Information Program. The stated policy of the original WLIP legislation included that the data created be accessible to all and subject to existing state law, including the open records law. Along with these laws, the ruling in one court case, *WIREdata IV*, led to a new law concerning access to land information. Those actors and networks that influenced the various pieces of legislation wield the greatest power to control access to GI in the state. In addition, local government land information professionals and their county boards determine policy at that level and also influence access. This research shows that those that license and charge in excess of the cost of reproduction do so in violation of the State's open records law and the laws governing the WLIP.

2. What role has the history of the Wisconsin Land Information Program (WLIP) played concerning GI access in Wisconsin?

Access to digital GI in Wisconsin developed as a result of the Wisconsin Land Information Program. GI in digital form would not exist without this program except in a few localities. The organizational structure of the Program resulted in land information professionals and their overseeing county committees determining access policies. As a result seventy-two policies have been created, one in each county. This dysfunctional system has limited data sharing to those counties that view the data as part of the public domain in accordance with the open records law. Years of contestation between the WLIA and the Department of Administration has resulted in weakened oversight by either group over access to GI .

3. What actors and networks have impacted the socio-economic and political processes both historically and currently in access to publically funded GI in Wisconsin?

The network created of all individuals who dealt with land records that eventually formed the WLIA had the earliest influence on the development of the WLIP, which in turn impacted and continues to drive access to GI. The Department of Administration, as the agency in which the WLIP is situated, was affected by the neoliberalization of the Republican administrations of the late 1990s and early 2000s. As the home agency of the WLIP, the DOA has always been an important actor in the realm of GI and had, and has the power to enforce existing legislation if it chooses. It does not exercise this power to ensure access to GI as required by the laws of the state. The Realtor's Association recently exerted the most influence over access to GI to further their own ends. This previously little involved organization had tremendous impact in instigating the *WIREdata* cases and the subsequent laws that followed that decision.

4. How have sequential diverse legal processes continually shaped and controlled access to GI data in Wisconsin?

Legislation has been the primary mechanism that has shaped access to GI.

The State's open records law does not differentiate between GI and other forms of government produced data. In fact, the law specifically addresses maps and databases of which GI data is composed. The laws that implemented the WLIP also stipulate access to GI and that all other state laws will be followed, including the open records law. The struggles of the Land Information Board and the WLIA with the DOA and the legislature over the Boards continuing existence resulted in scant attention to counties that did not follow the laws, ultimately resulting in seventy-two different and conflicting data access policies and charges. *WIREdata IV* and the California court cases discussed in chapter three have also influenced some county policies. Those counties that do support data sharing have been influenced by the open records law, the WLIP laws and court cases in California that specifically address GI access (interviewee Z7, 2010)

5. What impacts have recent court cases had on access to publically produced GI in Wisconsin?

The California court case of *Santa Clara II*, 2009, ruling that GI was subject to that state's open records law, was presented to a regional WLIA conference within weeks of the decision. There was much discussion of the impact this could have in Wisconsin given the similarities between the open records laws but no county changed its policy as a result. Similarly, before the *WIREdata IV* Supreme Court decision in Wisconsin, a WLIA regional meeting focused entirely on the open records law and whether GI was subject to it or not. Lawyers from the Attorney General's Office and others made clear that, in their opinion, GI produced by counties did fall under the law and could not be

licensed or sold for more than the cost of reproduction. At least four counties changed their policies to reflect this belief. It should be noted that one of the counties was one in which a municipality was the target of the lawsuit. After the *WIREdata IV* ruling legislation was successfully initiated by the Realtor's Association to require that land information be available in the format in which it was produced. This change had not been noted by the WLIA although it significantly impacts access to GI in the state.

The remainder of this chapter will contextualize the findings in the broader fields of critical GIS and legal and policy analysis. First I will present the findings as they relate to existing research. That is followed by recommendations for GI access policies within Wisconsin by the state and WLIA and finally federal agencies. Limitations of the research and future research directions taken from the findings are then presented with final remarks about the importance of this research to the fields of critical GIS and legal and policy analysis.

Discussion

All of the research questions used in this study examined access to GI and the concept of power over who or what controls that access. One of the most important findings of this study is that power lies in the political arena and that actors and networks can have significant influence over this process.

This study developed a synthesized approach that incorporates the historical and broader social conditions within which the legal and political context in which GI access in Wisconsin is situated. This approach allowed for the investigation of roles and

interactions of actors and networks at various scales and also the role of the political and judicial processes upon these actors and resulting policies

The law and networks are social constructions. Leitner et al., (2002b) created the concept of scaled networks, in which a network's scale is not determined in advance but is a result of the processes of its environment. The struggle for power in maintaining the WLIP was evident in many transactions, including those of political processes through which political institutions, actors, and networks functioned (Agnew, 1997; Ghose, 2007; Leitner, 1997; Leitner et al., 2002b). The networks identified in this research influenced the political process as witnessed by the network that eventually became the WLIA and the WLIA itself. The WLIA's power was challenged by the DOA, which eventually gained the goal of controlling the WLIP funds. The Realtors Association, through the WIREdata court cases and their influence over the resulting legislation has changed access to GI in the state for the better. This research documents the role of actors and networks over power of the political process and contributes to the field of Critical GIS by providing empirical evidence of the power of actors and networks. This is done by documenting where power lies and how it is manifested in GI data sharing in one program and can serve as a model for further studies.

Digital GI, as part of the larger body of information products, may be regarded as economic public goods because it is non-rivalrous and non-excludable. It is said to be non-rivalrous because the consumption of the information does not diminish the capacity of another to use it and non-excludable refers to the fact that every user can have access even though it is being used by another (Cho, 2005). This means the GI can be shared by one and all and beneficial to everyone. However, in discussing the role of law in either

impeding or facilitating GI data sharing Onsrud stated that while information and the knowledge it provides is a source of power, that "power which information provides is antipathetic to sharing" (Onsrud, 1995, p. 293). There exists a desire to control information and some policies dictate full cost recovery which precludes public sharing of GI in Wisconsin as elsewhere.

The desire to control information has resulted in some local government agencies not sharing GI with other agencies or the public unless forced by lawsuit, as witnessed by the Santa Clara cases. The issue of GI data sharing had been recognized by the federal government and others at least by 1990, when OMB revised Circular A-16 was released. This is the reason that a Congressional Research Service (CRS) paper, in April of 2012, concludes that sharing between federal, state and local agencies and the public is a "recurring theme" and not yet resolved (Folger, 2012, p. 1). While federal and state agencies have organizational structures to share GI, the National Spatial Data Infrastructure, The National Map, Geospatial One Stop are examples of federal initiatives and the Wisconsin State Cartographer's office data catalog is a state example, some local data producers do not see the benefit of sharing their GI with these entities (Folger, 2012). Many local governments produce data for their own use and do not recognize how their contribution to state or federal efforts would bring local benefits (interviewee Z 14, 2010; Folger, 2012). The organizational structure within Wisconsin and the history of the WLIP have contributed to the lack of coordination between the state and local governments by empowering the counties and lack of enforcement of existing law.

The National States Geographic Information Council (NSGIC) has suggested as recently as 2008 that the federal government must not dictate to states and local

governments any actions concerning GI data sharing (NSGIC, 2008). They suggest that funding of GIS programs be contingent upon compliance with existing policies at each level. This research has demonstrated that funding mechanisms alone will not increase data sharing. This has been further bolstered by the findings in the CRS paper that "…enforcement alone [of OMB Circular A-16 and Executive Order 12906] may not be sufficient to meet the current challenges of…data sharing" (Folger, 2012). This examination of the WLIP documents flaws in a local government dominated GI program and recommends top-down state or federal level administration. Without enforcement of the laws that govern access or new federal laws, data sharing of GI will not be achieved and contributes to the broader spatial data Infrastructure literature seeking to resolve these issues.

The law is a powerful tool and analyzing the actual practices involved in social and political processes can expose how social space is produced and shaped. The legal and spatial are intimately tied and together provide a holistic examination of power. The spaces and scales in which the WLIP developed represent a materialization of the power embedded within the laws which developed the Program. The space of Wisconsin is fundamental to understanding the legal issues and practices of the WLIP, this aspect of legal and policy analysis is often neglected. The detailed examination of the laws and political processes that shaped the WLIP will contribute to both the critical GIS and legal and policy fields.

No recent, detailed academic analysis has been published of the relationship between GI and open records laws in the United States. Many data producers and others, in Wisconsin, California and other states, believe that minus specific GI data access laws,

GI is subject to open records laws as a government produced product. This research sheds light not only the laws and court cases involved in this belief but also the flaws in these laws and methods available to ensure access to GI at all scales of government in the future. A court finding or legislation at the state or federal level specifically regarding GI access will most likely be required to curb abuses. Therefore this research contributes to the legal and policy analysis literature by highlighting the limitations and inadequacies of various laws governing GI access

One of the more important findings in this research is that because information is powerful (Morgan, 1971; Onsrud, 1995), the greater GIS community must recognize that all applications of GI are relevant. By not acknowledging this fact in Wisconsin, a destructive, pointless battle for power, years were lost when the issue of data sharing should and could have been widely addressed. Precisely because GI is powerful, access to it must be administered at the highest government levels possible. Local governments are too concerned with their own issues and capital to effectively address the larger issue of equity of access to GI. Devolving power to the county level via the WLIP contributed to the issue of data sharing in the state. This information is currently lacking in the spatial data infrastructure literature.

One of the notable findings is the ineffectiveness of license agreements if there is no enforcement of the license itself. Some local governments relied on licenses to protect their GI investment but neglected to enforce the provisions of the license, weakening the entire concept of the license as a viable alternative to copyright protection. This finding will contribute to both the larger GIS literature and the legal and policy analysis literature.

Recommendations

I believe it is important to include recommendations from this research for the broader communities impacted by access issues to GI. Onsrud (1995) asked if there is a rational legal/political/economic justification for different approaches at federal/state/local levels for GI access for the public, this research shows that there is not.

The power to control access to GI should be placed at the highest available government authority, either state or federal. Ideally an agency charged with this function at a state level would be independent of the government and the changes in administrations. Therefore, the best place for such a body would be in a state-sponsored university, allowing for adequate funding and independence from partisan politics. The ultimate solution to GI data sharing would be a federal law requiring that all levels of government share certain data sets between themselves and the public. This would end the conflicting policies of the fifty states and many local governments in the United States and unify it under one law. Sharing of GI is required in times of emergency and under this premise such a law would be feasible.

Using monetary "carrots" to create programs is effective, as documented by the successful creation of the WLIP. They are not as useful at inducing data sharing. Therefore I recommend a "stick" in the form of federal legislation as stated above. This is a stick because the majority of state and local government agencies do not want interference in any of their affairs and especially in one where some derive considerable income from the sale of GI.

Lawsuits are one method of forcing data producers to comply with existing open records or other GI access specific laws but are prone to uncertainty in outcome. This is documented by the two different decisions in California concerning GI access. While this method may be the only feasible option as a first attempt to gain access in those areas that license or charge in excess of the cost of reproduction, it is recommended that creating networks of constituents who utilize GI and attempting to change the law or amend the law(s) is the best way to ensure the desired outcome. These laws need to be clearly written, updated as needed and unambiguous in creating access to the GI for all.

Recommendations for Wisconsin

- The state of Wisconsin and the DOA should enforce the existing contract that each county has with the state that requires access to GI and withhold Program funds from those counties that do not comply.
- County legal counsel should enforce compliance with the open records law.
- Clarify Acts 370 and 314 to require access to GI in a useable, GIS format
- The WLIA should provide more information to GIS professionals concerning the open records law and GI access.
- The WLIA should lobby to have all laws that govern land information in the state codified in one place.
- The WLIA should share information with GIS professionals about Acts 370 and 314 and the need to comply with these laws under the WLIP legislation.
- The WLIA lobbyist and board should be more aware of laws impacting the Program.
- The WLIA and other organizations, such as the Counties Association should implement better communication systems to address areas of concern.

These recommendations would improve access to GI in the state of Wisconsin between all data producers and users. Specific actors have been identified for each recommendation.

Limitations of this Research

I would like to address the limitations of this research. This case study of Wisconsin GI government producers cannot be extrapolated to other states even if they utilize a similar county-based, real estate transfer fee-based program. Generalities exist in the main issue of access to GI and some possible solutions are suggested, such as state or federal based legislation requiring access but because federal legislation is unlikely and each state has laws that are context specific it is impossible to extrapolate from this research. What this history of the WLIP can provide is a demonstration of how powerful actors and networks that develop have significant impact on GI access. Further research into the formation and distribution of power and contestations in other states would assist in determining if similarities exist across scales and where best to implement laws or lawsuits to increase access.

Future Research

This research documented that power governing access to publically funded GI lies in the political process. It also has documented that money has influence on this process because substantial funds were necessary to sue for access to GI in California and database files Wisconsin. The Realtors Association in Wisconsin further expended capital to influence legislation that resulted in Act 370. Documenting the power of money in legal and political processes that impact access to GI and how capital influences these processes is a goal of future research. Such questions as who is funding challenges to existing laws and/or lawsuits? What is their motivation to challenge the laws? Where do they derive their money from?

The role of intellectual property laws and license agreements in controlling access to GI was necessary to understanding the lawsuits in California and Wisconsin. Future research shall investigate:

1. Why local governments license data if they have no way to enforce the licenses?
2. What is the point of licensing and is there a better alternative to licensing?

Evidence of the power of information in the form of GI and the desire to obtain complete cost recovery by some local governments along with legal challenges to this has been documented in this research. The intersection of ownership of information and legal application in the form of intellectual property rights is where ethical dilemmas present themselves. Future research will examine this ethical dilemma by asking such questions as:

1. What government agencies at local levels attempt to control access to GI via intellectual property (copyright)?
2. Do individual GIS professionals agree with the access policies of the agency they work for and if not, why?
3. What would GIS professionals do in an emergency if the policy of their employer differs from their personal beliefs about access to GI?

Increasing polarization of political attitudes in the United States and the continued desire by some to limit the role of government at all levels results in an advance of neoliberalism. Future research will seek to answer:

1. Are different societal and political attitudes toward the proper role of government in the handling of data significant in affecting the ability and willingness to share GI (Onsrud, 1995)?

Conclusion

Understanding the goals and motivations of actors and organizations that influence the legal and legislative processes in Wisconsin concerning access to GI within the socio-political realm in which they are situated is necessary to understanding the formation of the power that they control. Access to information is controlled by law, copyright, license, policies and court decisions. Those who control these mechanisms have power over access to publically funded GI. In Wisconsin, at the local level (county, municipality), GI professionals, along with their overseeing boards, control copyright and licensing decisions. This research reveals that ultimately political power trumps control mechanisms at the local level and that for many individuals in position to control access to GI at the local level, providing GI at cost of reproduction will not happen without a legal or court mandate.

The reality of GI access in Wisconsin is messy, uncoordinated and not enforced by existing legislation or license in the state. The seventy-two counties have seventy-two policies on access to GI and this situation should not be allowed to continue. The structure of the WLIP, advocating local control at the county level has failed to produce a uniform data sharing policy as envisioned by the founders of the Program. Legislation, at the state or federal level, specifically targeting GI data sharing would go far to alleviate the lack of coordination. Addressing the concern of liability, whether in a standard license agreement for all counties or state legislation limiting liability in GI should also be considered.

The WLIP provided counties with the opportunity and material support to create modern land records but also bestowed the power to control access to the data produced by each county. With no oversight of data sharing from the Board, the State Cartographer's Office, the state Geographic Information Officer or the newly formed Wisconsin Geographic Information Coordination Council and little incentive for counties to share GI at the cost of reproduction the situation this will continue to be disorganized. This study documents the construction of, and abuse of, power through control of geographic information by actors and networks in the state. A court finding or legislation at the state or federal level specifically regarding GI access will most likely be required to curb abuses.

I would like to close with the importance of access to GI. This quote is from an interviewee describing the aftermath of a tornado in Stoughton, Wisconsin on August 17, 2005.

"This was at dawn when the tornado struck in the late afternoon the day before and, of course, it turned dark and they were trying to do assessments of how many people are still injured and the damage. Dane County was saying, "If you want the info, we need this license agreement [signed]"" (Interviewee, Z7, 2009).

Dane County still requires a license agreement to access some of their GI. This is the reality of multiple data access policies in the State of Wisconsin.

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Appendix

Case Law

1. *Aetna Cas. And Sur. Co. v. Jeppesen& Co.*, 440 F. Supp. 394 (D. Nev. 1977).
2. *Assessment Technologies of WI, LLC v. WIRE data, Inc.*, 350 F.3d 640 (7th Cir. 2003). [WIREdata II]
3. *Assessment Technologies of WI, LLC v. WIREdata, Inc.*, No. 01-C-789 (E.D. Wis. 2001). [WIREdata I]
4. *Belli v. Roberts Bros. Furs*, 49 Cal. Rptr. 625 (Ct. App. 1966).
5. *California First Amendment Coalition v. County of Santa Clara*, No. 1-06-CV-072630 (Cal. Super. Ct. May 18, 2007). [Santa Clara I]
6. *Citizens for a Better Env't v. Cal. Dep't Food & Agric.*, 217 Cal. Rptr. 504 (Ct. App. 1985).
7. *City of Long Beach v. Dep't Indus. Relations*, 22 Cal.Rptr.3d 518(2004).
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9. *County of Santa Clara v. Superior Court*, 89 Cal. Rptr. 3d 374 (Ct. App. 2009). [Santa Clara II]
10. *Doe v. Ashcroft*, 334 F. Supp. 2d 471 (S.D.N.Y. 2004), *rev'd sub nom.Doe v. Gonzales*, 449 F. 3d 415 (2d Cir. 2006).
11. *Feist Publications, Inc. v. Rural Telephone Service Co., Inc.*, 499 U.S. 340 (U.S. 1991).
12. *Golan v. Holder*, 611 F. Supp. 2d 1165 (D. Colo. 2009).
13. *Greenwich v. Freedom of Info. Comm'n*, 874 A.2d 785 (Conn. 2005).
14. *In re John S.*, 106 Cal. Rptr. 2d 476 (Ct. App. 2001).
15. *In re Marriage of Tavares*, 60 Cal.Rptr.3d 39(Ct. App. 2007).
16. *Island Trees Sch. Dist. v. Pico*, 457 U.S. 853 (U.S. 1982).
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20. *Munroe v. Braatz*, 201 Wis. 2d 442 (Ct. App. 1996).
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Appellate Briefs

1. *Assessment Technologies of WI, LLC v. WIREdata Inc.*, 2003 WL 22721368 Br. and Appendix Defendant-Appellant (7th Cir. Jun. 01, 2003).
2. *Assessment Technologies of WI, LLC v. WIREdata Inc.*, 2003 WL 22721369 Br. Plaintiff-Appellee (7th Cir. Jul. 25, 2003).
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Day, P. and Ghose, R. 2012. E-planning through the Wisconsin Land Information Program: The contexts of power, politics and scale. *International Journal of E-Planning Research* 1 (1).

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Day, P. 2011. "GIS professionals in Wisconsin: Data access, Rawls and ethics." 107th Annual Meeting of the Association of American Geographers, Seattle, WA, April 12-16.

Day, P. 2010. "Access to geographic information: Justice and Power." 17th Annual Mini-Conference on Critical Geography, Milwaukee, WI, October 5-6.

Day, P. 2009. "History and the politics of scale in the Wisconsin Land Information Program." 105th Annual Meeting of the AAG, Las Vegas, NV March 22-27.

Day, P. 2006. "The Wisconsin Land Information Program: Its rise and fall." 44th Annual Meeting of the URISA , Vancouver, BC, September, 26-29.

Day, P. 2006. "Complexities in accessing geospatial data: The issues of licensing, copyright and fees in Wisconsin." 102nd Annual Meeting of the AAG, Chicago, IL, March 7-11.

Day, P. 2004. "Copyright, licenses, and data access in Wisconsin." 3rd International Conference on Public Participation GIS, Madison, WI, July 18-20.

A list of other presentations given during my years as a professional librarian is available upon request.

Awards:

2011: UW-Milwaukee, Mary Jo Read Travel Award for paper presentation at Association of American Geographers annual meeting, Seattle, WA.

2010: UW-Milwaukee, Mary Jo Read Travel Award for paper presentation at Wisconsin Land Information Association annual meeting, Appleton, WI.

2009 UW-Milwaukee, Mary Jo Read Travel Awards for paper presentations at Association of American Geographers annual meeting, Las Vegas, NV and Wisconsin Land Information Association annual meeting, Wisconsin Dells, WI.

2007 UW-Milwaukee, Mary Jo Read Travel Award for paper presentation at WI Land Information annual meeting in Appleton, Wisconsin.

2006 UW-Milwaukee, Mary Jo Read Travel Award for paper presentation at Urban and Regional Information Systems Association annual meeting, Vancouver, British Columbia, and Association of American Geographers annual meeting, Chicago IL.

Service:

2011-2012	Represent Geography Department at GIS Council meetings
2010	Planning committee member for the 17th Annual Mini-Conference on Critical Geography, Milwaukee, WI, October 5-6
2004-2010	Guest lectures in Geography and Information Studies Departments
2007-2011	Represented Geography Department at GIS Council meetings
2004-2009	Assistant for Geography Department Open House, UWM
2007	Assist with GIS Day activities
1998-2001	Organized or co-organized UWM GIS Day activities

A list of other service activities performed during my years as a professional librarian is available upon request.

Professional Development:

Workshop on Campus Survey Instruments. University Information Technology Systems (UITS) program, UWM, 2010

SPSS for Windows. UWM UITS program. 2006.

"Public Data Access, Privacy, and Security: U.S. Law and Policy". URISA certified workshop by Ed Wells and Mary Tsui. URISA's 43rd Annual Conference, Kansas City, MO., Oct. 9-12, 2005

Fieldwork:

State of Wisconsin

Interviewed county officials, state department officials, local municipal staff, regional planning commission staff, academics and private industry staff concerning GIS data access in the state of Wisconsin. Conducted interviews with these same individuals concerning the history of the Wisconsin Land Information Program, and reviewed policy documents, legal documents to assist in understanding the complex issues involved in access and use of geographic information and visualization in the state. I have also conducted two internet surveys to assist in assessing the views of GIS professionals towards ethical issues involving crowd-source data.

International

Conducted fieldwork on identification and location of CCTV cameras in Shrewsbury, England. Conducted bird survey identification work in Belize, Central America, the U.K. and New Zealand. Assisted in karst and hydrological fieldwork in Belize, Central America, New Zealand and the U.K.

Professional Memberships:

2004 – present.	Association of American Geographers (Specialty groups: Geographic Information Systems, Qualitative Research, Cartography)
1998 – present	Wisconsin Land Information Association
1993 – present	American Library Association (Maps and Geography Round Table)
2004 – 2010	Urban and Regional Information Systems Association