GIS Consultants
902 Rose Ave. Piedmont, CA 94611
phone: (510) 508-0213 e-mail: GIS.Consultants@joffes.com

February 24, 2012

Honorable Tani Cantil-Sakauye, Chief Justice
Honorable Associate Justices
Supreme Court of California
350 McAllister Street
San Francisco, CA 94102-4783

Re: Amicus Curiae letter concerning: *Sierra Club v. Superior Court (County of Orange)* (2011) 195 Cal.App.4th 1537
(Supreme Ct. Case No. S194708)

Word count: Amicus letter - 3,161 words; Appendix - 3,784 words

Dear Chief Justice Cantil-Sakauye and Associate Justices:

I write on behalf of xx GIS Professionals who are experienced with, and knowledgeable about, the workings and application of geographic information systems (GIS) and associated technologies. Also represented in this letter are xx professional associations comprised of, and representing, the interests of GIS professionals and their community of GIS users, developers, implementers, maintainers and teachers.

We GIS professionals and organizations wish to express our support for the Sierra Club in the above-titled case. We believe that Sierra Club has the right under the California Public Records Act (PRA) to gain access to Orange County's "OC Landbase" data which is in GIS-readable format.

A copy of this letter has been served to the parties to this case, as set forth in the attached proof of service. (Rules of Court, rule 8.817.)

INTEREST OF AMICI CURIAE

We, the undersigned, are GIS professionals who have been working with Geographic Information System (GIS) technology for years and in many cases, for decades. We use this technology to analyze problems with facts that relate to the location of physical infrastructure, natural resources and people. We recommend action to solve problems based on geographic analysis. We assist both public agencies and private companies, in the use of GIS technology. We teach the use of GIS in educational institutions, and we recommend public policies regarding the use of GIS and the geographic information it operates upon. We create, analyze and maintain the geographic data that is[1] the subject of the *Sierra Club v. Superior Court (County of Orange)* Opinion.

1 Although technically "data" is a plural noun, we use it as a singular noun representing the collection of a mass of individual informational elements.

We co-signers work frequently with GIS-compatible data related to land parcels that is created by public agencies, and we are concerned about the potential harm that could come from rescinding the public domain status of this data. If Orange County, and perhaps all California counties, were allowed to sell their GIS-formatted parcel basemap data at prices higher than the cost of duplication, then citizens, private organizations and government agencies would be limited or excluded from access to this vital informational resource. We GIS professionals would be constrained in our professional practice, and so would our partners, our colleagues and our clients.

We are grateful that the Supreme Court is reviewing this case. This document offers our professional expertise for the Court's consideration.

INTRODUCTION

As with the 6th District Court of Appeal's decision[2] which required Santa Clara County to provide its land parcel basemap data to the California First Amendment Coalition in the same GIS-readable format that it uses internally, precisely the same kind of data was under review by the 4th District Court of Appeal which upheld Orange County's claim that its data is exempt from the PRA. This data - land parcel geometry and associated descriptive attributes (such as Assessors Parcel Number, site address, owner, valuation and tax information) - is created and maintained by county government. This data is organized, stored, analyzed, and displayed in computer database files using GIS software.

County governments use GIS-formatted database files to conduct their mandated duties. We believe this data is public record under the PRA because it is used by government agencies to make decisions that affect the public's business, for example, property tax assessments, land use permit and variance determinations, and deployment of emergency response services. The public needs to see and analyze the County's data in exactly the same format that the County uses, in order to understand, evaluate, and hold its public servants accountable for their actions.

We offer the following advice, based on our technical expertise, for the Court's consideration:

1 - Data is not part of a CMS or a GIS, and should not be exempt from PRA requirements under the so-called "software exemption," §6254.9(b) of the PRA.[3] Orange County is mistaken about, and has mis-stated, the nature of "computer mapping systems" (CMS) and "geographic information systems" (GIS).

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2 County of Santa Clara v. Superior Court (2009) 170 Cal.App.4th 1301

3 California Government Code §6254.9 states in part:

(a) Computer software developed by a state or local agency is not itself a public record under this chapter. The agency may sell, lease, or license the software for commercial or noncommercial use.

(b) As used in this section, "computer software" includes computer mapping systems, computer programs, and computer graphics systems.

2 - GIS-compatible database structure is an intrinsic and necessary part of Orange County's OC Landbase. The information offered by Orange County as paper copies of its parcel maps, or as .pdf image files of those maps, is an incomplete and inadequate response to a PRA request for GIS-readable parcel basemap data.

In addition to these professional judgments (to be detailed below), we offer the following explanatory information in Appendix A of this letter:

3 - The consequences of removing GIS-readable parcel data from the public domain threatens citizens, other counties, and cities in many ways.

4 - Removing GIS-readable parcel data from the public domain counters explicit national and Federal data policies.

5 - Some counties' policy of excluding their GIS-readable parcel data from the public domain is currently causing expensive, negative impacts on California state government.

6 - The 4th District Court, and Orange County, may have misunderstood the concept of "system" in the context of §6254.9(b).

7 - We present an analogy to better understand the relationship between software and data.

Our plain meaning understanding of the word "includes" in the phrase "computer software includes computer mapping systems, computer programs, and computer graphics systems," means a listing of examples of computer software. We have worked with these listed items and we know them to be software of various types, and only software. They do not include nor imply the data upon which the software acts. Nevertheless, since the 4th District Court accepted Orange County's proposition that "includes" is used to expand the meaning of "software" rather than simply to provide examples of software, we offer the following corrections to Orange County's mis-interpretation of technical facts concerning GIS and CMS.

1. Orange County's Position is the Result of Misinterpreted Fact.

Orange County claims that its database (called "OC Landbase"), which is in GIS file format, constitutes part of a "computer mapping system." [4] The County claims that as part of a computer mapping system, its OC Landbase is a computer mapping system, and is therefore exempt from the public records act because §6254.9(b) expands the term "computer software" to include the data which computer mapping system software manipulates. We GIS professionals disagree with this assertion. Orange County's OC Landbase database is not part of a computer mapping system. Furthermore, the plain

4 Orange County "Answer Brief On the Merits" filed in the California Supreme Court, p. 3. Further references to this document will say "OC Brief."

language meaning of "computer mapping system" in §6254.9(b) refers to a system of software modules and does not include the data upon which the software acts.

The problem with §6254.9(b) is that "computer mapping system" was not defined by the Legislature. In its brief to the California Supreme Court, Orange County has proposed several statements about its OC Landbase, Geographic Information Systems (GIS), and computer mapping systems (CMS). Orange County has tried to define "computer mapping system" in such a way that its "OC Landbase" database would be included in the PRA's software exemption. We do not agree with the County's definitions.

(a) Orange County fabricated an incorrect definition of "computer mapping system."

The County has frequently stated in its brief that" 'Computer mapping system' is another term[5] (an early term[6]) for geographic information system or 'GIS'." We advise the Court that a "computer mapping system" is not a GIS.

We agree with Bruce Joffe's testimony to the Trial Court,[7] in which he described GIS as an advanced form of mapping technology that has developed over more than 40 years. He, and we, characterize that development of this technology as follows:

Computer Graphics - enabled users to draw lines, arcs, and closed shapes;

Computer Aided Drafting - enabled users to draw lines, arcs, and shapes at precise lengths, and precise angles;

Automated Mapping (also called "computer-aided mapping") - enabled precise lines and shapes to be located in various geographic coordinate systems that reference the curvature of the Earth;

Automated Mapping / Facility Management (AM/FM) - enables each mapped line and shape to link to an "attribute record" containing descriptive characteristic data;

Geographic Information System - encodes the mapped lines and shapes with "topology" that enables the computer to determine what is inside or outside of a closed shape, whether another closed shape (for example, a property parcel) is adjacent to, or near, a subject parcel, and to determine how linear features (like roads) connect as a network.

Where §6254.9(b) says "computer software" includes "computer mapping systems," it is referring to the third item on this list. Where it says computer software includes "computer graphics systems," it is referring to the first item on the list. These are not "early forms of GIS" as Orange County posits, but different technologies.

It is important to recognize that the development of these software technologies was not strictly sequential. GIS software existed in 1988, albeit with fewer capabilities than modern GIS software. The distinguishing feature of GIS was, and is, its topological encoding, i.e., its database structure.

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5 OC Brief, p.4

6 OC Brief, p.9. p.21

7 Superior Court of California, Case No. 30-2009-121878, Honorable James J. Di Cesare, Judge Presiding, Reporter's Partial Transcript, November 5, 2009, pages RT-000060 (p.22) to RT-000062 (p.24)

In 1985, Professor Kenneth Dueker, of Portland State University, published a paper in the "Proceedings of the Digital Representations of Spatial Knowledge" (Auto-Carto VII conference) in which he offered a distinctive definition for both geographic information systems (GIS) and computer mapping systems:[8]

> "A GIS is defined as a specialized information system in which locational identifiers are attached to data for spatial analysis and/or mapping. ... *Importantly, a GIS allows the spatial collation of separately collected data.* [emphasis added] Cartographic modeling, or overlaying, is employed for analysis across layers of data to express the spatial relationship among the variables.
>
> On the other hand, computer-aided mapping is a more limited display of layers of data with the ability to select layers, window, scale, and display, but without the ability for analysis across layers."

This distinction was well known to technical analysts in the 1980s, and could have been made available to the Legislature in 1988 when they considered the meaning of "computer mapping system." We believe that if the Legislature wanted to include "geographic information systems" in an expanded inclusion, it would have explicitly used the term "GIS," as it has been in common use by industry professionals since the 1970s.[9]

(b) The County has misinterpreted the definition of GIS.

Orange County's brief (p. 4) quotes the first of two sentences of the definition of GIS taken from a book published by ESRI,[10] the leading developer of GIS software:

> "GIS is an integrated collection of computer software and data used to view and manage information about geographic places, analyze spatial relationships, and model spatial processes."

The County quotes the ESRI definition frequently in its brief, to assert that "GIS" is both software and data (interpreting "integrated collection"). This quotation was promoted by ESRI (the leading market supplier of GIS software) as well as by many GIS consultants (including Bruce Joffe) because it was necessary to explain to new users of GIS software that additional elements are needed before the GIS software could perform the types of analysis for which it was purchased. Like any software, GIS software operates on data.

The quoted definition was <u>not</u> intended to link data as an intrinsic part of a GIS such that a county's parcel basemap could not exist without its GIS software; nor does the definition intend that GIS software could not exist without a specific set of data. In fact, many cities share their GIS-formatted data with other cities and with their counties, each one using its own GIS software. A GIS-compatible database can be read and

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8 http://mapcontext.com/autocarto/proceedings/auto-carto-7/pdf/pages192-197.pdf
Also see http://mapcontext.com/autocarto/proceedings/auto-carto-7/.

9 The terms were well known by professionals because Intergraph (maker of AM/FM software) and ESRI (maker of GIS software) were in fierce competition during the 1980s.

10 *A to Z GIS*. Edited by Tasha Wade and Shelly Sommer. ESRI Press, Redlands, CA, 2001.

manipulated by many different GIS software programs. Conversely, a user's GIS software can read and analyze many GIS-formatted databases.

Orange County further misinterpreted, or misrepresented, the definition by omitting its second sentence, namely, "A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed."[11] Clearly, a "framework" for organizing data is not the same thing as the data itself. The County may have been cognizant of this when it characterized the sentence as a "substitute description" in page 22 of its brief. This second sentence of the definition is part of the full, original definition. In trying to discredit it as a "substitute," the County appears to be misrepresenting the intent of its meaning.

Taken together, these two sentences indicate that there is a larger context of elements that are necessary for the GIS software to provide expected benefits. In fact, GIS software and a database populated with digital map data are insufficient for an efficient operations. A database model must be designed to structure the data in a database; application programming (macro programs) must be created to call a selected set of GIS software commands in a specific order so as to perform specific functions; staff must have training to learn geographic information technology so they know how to operate and use the GIS; administrative procedures have to be established to update the data, maintain its integrity, and recover when database corruption occurs; and finally, this system of technology and people has to have adequate funding. All these factors are necessary for the large concept - efficiently operating GIS to conduct agency duties effectively.[12]

Perhaps the initial quotation should have said, "GIS software integrates locational data to view and manage information about geographic places, analyze spatial relationships, and model spatial processes." Perhaps a different term for this larger concept should have been coined, something like "geographic information technology" or "spatial data infrastructure." The definition was not formulated as precisely as it turns out to be necessary to avoid a reader like Orange County from making a too-literal misinterpretation of its meaning.

(c) A "computer mapping system" consists solely of software; it does not consist of both software and data.

On page 4 of Orange County's brief, it argues, "A computer mapping system does not consist solely of software. It consists of both software and data." Orange County misunderstood the definition of GIS (mistakenly asserting that GIS intrinsically includes data), and it has tried to attach that misunderstanding to an incorrect definition of "computer mapping system" (mistakenly asserting that CMS is a kind of GIS). It's statement on page 4, therefore draws an incorrect conclusion because both premises are

11 Ibid, A to Z GIS. Edited by Tasha Wade and Shelly Sommer. ESRI Press, Redlands, CA, 2001.

12 GIS customers typically buy GIS software and then acquire existing GIS-readable data, or they use GIS software to digitize their paper maps, encoding the parcel geometry into GIS-readable format. Simultaneously, they develop (or engage experts to develop) application programs and administrative procedures to enable them to use the GIS software efficiently and to maintain their data systematically.

incorrect. This fallacious conclusion renders the County's argument invalid when it says that its OC Landbase, as a GIS database, is a kind of CMS which was meant to be exempted by §6254.9(b).

(d) The County's OC Landbase database is not resident in a GIS.

While the OC Landbase was created with Automated Mapping/Facility Management (AM/FM) software, and then updated and maintained with GIS software (both software systems made by the Intergraph Corporation), the data do not reside in a GIS system. The GIS-compatible data is stored in an Oracle Spatial relational database management system (rdbms). Many kinds of data are stored for selective retrieval in the Oracle rdbms, including data in GIS-readable format, but the Oracle system is not considered a GIS. Indeed, Oracle promotes usage of its rdbms for all the functions of an organization, as an Enterprise Information System. Since January 1, 2009, Orange County policy has been to provide its data to subscribers in only one format, that of the Oracle rdbms.[13]

(e) The OC Landbase is not a computer mapping system, and should not be exempt under §6254.9.

Orange County presented four incorrect premises, described in paragraphs (a) through (d), from which it draw an incorrect policy that its OC Landbase database is exempt from the PRA as a "computer mapping system." The OC Landbase is data in a GIS-compatible file format, residing in a relational database management system that is not a GIS. GIS software is not the same as computer mapping system software. While data is necessary for any software to perform its functions, neither the data processed by a computer mapping system, nor the data processed by GIS software, constitutes an intrinsic component of that software.

The OC Landbase data created by Orange County's mapping software, and stored in Orange County's database, is used in GIS-compatible format by the County to conduct the public's business. As such, it is public record and must be made available in the same format to members of the public that request it. The Legislature did not explicitly exempt the data, nor did it explicitly exempt the database format that GIS software needs to read the data. We believe that it would not have enacted such a far-reaching exemption by indirect and ambiguous implication.

2. GIS database structure is essential for GIS-compatible parcel data.

GIS-compatible database structure embeds information about where each element of parcel basemap data is stored and how each element is related to all the other elements. This structural information is necessary for analyzing and viewing the parcel basemap data with GIS software. The GIS database structure is the essential characteristic that an agency creates when it digitizes its paper maps into GIS-formatted basemap files (such as Orange County's "OC Landbase"). The GIS-compatible database structure is needed to enable the County to conduct its mandated operations in an efficient and effective manner using GIS software. The parcel basemap "information" contained in the purported

13 See Appendix B, memo from Raymond L. Mathe, Orange County Surveyor, April 27, 2009.

substitutes offered by Orange County (e.g., .pdf images of scanned paper maps) does not contain this structural component of the data. Paper maps and scanned images cannot be queried and analyzed systematically. Because GIS-readable format is necessary for the County to conduct the public's business, the structural component of the parcel basemap information, i.e., the OC Landbase database itself, must be classified as public record to enable the public to review, understand, and possibly challenge the County's decisions.

CONCLUSION

Supreme Court reversal of the 4th District Court of Appeal's decision is necessary to clarify and resolve an ambiguous point of law: that the "software exclusion" does not exclude the data upon which the software acts. The term "Computer Mapping System" (CMS) does not imply nor include the data that the software processes, and CMS is not the same thing as GIS.

The 4th District Court's Opinion is in direct conflict with the 6th District Court's Opinion on the same subject: public record access to county parcel data in GIS-database format. Public access to this data is necessary for government transparency and accountability. Access to this data by other government agencies is necessary to provide the citizens of California the full benefit from their public investment in these data resources. This question has enormously important implications for California's citizens, government agencies, professional organizations, and private businesses. It also has national implication for U.S. citizens, property holders, businesses and professional organizations. It is reasonable to conclude that the Legislature would not invoke such a far-reaching exclusion from the Public Records Act with a statement as ambiguous as §6254.9(b).

The GIS Professionals represented by this *amicus curiae* letter urge the Court to support the Sierra Club in *Sierra Club v. Superior Court (County of Orange)*.

Respectfully,

Bruce Joffe
Principal, GIS Consultants

On behalf of the following xx GIS organizations:

Organization	Represented by	Title

And on behalf of the following xx individual GIS professionals (their organizational affiliation is noted for reference purpose, only):

Name	Title	Agency

cc: All parties as listed in the attached Proof of Service

APPENDIX A - Additional Explanations

3. Harmful Consequences of Upholding the 4th District Court's Opinion

A definitive judicial opinion that interprets §6254.9 as exempting GIS-formatted data from public record will have far-reaching consequences. It is unlikely that these consequences were envisioned or anticipated by the Legislature when the software exemption was passed. It is even more unlikely that the Legislature would intend these consequences without explicitly defining what it meant by "computer mapping system."

(a) Public oversight of government decisions is threatened.

Government decisions and policies are increasingly based on analysis of complex factors that pertain to location; and such analysis is conducted using GIS software on GIS-compatible databases. Examples include analyzing property values consistently for taxation, routing emergency response vehicles when time is critical, assessing the development potential versus need for environmental protection of undeveloped land. The public has a right to know answers to questions like, "is my property being assessed fairly," and "are public services like police and pothole repair being allocated equitably," and "why locate a certain development in my neighborhood?" In order to keep our government agencies accountable to us, the public must have access to the same data the government uses - in the same database structure - so that we can check those analyses and challenge them if warranted.

The public has a large responsibility: to be vigilant, to be fair and objective, and to provide itself with the software and technical skill necessary to replicate and review the government's data before possibly challenging government's actions. Our government agencies have the responsibility to provide the data they used, in the same format that they used for their analysis, along with a thorough and truthful description of that analysis, to the public upon request. If the 4th District Court decision stands, the citizens of Orange County will not be able to review and oversee the actions of their County Assessor, Sheriff, Public Works, or Planning departments, unless they could afford to pay the price for the County's data. Moreover, citizens of constituent cities that use Orange County's basemap would be similarly restricted from reviewing their cities' decisions. We ask the Supreme Court to reverse the 4th District Court's decision.

(b) If GIS-readable databases are considered exempt as computer mapping systems, most government data could be removed from public scrutiny.

Of the many kinds of data that county agencies create, maintain, and use to conduct their mandated duties, approximately 80% of those data pertain to a specific location. Public works infrastructure is located with geographic coordinates; social service recipients are located with street addresses; property parcels are located with both site address and their geographic coordinates on a parcel basemap. This data resides in databases (similar to Orange County's Oracle-based information system) that integrate a subject's descriptive characteristics with its GIS-readable location. If the presence of GIS-formatted data were to exempt these databases as being part of a "computer mapping system," then nearly all local government data could be exempted from public access

under the PRA. It is inconceivable that the California Legislature would enable such a sweeping exemption without an explicit statement of intent and without a clear definition of "computer mapping system." Neither is present in §6254.9.

(c) The Orange County opinion may reverse a meaningful trend toward greater public access to our governments' data.

Since the Attorney General's opinion (88 Ops.Cal. Atty.Gen 153 (2005))[14] was issued in October, 2005, fourteen Counties have changed the price for their GIS parcel basemap data from more than the cost of duplication (over $300) to PRA-compliant cost of duplication, or less. These counties include:

Contra Costa
Fresno
Humboldt
Imperial
Kings
Los Angeles
Merced
Nevada
Riverside
San Bernardino
San Diego
Santa Clara
Santa Cruz
Ventura

Many of these counties, for example Los Angeles and San Diego, changed their data access policy because they accepted the Attorney General's opinion as a governing interpretation of the PRA. Santa Clara, challenged the interpretation in court and lost. Subsequent to the Santa Clara decision, Merced county changed its data access policy. Upholding the 4th District Court's opinion that GIS-formatted basemap data is exempt from the PRA may encourage the remaining counties to continue charging exorbitantly obstructive fees for their data. Those counties include:

COUNTY	**Data Sale Price**	**2011**
Orange	$375,000	($75,000 per year, five year commitment)[15]
Solano	$13,400	
San Luis Obispo	$12,000	
Madera	$3,123	
Lassen	$2,500	
Del Norte	$1,500	

14 "Parcel boundary 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."

15 On December 13, the Orange County Board of Supervisors reduced the OC Landbase price to between $1,000 and $5,000. Nevertheless, the County continues to claim that this data is not subject to the PRA; it continues to require restrictions of use in its licensing agreement; and it reserves the right to change this price at any time. Therefore, the question before the Court, and the severity of clarifying the "software exemption" for data remains as important as ever.

Sierra	$1,000
Alpine	$650

Further, upholding the 4th District Court's opinion may incite some counties, like San Diego, to revert back to charging high prices for its GIS parcel basemap data.

(d) Threat to enforcement of the Santa Clara County decision

In April, 2009, Santa Clara County provided a copy of its GIS basemap database to the California First Amendment Coalition, following the 6th District Appellate Court's decision. Since that time, other parties (both private entities and constituent city governments) have requested a copy of Santa Clara County's GIS basemap database. They have been provided with the same copy of the data (as of April 2009) in spite of the fact that the County continues to update its database. Although the County complied with the specific direction of the Court's decision, to provide the then-current data to the PRA requestor, it appears to be violating the principle of the PRA which is to provide current data to a requestor upon request. Santa Clara's action needs to be challenged in court, but the Orange County Opinion creates doubt about Santa Clara's PRA responsibilities. Unless the Supreme Court reverses the 4th District Court's Opinion, the citizens and constituent cities of Santa Clara County will remain without full access to their government's data, and thereby be unable to review their government's decisions.

(e) Threat to people living outside of California

The problem of public access to governmental GIS databases is not unique to California. Each state has its own variation of a Public Record Act similar to our own. National organizations that represent GIS professionals - such as AAG (Association of American Geographers), CaGIS (Cartography and Geographic Information Society), NSGIC (National States' Geographic Information Council) and URISA (Urban and Regional Information Systems Association) - are concerned that a reversal of California's recent trend (of making more GIS databases available as public records) may be replicated in other counties and states nationwide. California is a trendsetter.

Further, many people who live outside of California have the same interests in having access to California-based government data as do California residents. Many own land in California; many have families who receive services from local and state governments in California; and many care about keeping our democracy functional by keeping government action transparent to its citizens.

(f) Efficient coordination of data by diverse government agencies is threatened.

GIS-readable parcel data provides a unique capability to integrate information across agency and jurisdictional boundaries. While collected and initially displayed in the Assessor's or Surveyor's office, the parcel basemap serves as a common geographic reference for other agencies' decisions. Other County agencies and cities use the County's GIS basemap for locating the related data they use to conduct their duties.[16]

16 For example, the welfare department can locate recipients on a GIS basemap to identify fraudulent recipients who use multiple addresses of corner lots; and police can map crimes on the GIS basemap to discover forensic patterns.

This integrating capability greatly increases efficient operation and reduces duplication of effort and of funds expended.

The ramifications of removing GIS parcel data from the public domain are far-reaching and may cause unanticipated consequences. Other public agencies and city offices in Orange County would not be able to release the base data used as the foundation of their own decision making. Thus, the public effect of exempting this data from the PRA may be widespread and devastating to the public's right to know the operations of all its government agencies.

Activities of non-governmental users of the GIS basemap would be reduced also. In this case, Sierra Club wants to find "landlocked" parcels (without street access) in order to maximize the impact of its purchasing property for environmental preservation. Orange County's price and restrictions impedes Sierra Club's limited-fund project.

4. National Policy Supports Public Record Access to GIS Parcel Basemap Data.

(a) Federal Geographic Data Committee (FGDC)

The FGDC is a 19-member interagency Federal committee charged with implementing a National Spatial Data Infrastructure (NSDI), to enable the open and shared use of geographic information. FGDC promotes the coordinated development, use, sharing, and dissemination of geospatial data on a national basis. NSDI is defined by Executive Order 12906 [17] as "the technologies, policies, and people necessary to promote sharing of geospatial data throughout all levels of government, the private and non-profit sectors, and the academic community." The goal of this Infrastructure is to reduce duplication of effort among agencies, improve quality and reduce costs related to geographic information, to make geographic data more accessible to the public, to increase the benefits of using available data, and to establish key partnerships with states, counties, cities, tribal nations, academia and the private sector to increase data availability.

Our Federal policy encourages the sharing of geographic data among all users because it produces significant savings for data collection, and its enhances decision making. The sharing of geographic data is of particular concern precisely because the data is expensive to create and maintain. If the California Supreme Court overturns the 4th District Court's opinion, it would be supporting our national goals.

(b) National States' Geographic Information Council (NSGIC)

In 2011, NSGIC, a 20-year organization comprised of GIS professionals working in and with state governments, issued a recommendation of best practices for data distribution policy of government agencies.[18] This guideline articulates NSGIC's core principle that "Access to public records is an essential component of our democracy that keeps citizens informed and our government accountable. These records include

17 http://www.fgdc.gov/nsdi/policyandplanning/executive_order

18 Available for download from http://nsgic.org/public_resources/NSGIC_Data_Sharing_Guidelines_120211

geospatial data produced or maintained using taxpayer resources." It concludes with the recommendation that, "calls on government administrators, geospatial professionals and concerned citizens to further advance the use of important geospatial data assets and to ensure that they remain freely accessible."

The NSGIC document dispels several myths about GIS data, including the myth that organizations can pay for GIS operations through geospatial data charges. In fact, Orange County, which stands out as one of the highest revenue producers from its data sales, reports that only 26% of its GIS operation comes from data sales.[19] Most counties that sell data receive far less.

NSGIC's best practices recommendation observes that most public agencies derive great benefit from their use of GIS to analyze and display geospatial data. Benefits include "cost savings from more efficient operations, revenue enhancement from more thorough taxation, and better, faster, and more intelligent delivery of services to the public." If this wasn't the case, agencies would stop using and funding their GIS operations. But usage of GIS in local and state government is increasing and becoming more central to the entire enterprise's information processing profile.

The 4th District Court's opinion states (p. 15), "By enacting section 6254.9 in 1988, the Legislature encouraged and enabled local governments to develop and maintain computer mapping systems by allowing the agencies to recoup some of their costs." And it noted that "the County argues it spends 'millions of dollars to maintain and update the OC Landbase' ... and that without licensing fees, the County would be forced to reduce services." Given the fact that 49 of California's 58 counties are able to maintain their GIS operations without selling GIS data for more than the cost of duplication, one must ask "why should Orange County's inability to budget for its GIS be reason to distort and redefine the meaning of the PRA?"

Like every other county, Orange County invested a lot of money building its parcel basemap database, and it did so with the understanding that the return on this investment - in terms of more efficient and more effective delivery of mandated services - would be greater than the initial and ongoing costs. Sales of data was not, and should not have been, a consideration, because the County has no mandate to engage in expensive investments for the purpose of making money. Currently, if the County tried to discontinue its GIS operation, it would not be able to conduct the public's business as well or as inexpensively as it does now with GIS. GIS data pays for its development cost through increased efficiency; the more it is used, the higher is the return on investment.

5. Access to County GIS Basemap Databases is Vital to California's Governance.

GIS-formatted parcel data is fundamentally needed by most California state agencies and departments. Five major state organizations have been collecting county-based GIS parcel data to build a consistent, statewide parcel basemap. These organizations include:

[19] OC Brief, p.5

California Department of Forestry & Fire Protection (CDFFP)
Caltrans
California Resources Agency
California Emergency Management Agency (CalEMA)
California Board of Equalization (BOE)

As of October, 2010, 99.6% of the GIS data for California's 14 million parcels had been collected. However, six counties' data (including Orange County's) can only be used by the agency that collected their data, and only for specific, designated purposes. For example, CDFFP can use Orange County's data to fight fires in Orange County, but it cannot share the data with BOE, nor use it for CDFFP fire response planning activities. This is the limitation those counties required of the State in order to release their data without charging their standard sales price. Some other counties also restrict the use of their data, so these five agencies agreed to use the data solely for specific government-to-government purposes. The result is a duplication of effort and higher cost to taxpayers.

Access to parcel basemap data is important to California state governance. A recent meeting of the California GIS Council (the multi-agency advisory body to the California Technology Agency) reviewed how GIS parcel data is critical to four categories of State functions:[20]

1) Land Use Planning
   - Open space protection
   - Broadband mapping
   - Transportation planning
   - Environmental management
   - Land use change
   - Sustainable communities
2) Revenue and Taxation
   - Distribution of property tax revenues
   - Assure uniformity in property tax assessment
   - Forecast property tax growth
   - Analyze the impact of Prop 13 on schools/special revenue districts
   - Fraud investigation
   - Allocation of the sales tax
3) Emergency Management
   - Dispatch
   - Evacuation planning
   - Contact information
   - Loss analysis
   - Event statistics

20 From California GIS Council minutes, October 6, 2010 (http://www.cio.ca.gov/wiki/GetFile.aspx?File=%2fCAGISCouncilDocuments%2fCA_GIS_Council_minutes_Oct_2010.doc)

- Emergency planning (both before and after an event)[21]
- Ownership delineation (public/private)

4) Surveying
   - Land parcels
   - Taxation boundaries
   - Administrative boundaries
   - Land acquisition for highway and infrastructure construction

The California GIS Council has conducted two implementation studies to plan the building of a statewide, fully-accessible GIS-based data repository. While many other states have already completed this basic data infrastructure, California's effort has been hampered primarily by lack of funding and also by the PRA-non-compliant licensing restrictions of some county data originators. Two documents outline California's approach:[22]

> *California GIS Strategic Plan Phase 2: Regional Participation - May 2008* - describes a plan of collective collaboration and governance among the "stewards" of various GIS datasets (including the counties' parcel databases) to build a statewide data repository absent a single, funded state agency.
>
> *California Geospatial Framework Draft Data Plan - September 2006* - describes the kinds of GIS data needed and used by all levels of government within the state (as well as private entities) and lists priorities. GIS parcel data is most important.

If the 4th District Court decision is upheld and more counties restrict access to their GIS parcel data with high cost or prohibitions against sharing the data, it will become even more difficult for California's state government to amass and analyze data consistently in trying to deal with statewide problems. The extra cost of this inefficiency, as well as the additional costs of procuring and updating the data, will be born by California's taxpayers, including county taxpayers who initially funded, and continue to maintain, their county's GIS operation. The Supreme Court reversal of the 4th District Court's decision will prevent these negative consequences.

6. Meaning of the Terms "Macro-Programming" and "Mapping System"

As described in the 4th District Court's opinion, p. 13, when San Jose apparently tried to exempt its data as well as its software, the Legislature removed words like "computer readable database" from the proposed legislation, and substituted "computer mapping

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21 Lorri Peltz-Lewis, GIS Coordinator for Fire & Aviation Management, US Forest Service, Region 5, has commented, "As we approach what could be a catastrophic fire season, having GIS parcel data available for emergency responders is critical to decision making during all phases of our operation - planning, suppression, response, and restoration. Preventing the horrific images of homes burning, or being wiped out by debris flows, depends on our knowledge of what is on the ground."

22 These two California GIS Strategic plan documents may be downloaded from http://www.cio.ca.gov/wiki/GIS%20Council%20Strategic%20Plan%20Revision%20Work%20Group.ashx

system." It is unlikely that many legislators truly knew the technology that this term actually referred to. It is very likely, however, that the Legislature declined to explicitly define "computer mapping system" because undefined, it carried sufficient ambiguity to appear to satisfy San Jose while also satisfying the Legislature's requirement to preserve the public record status of computer-stored information. Had the Legislature intended to specifically exempt the data that computer mapping software processes, it would have done so explicitly.

The 4th District Court wondered (p.14) what the purpose of the "inclusion phrase" would be if "the legislative history does not show that any local government or agency sought the ability to recoup the developmental costs of a proprietary computer *program* associated with a mapping system." However, the experience of users of GIS and CMS software programs is that most users do develop macro programs to make efficient use of the factory-delivered, out-of-the-box software.

For example, in 1988, the City of San Jose digitized its parcel basemap, converting it into a GIS-compatible format, using the Intergraph AM/FM software called "IGDS/DMRS" [23] which was the advanced software at that time. To create its map database, City staff had to create a lot of "macro programs" which combined AM/FM software commands in specific order to enable the efficient digitizing of its maps. In addition, the City created macro programs to display and plot its maps with various combinations of data, displayed with specific combinations of line weight, color, and symbology. These macro programs were user-created software that are exempted by §6254.9.

We believe the 4th District Court mis-applied Webster's 3rd New International Dictionary definition of the word "system" (on page 8 of its Opinion) when it concluded that a "complex unity formed of many often diverse parts subject to a common plan or serving a common purpose ... should include more than solely a computer *program* component." In fact computer programs are comprised of many different software components that are painstakingly configured together to form a complex unity formed of diverse parts. Software "systems" do not include nor comprise data.

In 1988, as well as today, the "system" of a specific computer software system means an integrated combination of software modules, for example software programs constructed in a modular structure for data input, for user interface, for analytical computation, and for display of the results. These modules are configured to work together as an integrated "system." The term "computer mapping system" whether referring (correctly) to an Automated Mapping system circa 1988, or (incorrectly) to a 2011 GIS software system, uses the word "system" to indicate a combination of diverse software modules. The word "system" in the context of software program modules does not include the data to be processed by the software.

23 This is the same software Orange County used to construct its OC Landbase.

7. EXCEL Analogy to Understand the Relationship Between Software and Data

Suppose one wanted to analyze property tax assessments of parcels similar to one's own parcel, to see whether similar properties were being taxed similarly. Suppose further, that one was using **Excel** spreadsheet software to do the analysis.

a) Starting the software without data.

To begin, one would start the Excel program, and see an empty grid of blank cells. In order to conduct the analysis, one would input data about selected parcels into the grid. For example, each row would be a separate parcel record, with Column A being the parcel ID, Column B being the square footage of the parcel, Column C could be the assessed valuation, Column D the number of bedrooms, and so on for all parcel characteristics relevant to the analysis. Obviously, this analysis could not be made without data, but it is wrong to claim that the data is an integral part of the Excel spreadsheet software system. Similarly, GIS software requires data upon which it can perform its functions. GIS software is used to input parcel boundary data, thereby formatting it into GIS-compatible database files. GIS software then analyzes that data. Without data, GIS doesn't have anything to analyze. Data is necessary in order to perform GIS analysis, but data is not part of a GIS software system.

b) Importing data in compatible format.

To continue the analogy, suppose one wanted to import the Assessor's Roll into the spreadsheet instead of entering each parcel's data manually. One would have to transform the Assessor's Roll from its native format into a format compatible with Excel software. Fortunately, Excel has the capabilities to read standard Assessor Roll formats and transform them into its own format (called .xls) automatically. Similarly, GIS software can import parcel basemap data that has been created by other GIS systems and mapping systems, so long as the data is in standard GIS-compatible format. GIS format is necessary for data to move from one GIS system to another. A specific dataset is not an intrinsic part of a specific GIS.

c) Programming specific software tools.

Finally, imagine the Excel table of parcels populated with their descriptive attributes. In order to analyze the equity of parcel valuation appraisal, one would have to design a series of mathematical computations, such as calculating the average assessed value per square foot for each parcel. Excel software provides the commands to calculate and the methods to construct the calculation formulas. This set of computation formulas is the "macro program" that performs the analysis. It is software created by the user within the substrate of the Excel spreadsheet software. Similarly, GIS software commands can be assembled to retrieve a complex set of parcel data elements and combine them in specific ways to compute a geographic analysis. Users create "macro programs" that make this process less tedious, faster, and more efficient. These macro programs are software developed by the user to operate within the substrate of the GIS or CMS software. We believe that §6254.9 was established to protect local governments' proprietary rights to the macro programs that they developed to make the operation of their computer mapping system software, or their GIS software, more efficient.

This hypothetical analysis using Excel spreadsheet software considers the descriptive characteristics of parcels, e.g., their size, appraised valuation, etc. GIS software is necessary to analyze the parcels' locational characteristics, such as their proximity to parks, schools, or land fill dumps, which could strongly affect their appraised value. The same GIS software and user-developed analysis model could be applied to any county's parcel data, and that analytical model would be protected by §6254.9. The data is not an intrinsic part of the GIS analysis system. Data is only the object of the analysis process. To call GIS data an integral or intrinsic part of a GIS system would mistakenly imply that a specific dataset comprises GIS.

APPENDIX B - Letter from Raymond L. Mathe, County Surveyor

ORANGE COUNTY
PublicWorks
Our Community. Our Commitment.

Bryan Speegle, Director
300 N. Flower Street
Santa Ana, CA
P.O. Box 4048
Santa Ana, CA 92702-4048
Telephone: (714) 834-2300
Fax: (714) 834-5188

memo

DATE: April 27, 2009

TO: OC Landbase Users

FROM: Raymond L. Mathe, County Surveyor

SUBJECT: Landbase System Changes, Effective January 1, 2009

This past year has brought about important changes to the County's existing Land Information System (LIS). For the past 14 years the County of Orange Landbase has stored its LIS vector data in DGN (CFT Cover field Tree) MGDM file format and attribute data in relational database (Oracle Relational). This system has very advanced data management facilities for the maintenance of the Landbase, including parcel edits, splits, and attribute updates, and long-term transaction support for multiple users. But the system also has had to maintain the vector data separated with attribute data which would often lead to problems with orphaned and mismatched records.

Recently we converted the MGDM vector and attribute data to a Oracle Spatial Object Model in order to provide our staff easier access to the County's Geographic Information Systems (GIS) layer and data sets, along with and in conjunction with advanced spatial capabilities to support GIS applications, location-based services, and an enterprise spatial information systems.

Oracle Spatial is a requirement to use the Landbase directly with your GIS mapping tools. For example, Oracle Enterprise Edition Databases version 8i (8.1.7) and later includes Oracle Spatial. Oracle database users of non Enterprise editions can elect to license the Oracle Spatial option.

The NGS recently completed a national readjustment of NAD 83 which is being referred to as NAD83 (NSRS2007) or simply NAD83 (2007). We readjusted the Landbase to the NAD 83(NSRS2007), CA State Plane Zone VI, OCS 2007.00 adjustment. As a result, all future coordinate values of the parcel corners will be collected to match this adjustment. Any data and/or layers you currently have that is registered to the previous Landbase needs to move 2.18' N 39 W to conform to the new adjustment.

If you have a license for annual updates or would like to obtain a new license we will make available a one time copy of the old format. This Landbase will be up to date as of January 1, 2008.

A summary of the procedural changes is as follows:

1. In order to use the output data from the new Oracle Spatial Object Model you must have Oracle version 8i or later.

2. Contact Contract Administrator at 714-834-3811 for questions concerning licensure and delivery issues.

3. A DVD with the Landbase and simple instructions on how to load the Landbase into Oracle will be sent via USPS or can be arranged to be picked up.

4. Any technical question on how to read the Landbase information from your GIS application needs to be forwarded to your GIS Vendor.

Raymond L. Mathe
County Surveyor

RLM:tc
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cc: Bryan Speegle
Ignacio Ochoa
Satish Ajamani

Proof of Service - DECLARATION OF SERVICE BY U.S. MAIL

I am employed in the County of Alameda, State of California. I am over the age of eighteen and am not a party to the within action; my business address is: 902 Rose Ave., Piedmont, CA 94611.

On February 24, 2012, I sent the foregoing document described as:

Amicus Curiae letter concerning:
Sierra Club v. Superior Court (County of Orange)) (Cal.App.4 Dist. 2011)
195 Cal.App.4th 1537
(Supreme Ct. Case No. S194708)

to the interested parties in this action, as addressed as follows:

For Petitioner Sierra Club:
Sabrina D. Venskus, SBN 219153
Venskus & Associates, P.C.
21 South California Street, Suite 204
Ventura, California 93001

For Real Party in Interest Orange County:
Orange County Counsel
333 West Santa Ana Boulevard, Suite 407
Santa Ana, California 92702

For Respondent Orange County Superior Court:
Clerk, Orange County Superior Court, Dept. C-18
700 Civic Center Drive West
Santa Ana, California 90702

Clerk of Court
California Court of Appeal
Fourth Appellate District, Division Three
601 W. Santa Ana Blvd.
Santa Ana, CA 92701

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on February 24, 2012, at Piedmont, California.

_____
Bruce Joffe