

# Ten Ways to Support GIS Without Selling Data

*Bruce Joffe*

**Abstract:** Controversy has been raging for more than a decade on the appropriateness, legality, and effectiveness of public agencies selling their digital geodata. Recent discussions among professionals from both government and private sectors, representing a wide spectrum of opinion on whether public geodata should be sold or given away freely, have yielded some interesting experiences and useful advice on effective ways for public agencies to support their GIS operations.

## Core Issue: Data Sales Versus Free Access

As more local governments develop their maps into GIS-based, digital geographic information, more and more are receiving requests for their geodata from people outside of their own agencies. They are discovering that beyond fulfilling internal agency needs, geodata is seen as a “strategic asset” and as a commodity. Many need to develop or to revise their data distribution policies. One of the central data policy issues is whether to charge the public for the data or to distribute it at no cost.<sup>1</sup> The significant legal, political, and economic reasons for selling public data or distributing it freely have been written and argued about for more than a decade.<sup>2</sup> They may be summarized as “the public’s right to public data versus a public agency’s need to fund its GIS operations.”

- On one side, the truth is that access to public information is necessary to ensure government accountability. The Freedom of Information Act (5 U.S.C. § 522) assures free public access for federal data, and most states have laws that complement the principle regarding their state and local government data, as does California, for example, with its Public Record Act (§ 6250) that states:  
. . . the Legislature, mindful of the right of individuals to privacy, finds and declares that access to information concerning the conduct of the people’s business is a fundamental and necessary right of every person in this state.
- The truth on the other side is that public agencies need to fund their ability to create, maintain, and disseminate data, and that geodata capture and maintenance are particularly expensive. The current economy has reduced tax revenues for local government, which, along with political impediments to raising taxes, have caused more than one GIS manager to say: “Yipes! Our department was cut!”

While other rationales are given for a government agency’s sale of public geodata,<sup>3</sup> financial maintenance of GIS operations is the strongest reason used to justify abridgment of free public access to data. Funding for this public service can come through taxes, fees, sale of the data, or capturing the added value from the use of geodata. How effective have these methods been, and what is their prospect for the future?

## Open Data Consortium Project Findings

This question was examined by the Open Data Consortium (ODC) project (<http://www.OpenDataConsortium.org>) and funded by the USGS through the GeoData Alliance (<http://www.GeoAll.net>) to formulate a model data distribution policy for guiding local governments throughout the country. For 6 months, 67 ODC participants discussed data sales and other methods of supporting local GIS operations, along with several issues that define a public data distribution policy.<sup>4</sup>

The participants, who were self-selected from an invitation list of more than 264 GIS professionals, represented city, county, metropolitan, and regional governments with a wide range of current data sales policies. State and federal government agencies, universities, private sector consultants, and data resellers were included as well.<sup>5</sup> We conducted 24 teleconferences to discuss these issues in an open attitude of sharing experience and information, using active listening techniques, with the intention of formulating a policy model that represents the largest possible consensus of this representative group. During this process, we learned two interesting facts:

1. Most government agencies that sell public data have not realized significant revenues; in many cases, they have actually lost revenues.
2. There are better ways of raising funds to support GIS operations.

Every local government GIS manager whose agency sells its data has told me that he or she would prefer to distribute the data freely, if there were another way to fund GIS operations.

## Data Sales Effectiveness

The ODC participants shared the results their agencies have had from their data sales operations. Few have made money. None have raised significant revenues compared with their costs to maintain their GIS and geodata assets. Some have lost money.

- During the recent five-year period that Ventura County sold its data for \$1 per parcel, it raised \$15,000 per year, compared with the annual cost of nearly \$1 million to maintain a ten-person team that updates geodata and creates GIS applications. The county has now lowered its price for the entire countywide geodatabase to \$3,000, which provides quarterly updates, and includes 20 annual subscribers, producing a revenue of \$60,000 per year.
- Kern County didn't make any money selling its geodata; it now makes all its data available free on the Web.
- Glendale was selling its data for \$1 per parcel, and sold nothing.
- San Francisco (city and county) reports that it cost more in staff time to sell their geodata than the revenues they received.
- San Joaquin County said the revenues "didn't even come close" to paying for GIS in the county.
- Staff on Nashville's Metropolitan Commission opined that "Map sales are a pain; none of us are set up to deal with it efficiently."
- Both San Diego and Los Angeles counties have reduced their geodata prices to one-tenth of their previous levels in an attempt to generate more sales. Several geodata managers in Los Angeles County are now advocating for free data. Los Angeles appears to be spending more on marketing data than it receives from sales, and it sees data resale companies, such as Digital Map Products, as adding value by offering online services to view and download Los Angeles' data.
- California's Department of Fish & Game maintains the Natural Diversity Data Base that collects and distributes information about protected species and habitats for property administrators, natural resource stewards and regulators, and developers. Their success depends on the number of subscribers. Since reducing the subscription fee by a factor of eight, the number of subscribers has increased threefold.
- San Mateo County charges slightly higher prices to make copies of its paper maps than local reprographics companies charge, so that citizens will go to private service providers. It distributes its entire geodatabase freely, so that data resellers can provide GIS data products to citizens, rather than having to expend county staff time to fulfill requests for data.

A study by KPMG Consulting, Inc., in March of 2001, reported that "U.S. agencies reporting data income had revenues equal to 2 percent of their expenses."<sup>6</sup> Surveying 33 government

agencies in Canada, KPMG found that on average, the federal government's costs of data dissemination break even with the fees generated, but for provincial and municipal governments, the net fee impacts were negative.<sup>7</sup> KPMG also cites a 1999 report<sup>8</sup> that found "cost recovery" was having the opposite effect on its stated goals:

- The consequences for businesses are higher costs, lower research and development investments, and threatened marginal products.
- The results for consumers are negative: higher prices and reduced products and services.
- The overall economic consequences are 23,000 fewer jobs, reduced economic output (by almost \$2.6 billion), and a lower gross domestic product.

Despite these experiences with selling geodata, many participants reported that the appearance of bringing in revenue, even if it was but a trickle of the cost of GIS operations, created a very positive impression with highest-level budget approvers. A revenue stream, even perhaps at the expense of more valuable staff time, fostered credibility and protection from GIS staffing cuts.

## Capturing the Value of Geodata

Through deliberations among the ODC project participants, agreement was attained on several competing principles. We agreed that public information is a necessary component of open government and the democratic process. We also agreed that public agencies need funding to develop, maintain, and distribute their geodata. Importantly, the participants recognized that the value of geospatial data is realized through its usage, and that widespread distribution and use of public geodata benefits the entire jurisdiction as well as the government agency responsible for that geodata.

The key to resolving the "free data versus fee data" controversy, therefore, will be found by capturing the value of the geodata, its value both to the public and to the governmental custodian. Because GIS data creates more value the more it is used, capturing that value will motivate local government to distribute it as widely and as inexpensively as possible. How, then, can local government—the creator, maintainer, and "steward" of local geodata—actually "capture" that value?

While sharing their experiences and intentions for data policy, the ODC participants uncovered ten productive methods of supporting their GIS operations that do not include selling public geodata. They are organized into four categories:

- Revenue produced from existing taxes
- Revenue produced from service fees
- Cost savings
- Internal budgeting

These methods, which are explained in the following section, do not include the cost savings accrued through multiagency, cost-sharing, or data-sharing cooperation. While such actions result in hugely significant savings in the cost of creating and

maintaining geodata, they do not derive from the actual usage of the geodata.

## Revenue Produced from Existing Taxes

1. Allocate a portion of the increased revenues that come from increased economic activity and new economic development to GIS operations.

Cities and counties know that information about available land, buildings, zoning, transportation, environmental conditions, support facilities, ownership, and property value is critical to attract investment for economic development. Many have discovered that putting their data on the Web has captured interest and activity from investors as far away as Asia and Europe, because their local information is as close as the nearest computer.

- The cities of Ontario, Vallejo, San Francisco, Rancho Cucamonga, Tucson, and Honolulu report increased economic activity after creating Web-based economic development applications that enable anyone to query their data for property with specific qualities of interest.<sup>9</sup>
  - Vallejo reduced its retail vacancy rate by 46 percent.
  - Rancho Cucamonga reduced its retail vacancy rate by 44 percent.
  - Tucson reports a return on investment of \$400,000 in the first two years.
- The city of Carson, California, observes that it receives more money from taxes after the opening of a new 7-11 store than it would from data sales.
- In Ohio, the cities of Cincinnati, Cleveland, and Columbus made their data freely available after a new auto factory opened in a competing city that freely provided its information. The company completed its on-site review in just one day because the data had been easily acquired and preanalyzed.

Increased economic development generates jobs, sales tax, property tax, and many other revenues for local government. Currently, the increased revenues go into the general fund. A portion of these increased revenues could be and should be allocated to maintaining the geodata operations that helped bring the new economic development to town. Accounting procedures could be modified to include a heuristic estimate of the percentage of new revenues that can be attributed to the availability of accurate, up-to-date geospatial data, and that portion could be specifically allocated to maintain GIS operations.

2. Allocate a portion of the increased revenues that have come from a more accurate determination of facility locations for taxation purposes, or from the geoanalysis of undertaxed property assessments, to GIS operations. (Bounty fee)

GIS data and geoprocessing enable the precise determination of which special districts, city, and county contain facilities such as cell phone towers, point-of-sale businesses, and property parcels. Most jurisdictions have complex and frequently changing boundary lines, and each jurisdictional boundary may have a different tax rate. GIS-based analysis can determine location much more accurately than postal address, and results in significant revenue increases, for example:

- Orange County, Florida, increased revenues from cellular telephone franchise fees by using GIS to determine which cell towers were in its tax jurisdiction. The postal address put some towers in other counties. It now collects an additional \$650,000 every year.
- Los Angeles County recovered \$3 million in sales tax after geoanalyzing the location of point-of-sale businesses that were mislocated by their postal address. By performing the geoanalysis in-house, it saved an additional \$375,000 a year that had been slated for external data analysis services.
- Using GIS to identify properties with certain characteristics and proximity to Disney World, Orange County identified condominium owners who were renting their units informally for tourist accommodations without paying the required resort tax. Tax revenues were increased by \$700,000 in a single year, and continue to come in at the new level every year.

More accurate assessment and collection of existing taxes increase the revenue to local government without raising the tax rate. It makes current taxation more fair to all the citizens. Usually, the increased tax revenues go into the general fund. A portion of these increased revenues could be and should be allocated to maintaining the geodata operations that helped identify previously undertaxed properties. Accounting procedures could be modified to assign a percentage of such increased tax revenues specifically to maintaining GIS data and operations.

3. Allocate revenues from specific taxes and fees for services that rely on the collection and maintenance of accurate location-based information.

Land-records maintenance and management relies heavily on accurate geodata. GIS greatly improves the efficiency of land-records operations, and if built as an enterprise resource, the investment in GIS brings benefits to many other operations as well.

- California's so-called Section 818 program allowed county governments to allocate property tax and recording fees to the "modernization of land records." The San Mateo County Assessor saw this as an opportunity to develop a consistent, countywide GIS-based parcel map to make tax assessment more efficient. These funds, approximately \$800,000 over three years, substantially financed development of the county's GIS.

- Chester County, Pennsylvania, instituted a \$5-per-parcel property transfer fee to create a Uniform Parcel Identifier that became the foundation of the county's GIS basemap and its emergency dispatch system. The fee is but a tiny part of a typical property owner's transfer costs, and has not engendered any political opposition. It has raised \$696,000 for GIS operations in 2002.
4. Allocate a portion of the funding for specific programs to GIS data collection and maintenance.

Homeland security and emergency preparedness are the current focus of special-funding programs from federal and state sources (i.e., taxes), as had been flood control and sewer improvement programs prior to 9/11. All these programs require accurate and up-to-date basemaps that not only show local facilities, but also show relationships to nearby facilities and environments, such as watersheds, infrastructure, and public buildings.

While a small portion of these programs typically is allocated to "data collection," a slight increase in the investment by farsighted officials has produced an enterprise-wide GIS base for many local governments.

- Somerset County, New Jersey, Planning Division received grants for Smart Growth and Strategic Planning, which required using GIS data to support its model forecasting. Some of those grant monies were used to develop data attributes for its enterprisewide GIS.
- Alameda County, California, used National Pollutant Discharge Elimination System (NPDES) storm-drain pollution-control funds to map the storm drainage and watershed system, which essentially built a countywide GIS basemap.

Performance of these programs and projects could and should include financial support for ongoing geodata maintenance and GIS applications that increase their efficiency.

### Revenue Produced from Service Fees

5. Usage fees and subscription fees for customer-specific online applications can help support GIS operations.
- Six Southern California counties license their geodata to Digital Map Products<sup>10</sup> that redistributes it via Web-based query applications and data sales to subscribers. The counties receive a substantial portion of the subscription revenues. Other companies are similarly licensed as well.
  - The city of Carson is developing an online property locator application for a 15-city consortium, to be maintained on a subscription-fee basis by Realtors®.
6. Sell geoprocessing and management services to other agencies.

The city of Carson, California, has developed GIS capabilities far in advance of many of its neighboring cities. It is now proposing to manage a data-maintenance

consortium for these cities, saving them the time and the cost of developing their own in-house expertise, and enabling each city to focus its GIS resources on its own specific projects. This service will help support Carson's GIS department.

### Cost Savings

7. Allocate a portion of the increased savings that come from geospatial analysis of public service programs to support the GIS department's geodata and operations.

- Los Angeles County's court system started saving \$300,000 per year in mileage payment to jurors and witnesses after using GIS to calculate the most direct distance.
- Another county's Health and Human Services department began using GIS to cross-check the location of recipients of health and welfare services and eliminated 7 percent duplicate or fraudulent addresses in the first year.
- The city of Visalia used GIS to plan the location of new fire stations based on specific requirements for response time to populated areas. The analysis enabled it to reduce the number of planned fire stations while also reducing the overall response time. In addition to the cost saving to the city, the fire insurance cost to many of its citizens was reduced.

The money saved by using GIS did not go to these agencies' GIS departments. It was used in other ways by the services departments, or it remained in the general fund to be spent for other purposes. Internal accounting procedures should be changed to identify these savings with GIS so as to allocate a portion towards the ongoing maintenance and operation of this valuable geodata.

8. Allocate a portion of the increased savings that come from coordinated management of public works infrastructure and facilities to GIS operations and data maintenance.

- San Jose uses GIS to coordinate the priority assigned to maintenance projects for sewer, water, storm drains, and streets. Preventing multiple digs and repairs on the same street is saving 5 percent of its capital improvement budget—approximately \$700,000 per year.
- Another city canceled the planned purchase of an \$85,000 street-sweeping machine after using GIS to route its existing machines more efficiently.
- Palo Alto used GIS with its high-accuracy elevation data to reconfigure flood-risk boundaries. Some citizens received the benefit of lower flood insurance costs. Others, who were required to modify the construction of their homes, were saved from ruin when two 100-year floods occurred in a three-year period.

The money saved by using GIS did not go to these agencies' GIS departments. Internal accounting procedures should be changed to tag these savings to GIS so as to allocate a portion towards supporting its ongoing operation.

## Internal Budgeting

9. Allocate a portion of each department's operating budget to support GIS services.

- Ventura County has implemented an Internal Service Fund practice in which each of the county's 32 agencies pays for a negotiated level of GIS services, based on their perceived benefit to the agency. The Geographic Information Officer meets regularly with departmental managers to assess their satisfaction and need for basemap updates, technical support, applications, map production projects, and Web-based services that support their duties and functions. The departmental managers have been willing to pay the GIS department for the value they perceive from these services, which now accounts for 80 percent of the costs of the county's GIS operation—\$800,000.
- The water department in the city of Lomita has funded nearly the entire GIS operation from its need to create inventory maps. It reports that the benefits from "simple" GIS applications, such as water valve closure notification, have been worth the investment.
- The cities of Anaheim and Palo Alto also funded their GIS operations from utility rates. The benefit from current and accurate basemaps for maintaining infrastructure inventory more than balances the cost of the GIS, while also being used for nonutility municipal functions. A relatively insignificant part of the utility rate structure, GIS support has more political acceptance than if it were a municipal tax.

There are many success stories in which one or two departments carry most of the GIS cost for the entire city, or (as in the case of Ventura County) all the departments willingly contribute their fair share to maintain the GIS.

10. Allocate a portion of the agency's general fund to enterprisewide GIS services.

In some organizations, departmental financing of GIS is contentious. Consensus exists that the agency needs GIS, but a "don't take it from my budget" attitude prevails. Strong leadership from top management can resolve this frustration by making GIS an enterprisewide responsibility, to be budgeted before departments fight over their own slice of the pie.

- Pima County, Arizona, started its GIS development with a \$5 million capital-improvement bond, thereby building an enterprise system as a coordinated, master-planned effort.
- The cities of Fremont, Palo Alto, Roseville, and Visalia developed, and continue to maintain, their GIS operations as enterprisewide services, supported as line items from the general fund.

## The Value Is in the Usage, not in the Data

Local governments are seeing more and more financial benefits accrue from using GIS data, both to their organizations and to the citizens in their jurisdictions. As accounting mechanisms are put in place to allocate a portion of those benefits back toward the ongoing support of GIS operations and the maintenance of their geodata assets, fewer agencies will need to sell their data. There will be fewer access barriers between the public and the government's public information. The following actions are recommended in order to achieve this objective:

1. Recognize that the value of geodata is realized through its usage. The more it is distributed, the more it is used. The more usage, the more value.
2. Change governmental accounting practices to identify and measure the revenues that come from GIS-based information and analysis.
3. Change governmental accounting practices to identify and measure the savings that result from NOT spending money, due to geospatial analysis.
4. Allocate a portion of these benefits back to support the GIS operations that made them possible.

One ODC participant, a stalwart advocate of selling his county's data to users who were not taxpayers or citizens of his county, asked during our deliberations, "Why should a national map company have free access to our data when it sells digital tourist maps for profit?"

"And when those tourists use our maps to guide their vacation," the data reseller answered, "where do they go to spend their money?"

## Summary and Next Steps

Public information is a necessary component of open government and the democratic process. It helps us keep our government accountable. Concurrently, public agencies need funding to develop, maintain, and distribute their geodata. Attempts by public agencies to raise funding through the sale of geodata have not been financially successful, and have created impediments to the free accessibility to their geodata.

The key to resolving this dilemma will be found by measuring the value of the geodata, as it is used by both the general public and its governmental (public agency) custodian, and then allocating some part of that value to the agency's department that creates and maintains the public geodata. New revenues from existing taxes generally go directly into the agency's general fund; therefore, an accounting procedure must be developed to tag (identify) those revenues. Cost savings from the use of geodata present an even more difficult problem of identification because allocated money that does not need to be spent on the original purpose is usually spent on another worthwhile purpose instead. The regular assessment and reporting of geodata-assisted savings by public agency

operational departments may be the most direct method of tagging such cost savings.

The ODC project is continuing its work by explaining the model data distribution policy to local government agencies and assisting them to use the model to define, or redefine, their policies. The ODC project is also organizing another series of working groups to formulate recommendations for modifying governmental accounting methods to enable the benefits of geodata usage to be tracked more thoroughly. Readers who are interested in participating and want to contribute support to the ODC's ongoing efforts are encouraged to contact <http://www.OpenDataConsortium.org>.

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## About the Author

**Bruce Joffe**, founder of GIS Consultants in Oakland, California, has provided GIS implementation planning and management assistance to local governments and utilities for more than 26 years. He organized the Open Data Consortium project, <http://www.OpenDataConsortium.org>, to resolve the many contentious issues surrounding geodata distribution, through consensus-building communication among government, business, and academia. GIS Consultants continues assisting public agencies to develop their geodata distribution policies.

Joffe has a Master's degree in City Planning and a Master's degree in Architecture, both from M.I.T. He is a Certified GIS Professional, a past member (and Secretary) of the

URISA Board of Directors, past Chair of the California Geographic Information Association, and continuing board member of the Bay Area Automated Mapping Association, the California Spatial Reference Center, and the GreenInfo Network.

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- Joffe, Bruce. "To Sell or Not to Sell: GIS's Budgetary Dilemma," *GeoInfo Systems* (September 1995).
- Sears, Gary. "Geospatial Data Policy Study" (Ottawa, Ontario, Canada: KPMG Consulting, Inc., March 28, 2001).
- Where Does the Buck Stop? (Quebec, Canada: The Blair Consulting Group and Canadian Manufacturers and Exporters, January 1999).

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## Additional References

A list of links to data policy articles and some data distribution Websites is maintained on the Open Data Consortium Website, at <http://www.OpenDataConsortium.org>; click on "News/Links" and then click on "Web Links." Links to local government data policies are at <http://www.OpenDataConsortium.org>; click on "Information Repository."

The following article links relate to GIS data policy:

- Link to most state and federal statutes: <http://www.law.cornell.edu/statutes.html>.
- Online compendium of state open record laws: <http://www.rcfp.org/cgi-local/tapping/index.cgi>.
- Adelaide City Council: [http://www.adelaidecitycouncil.com/council/publications/Policies/Spatial\\_Data\\_Policy.pdf](http://www.adelaidecitycouncil.com/council/publications/Policies/Spatial_Data_Policy.pdf);  
[http://www.adelaide.sa.gov.au/council/publications/Policies/Spatial\\_Data\\_Policy.pdf](http://www.adelaide.sa.gov.au/council/publications/Policies/Spatial_Data_Policy.pdf).
- ANZLIC: <http://www.anzlic.org.au/policies.html>.
- Florida National Areas Inventory: [http://www.fnai.org/PDF/GIS\\_policy.pdf](http://www.fnai.org/PDF/GIS_policy.pdf).
- Office of Spatial Data Management: <http://www.osdm.gov.au/osdm/policy.html>.
- West Virginia Department of Environmental Protection data policy: <http://129.71.240.42/gps/geospatial.html>.

## Additional Articles Researched by Amirali Shaerzade

Boulder County CO pricing policy: [http://www.co.boulder.co.us/gis/cost\\_recovery/cost\\_pricing.htm](http://www.co.boulder.co.us/gis/cost_recovery/cost_pricing.htm).  
Canadian data policy study by KPMG: <http://cgdi.gc.ca/english/supportive/KPMG/KPMG.pdf>.  
Critique of Canadian data sales policy in Geo Place magazine: <http://www.geoplace.com/gw/1999/0699/699can.asp>.  
Digital Earth Site policy study: [http://www.digitalearth.ca/pdf/DE\\_A\\_227.PDF](http://www.digitalearth.ca/pdf/DE_A_227.PDF).  
Durham NC data sales policy: [http://www.ci.durham.nc.us/forms/gis\\_commercial\\_data\\_policy.pdf](http://www.ci.durham.nc.us/forms/gis_commercial_data_policy.pdf).  
Netherlands study of data policies: [http://www.lmu.jrc.it/Workshops/8ec-gis/cd/papers/3\\_p\\_uw.pdf](http://www.lmu.jrc.it/Workshops/8ec-gis/cd/papers/3_p_uw.pdf).  
New York State Office for Technology policy recommendations: [http://www.oft.state.ny.us/policy/tp\\_976.htm](http://www.oft.state.ny.us/policy/tp_976.htm).  
Revisions to U.S. A-16 policy in GIS Monitor: <http://www.gis-monitor.com/news/newsletter/archive/082902.php>.  
University of Maine research agenda for spatial databases: [http://www.spatial.maine.edu/tempe/onsrud\\_2.html](http://www.spatial.maine.edu/tempe/onsrud_2.html).  
West Virginia Department of Environmental Protection data policy: <http://129.71.240.42/gps/geospatial.html>.

## Footnotes

- <sup>1</sup> For purposes of this discussion, “free” or “no-cost” data means data provided at no more than the direct cost of distribution (e.g., staff time and materials used to reproduce the data from the agency’s existing GIS database system).
- <sup>2</sup> Two of the author’s summaries of the issue may be found at “To: To Sell or Not to Sell: GIS’s Budgetary Dilemma,” *GeoInfo Systems* magazine, (September 1995). , Advanstar Communications, Eugene, OR. (Also available at [http://www.opendataconsortium.org/article\\_gis\\_data\\_sales\\_dilemma.htm](http://www.opendataconsortium.org/article_gis_data_sales_dilemma.htm).)  
  
“GIS Data Sharing: Public Policy Supports and Impediments.” Presented with Patrick DeTemple, Michael Stevens, Scott McAfee, and Eric Waldman. ESRI International User Conference, July, 1999.
- <sup>3</sup> Prominent reasons for local governments to sell geodata include:
  - Defense by cost-sharing consortia against “free riders”

- Feeling a proprietary value after the long development process
- Desire for “control” of “our” data
- Resistance to profiteer windfalls from public investment. Interestingly, taxpayer concerns lead to two, opposing arguments: “Taxpayers already paid for the GIS, they shouldn’t have to buy it again,” or “Taxpayer investment should be reimbursed.”

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- “Taxpayers already paid for the GIS, they shouldn’t have to buy it again,” or
  - “Taxpayer investment should be reimbursed”
- <sup>4</sup> More information about the ODC project, as well as a review copy of the model Data Distribution Policy document, may be obtained from the Website, <http://www.OpenDataConsortium.org> .

Other critical data distribution issues include: purpose, legal authority, data recipients and distribution methods, copyright and licensing, disclaimers, privacy and security restrictions, data update and metadata maintenance requirements.

- <sup>5</sup> Of 264 people invited to participate, 117 reviewed the final data distribution model policy developed by 67 active participants who work in federal (4), state (6), and local (32) government, private enterprises (21); and universities (4). The full range of opinions were represented, from “free data” to “full cost recovery through sales.”
- <sup>6</sup> Gary Sears, “Geospatial Data Policy Study.” by Garry Sears, (Ottawa, Ontario, Canada: KPMG Consulting, Inc., Ottawa, Ontario, Canada, March 28, 2001), 18. p. 18
- <sup>7</sup> Ibid., p. 12.
- <sup>8</sup> “Where Does the Buck Stop?”, (Quebec, Canada: The Blair Consulting Group and Canadian Manufacturers and Exporters, Quebec, Canada, January 1999).
- <sup>9</sup> See <http://www.gisplanning.com>.
- <sup>10</sup> See <http://www.digmap.com>.