

10 Ways to Support GIS without Selling Data

Open Data Consortium project

Funding Local Government Geodata Operations without selling data

ESRI User Conference paper No. 1202

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abstract

Many GIS-enabled local governments have a core GIS Group that manages the agency's geodata, maintains its updating and metadata, and develops useful applications. And what is the GIS Group's major concern? How to remain funded during these difficult budgetary times.

Local government participants in the Open Data Consortium project have uncovered 10 effective ways to support their geodata operations, without having to sell public data as a commercial commodity. Come, hear about the lessons being learned from the ODC project and how you can participate.

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10 Ways to Support GIS without Selling Data

Outline

- Reason for data distribution Policy Standards
- Outline of ODC model Policy
- "10 Ways" Findings
- Digital Rights Management of On-line Geodata
- Next Steps

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Starting a New Project

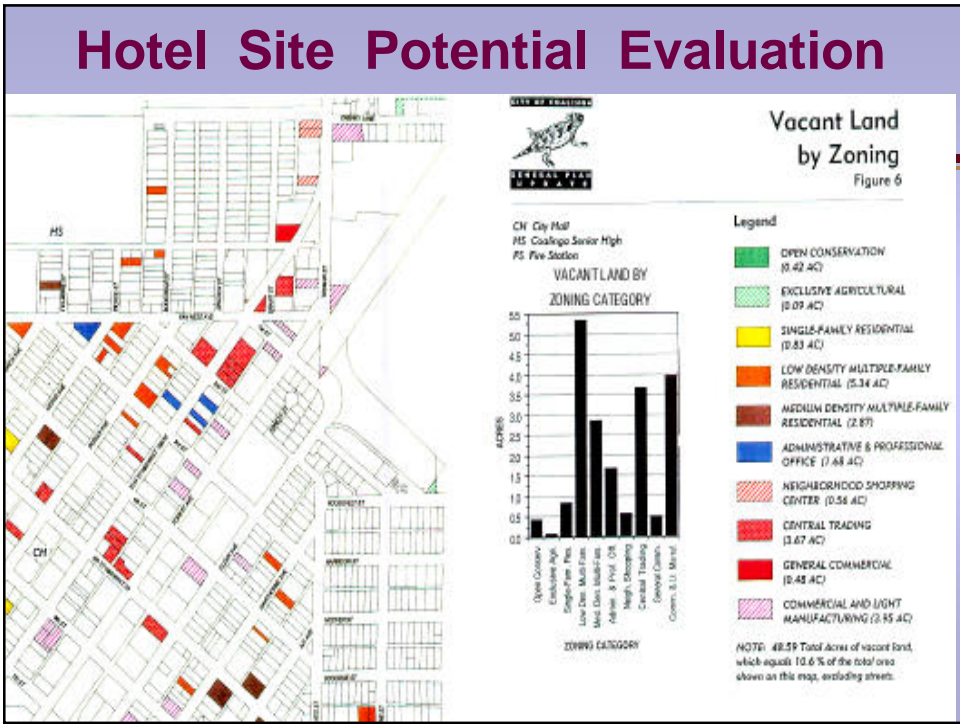
- New location
- New process
- New product

What do we need to know?

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Example Analysis Problem

Evaluate a Potential Hotel Site

- **What Data Do I Need?**
- **Who Has the Data?**
- **What Does It Contain? How Good Is It?**
- **How to Extract, Format, and Analyze the Data?**
- **How Can I Acquire It?**
- **What is the Cost?**

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Issues Impeding Easy Access to Public Geographic Data

- Finding the relevant data
- Cost
- Copyright & Licensing
- Distribution Methods
- Liability
- Security
- Privacy

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Data Distribution Policy Core Issue

Public's Right to Public Data
access to public information
insures government accountability

" ... 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.. " CPRA § 6250

Public Agency's Need to Fund Geodata Operations
Its ability to create, maintain, and disseminate data depends on funding through Taxes, Fees, Data Sales, or Capture of Added Value

" ... Yipes! Our department was cut "

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Why?

- **Why are local governments selling public geodata?**
 - It is a "strategic asset"
 - It is a commodity
 - It is expensive to create and maintain
- **Why is government data sales a problem?**
 - It is public record
 - It is "the people's information"
 - It enables us to keep our government accountable

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Other Reasons Some Local Governments Sell Data

- 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

Taxpayer concerns:

- "Taxpayers already paid for the GIS, they shouldn't have to buy it again"
- "Taxpayer investment should be reimbursed"

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ODC
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The Open Data Consortium project was initiated to formulate a model data distribution policy, **derived from** consensus-building collaboration, **engaging** national, state, and local governments, **as well as** private enterprises, non-profits, and universities.

- Organized through GeoData Alliance, a 501 (c) (3) non-profit professional association
- Initial seed-money grant from USGS and sponsorship donations
- Purpose to formulate a **model data distribution policy**

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Consensus-building Collaborative Effort

- ✓ Formed a group of **committed participants**
- ✓ Conducted a series of **resolution workshops**
- ✓ Created a draft **Model Policy**

67 active participants from local, regional, state & Federal government
+ universities, consultants, and data resellers

- **117 reviewing participants**
- **12 bi-weekly teleconference sessions**
(**24 telephone conferences**)
- **267 person-hours of deliberation**

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Open Data Consortium project Model Data Distribution Policy a guide for local government

Business Terms and Conditions for data distribution

- data ownership, copyright, data licensing
 - data content & services, costs, distribution methods
 - data update schedules, metadata maintenance
 - liability, security, and privacy protections
- Acceptable standard developed by representative peers
 - Predictable data costs; guaranteed data update cycles
 - Increase the number of data resellers and value-added service providers in the data marketplace
 - Wider distribution of public geodata at competitive market-driven prices

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www.OpenDataConsortium.org

The screenshot shows a web browser window displaying the Open Data Consortium website. The page title is "the OPEN DATA CONSORTIUM project" and the subtitle is "FORMULATING A MODEL DATA DISTRIBUTION POLICY AROUND ADMINISTRATIVE AND COMMERCIAL ISSUES". The main content area features a navigation menu on the left with links for CHARTER, WORK GROUPS, INFORMATION, REPOSITORY, NEWS/LINKS, PARTICIPATION, and CONTACT US. The main text describes the project's goal: "ODC is chartered to derive a model policy for distributing governmental geospatial data, that can serve as a de-facto example to guide public agencies. The model policy will be developed in a series of interactive workshops and teleconferences with representatives from local government, private companies, federal and state agencies who are willing to pursue a broad consensus of agreement." Below this text, there are three links: "The Data Distribution Policy has been completed and is available for review. [Take me to the documents](#)", "Interesting article on 18 Ways to Support OIG [Take me to the documents](#)", and "Help support Phase 2 of the ODC program [Take me to the documents](#)". A map of the United States with a network of lines connecting various points is displayed on the right side of the page. The logo for "the OPEN DATA CONSORTIUM project" is also visible. The browser's address bar shows "http://www.opendataconsortium.org".

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Major Components of the Data Distribution Policy

- Purpose of Data Distribution Policy
- Legal Authority
- Ownership of Data
- Data Distribution Services
- Data Recipients
- Data Distribution Methods
- Data Distribution Fees
- Other Terms of License Agreement

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Major Components of the Data Distribution License

- Control & security
- Copyright & notice
- Indemnify demand for data by others
- Disclaimer of liability & notice
- Privacy & security restrictions
- Positive identification
- Database dictionary
- Metadata maintenance
- Data correction & update
- Data redistribution

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FINDINGS: Using Data Sales to Support GIS

- Most government agencies that sell public data have not realized significant revenues; in many cases, they have actually lost revenues.

for example ...

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KPMG Geospatial Data Policy Study March, 2001

- US agencies reporting data income had revenues equal to 2% of their expenses.
- "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.

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FINDINGS: Using Data Sales to Support GIS

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

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Capturing Geodata's Value to Local Governments

- **Revenue Produced**
from existing taxes - **GeoAuditing**
from service fees
- **Cost Savings**
- **Support from Internal Budgeting**

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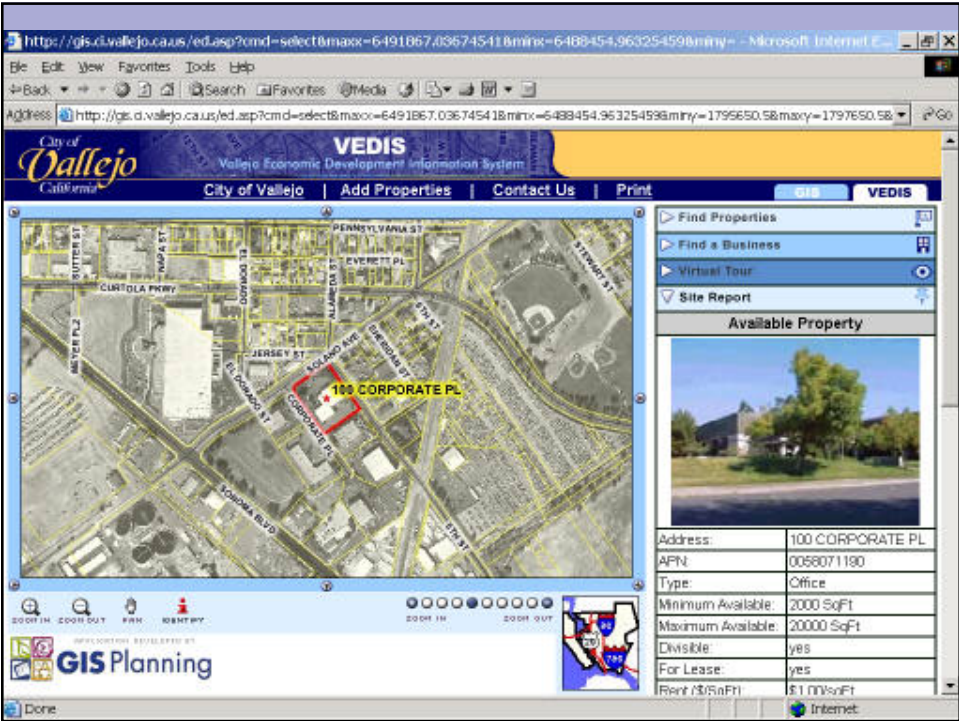
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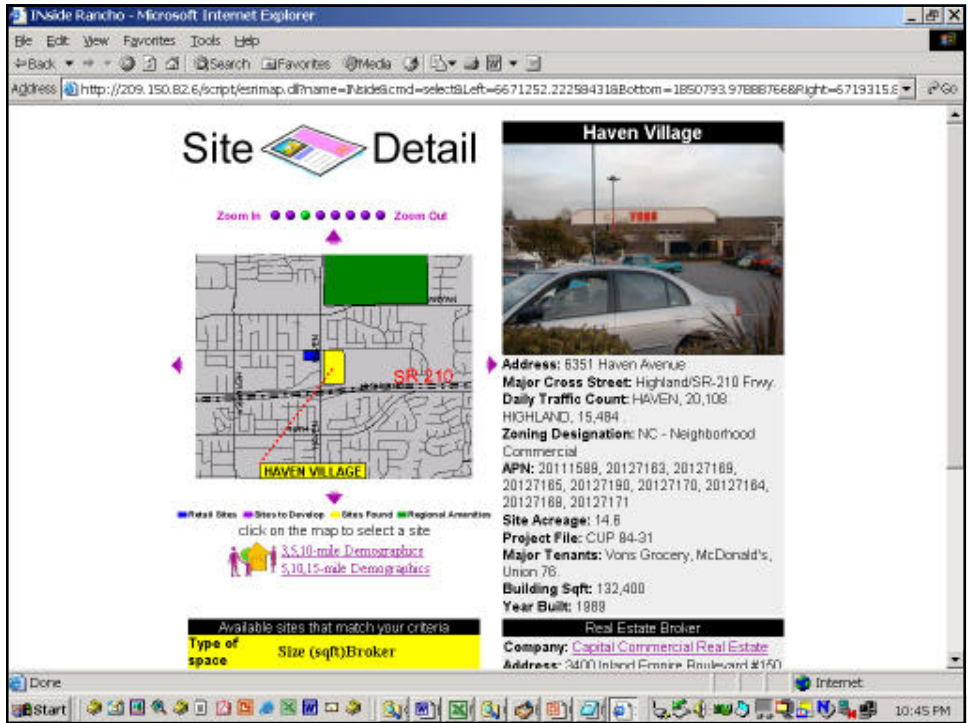
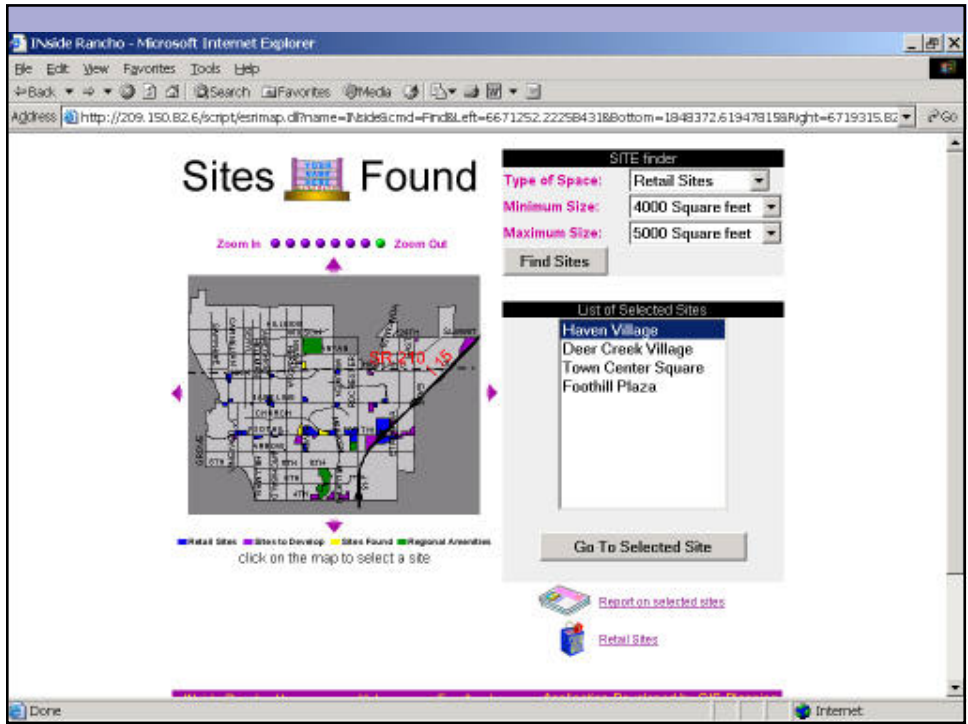
Revenue Produced from existing taxes

- Increased revenues that come from increased economic activity and new economic development

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Revenue Produced from existing taxes

- Increased revenues that come from increased economic activity and new economic development
- Increased revenues from more accurate determination of facility locations for taxation purposes ... **GeoAuditing**

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What is GeoAuditing?

- Geographic-based analysis of taxable parcels and entities
- Use GIS capabilities to more accurately locate entities in tax rate areas
- Compile lists of addresses derived from many sources and accurately locate them on the GIS map

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Potential Revenue Sources

| Revenue Source | Why Data Needs Auditing |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• CATV franchise fees• Cellular telephone franchise fees• Voter registration• School attendance• Water, sewer, hydrant fees• Telephone franchise for E-911• Electricity and gas franchise fees• Building permit fees• Homestead exemptions• Vending permits or licenses• Other excise/alcohol taxes/fees• Point of sale for sales tax• Personal and business property tax• Occupational licenses and taxes• Use permits• Fire permits• Industrial permits• Real property tax | <ul style="list-style-type: none">• Jurisdiction boundary problems• Incorrect tax/jurisdiction codes• Missing records• Annexations• Incorrect applicant supplied data• Out of date affidavits, no verifications• Under-reporting• Incorrect apportionment• Missing, unreported property• Missing businesses• Wrong use• Incorrect data |

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How Does GeoAuditing Work?

- **Compile addresses from data in significant county and franchisee sources**
 - Dispatch MSA G-ALI addresses
 - Voter Registration addresses
 - Tax Rate Area geolocations
 - Health and Human Services client addresses
- **Standardize and normalize addresses**
- **Locate addresses on GIS base map (geocode)**
- **Overlay tax rate area boundaries on GIS base map**
- **Identify address points that are not being taxed, or are incorrectly taxed**

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Revenue Produced from existing taxes

- 1) Increased revenues that come from increased economic activity and new economic development
 - 2) Increased revenues from more accurate determination of facility locations for taxation purposes ... **GeoAuditing**
 - 3) Revenues from specific taxes and fees
 - 4) Funding for specific programs
- Allocate a portion of these revenues to support ongoing geodata maintenance and GIS operation

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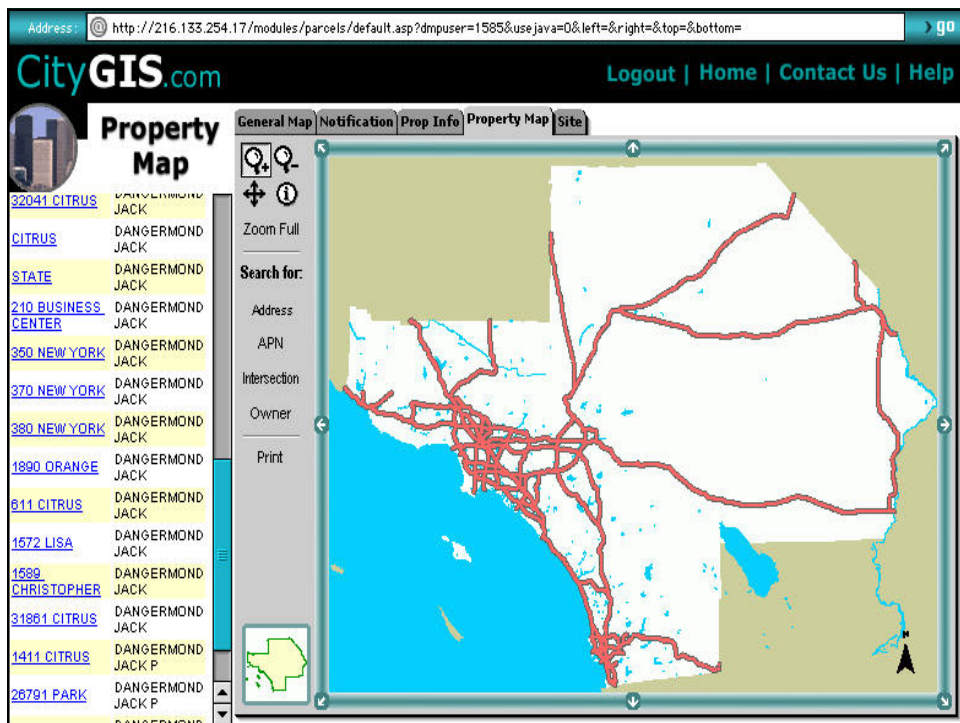
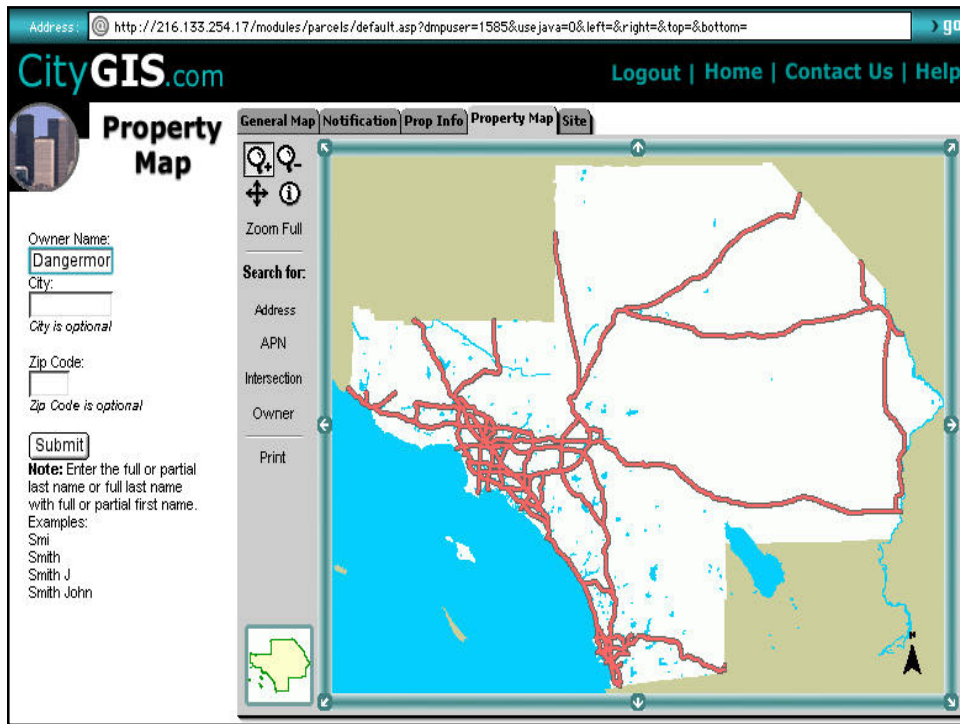
Revenue Produced from service fees

- Fees for customer-specific on-line applications

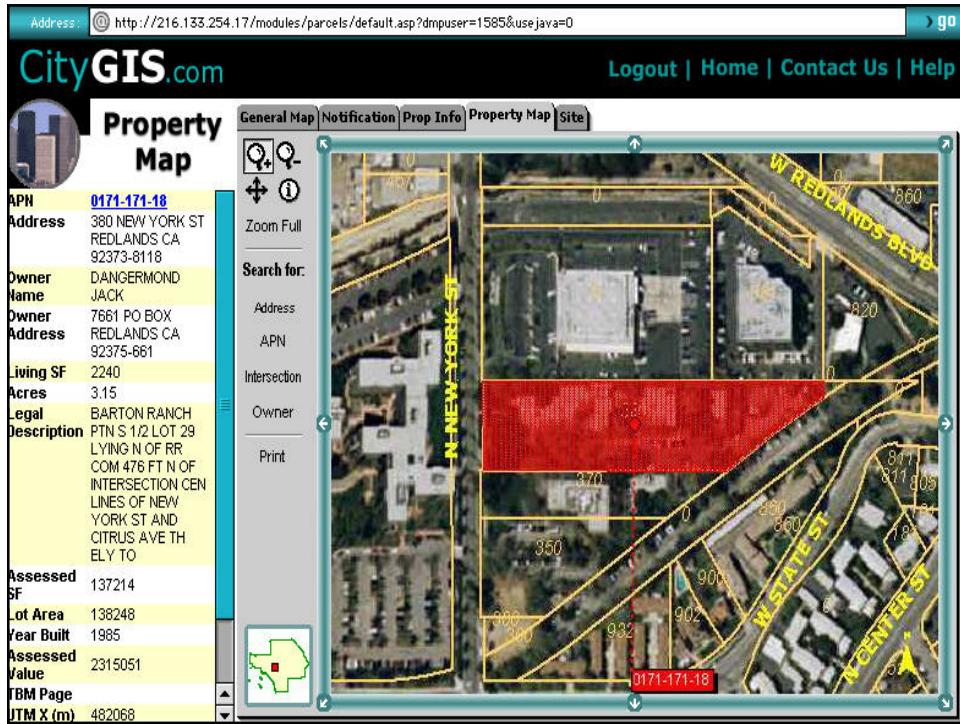
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Revenue Produced from service fees

- Fees for customer-specific on-line applications
- Fees for geoprocessing management services to other agencies

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Cost Savings

- **Increased savings from geospatial analysis of public service programs**
 - **Increased savings from coordinated management of public works infrastructure**
- Calculate and allocate a portion of these savings back to the GIS department for ongoing operations and geodata maintenance**

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Budgeting for Internal Support

- **Allocate a portion of each department's operating budget to support GIS services**
- **Allocate a portion of the Agency's general fund to enterprise-wide GIS operations**

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Free Data vs Fee Data?

The resolution is in Capturing the Value of the Geodata

The value of geodata is realized when it is used

- The more it is used, the more value is created by geodata
- Value accrues to geodata users by helping them to accomplish their objectives more effectively
- Value accrues to governmental stewards of geodata through **tax** revenues and **fees** from successful citizen enterprises

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Supporting GIS What Is Needed?

- 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
- Change governmental accounting practices to identify and measure the **revenues** that come from GIS-based information and analysis
- Change governmental accounting practices to identify and measure the **savings** that result from NOT spending money, due to geospatial analysis
- Allocate a portion of these benefits back to support the GIS operations that made them possible

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The Road Ahead - next steps

Phase 2:

- Adoption - **Consensus on data policy reached, but policy not yet adopted in local governments**
- Licensing - **Data Policy requires corresponding Data License**
- Accounting Procedures - **Needed to identify and track revenues and cost savings from GIS**

Phase 3 (jointly with OGC):

- Formulate Data Portal Negotiation Requirements
 - User Types
 - Access Rights
 - Distribution Methods

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Phase 3: Managing Geodata Digital Rights

- **Providing the owner a means to issue and manage rights while distributing geodata**
- **Geodata owners may grant different different rights depending upon:**
 - Type of Geodata
 - Class of User
- **Use Rights can include:**
 - Viewing, Downloading, Updating
 - Graphic images, geoactive data, associated attributes
 - Method of transmitting geodata
 - Cost to User, and other restrictions

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Simple Example of Usage Rights by User Type

| | | USE CATEGORIES | | | |
|------------|-----|--------------------------|-------------------------|-------------------------------|--------------------------------------------|
| | | (1) Internal Use Only | (2) Bring to display | (3) File/print/printscreen | (4) File/print/printscreen via internet |
| USER TYPES | (A) | A 1 | A 2 | A 3 | A 4 |
| | (B) | B 1 | B 2 | B 3 | B 4 |
| | (C) | C 1 | C 2 | C 3 | C 4 |
| | (D) | D 1 | D 2 | D 3 | D 4 |
| | (E) | E 1 | E 2 | E 3 | E 4 |

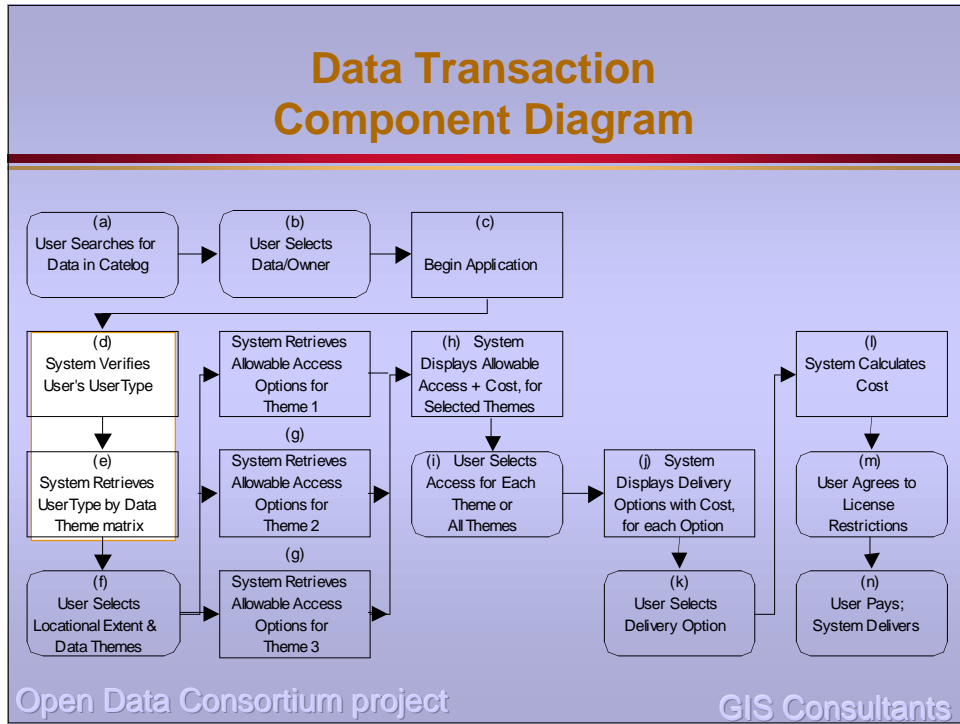
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GeoDRM Requirements Definition

- **Project Goal:**
 - Enable intersection of attributes about user, content and usage to manage content and services
- **Cooperative effort**
 - GeoData Alliance
 - Open GIS Consortium
 - FGDC
 - Open Data Consortium

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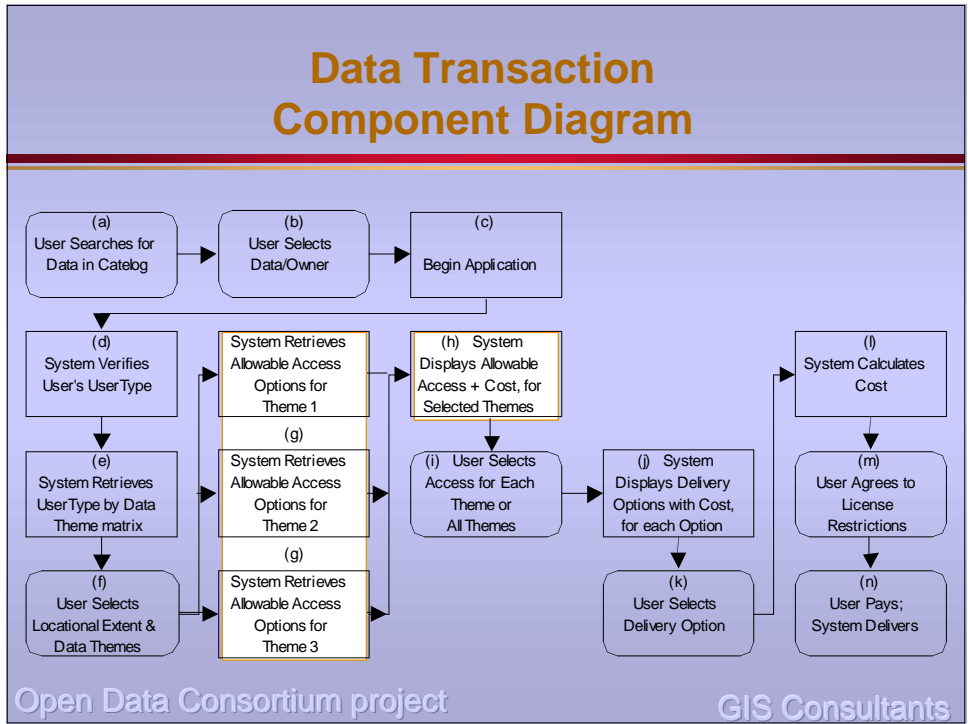


User Type by Data Theme

| | | Data Theme | | | | | | | | | |
|---------|------------------------------------------------|------------|---|---|---|---|---|---|---|---|---|
| serType | | | | | | | | | | | |
| 3.1 a. | All subcategories of <u>Value Provider</u> 3.1 | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| 3.1 b. | Emergency Service Providers | | | | | | | | | | |
| 3.1 c. | Government Agencies or agents | | | | | | | | | | |
| 3.1 d. | Data Contributors | | | | | | | | | | |
| 3.1 e. | Members | | | | | | | | | | |
| 3.2 | <u>Data Redistributor</u> | Y | Y | Y | Y | Y | Y | N | Y | Y | Y |
| 3.3 a. | All subcategories of <u>Data User</u> 3.3 | | | | | | | | | | |
| 3.3 f. | News Media | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| 3.3 g. | Educational and Research Institutions | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| 3.3 h. | Users within Owner's legal jurisdiction | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| 3.3 i. | Trusted Users (verified identity) | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| 3.3 j. | Unknown Users | N | A | A | A | A | A | A | A | A | N |

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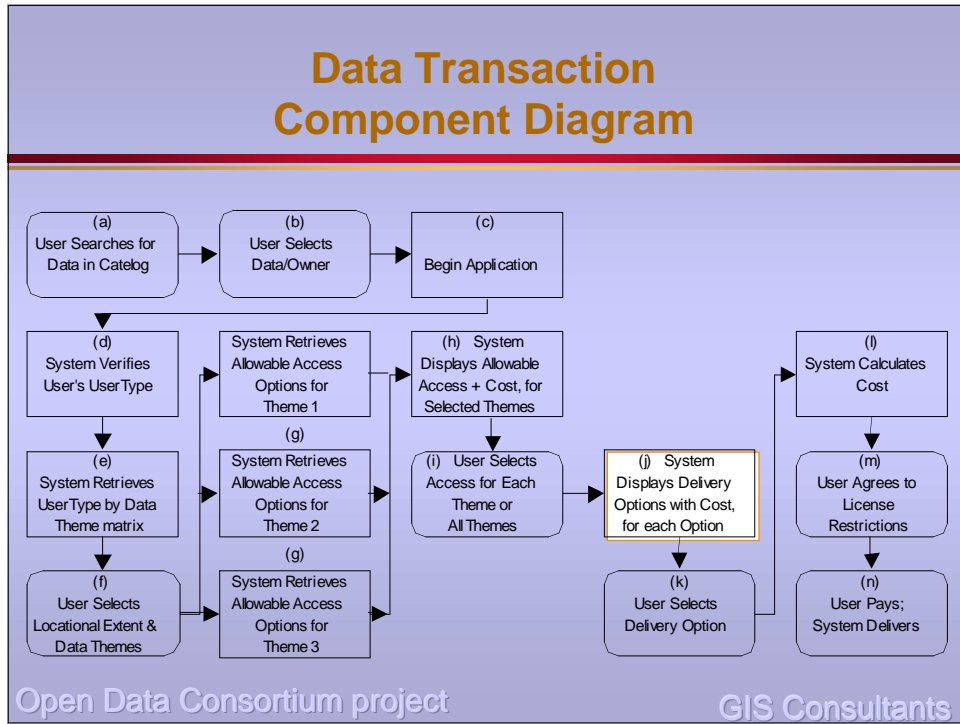
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User Type by Access Rights

| for Parcel GeoData | | UserType | | | | | | | | | | | | | | | | | | |
|----------------------|---------------------------------------|----------|---|---|---|------|------|---|---|---|----|--|--|--|--|--|--|--|--|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | |
| Access Rights | | | | | | | | | | | | | | | | | | | | |
| .1 a | View Only through Application | 0 | 0 | 0 | M | 0 | 0 | | | | | | | | | | | | | 0 |
| 5.20 | Internal Use Only | | | | | | | | | | | | | | | | | | | |
| 5.2 b | Receive results from Application: | | | | | | | | | | | | | | | | | | | |
| 5.2 b 0.1 | bitmap image (.pdf) | 0 | 0 | 0 | M | 0 | 0 | | | | | | | | | | | | | 0 |
| 5.2 b 0.2 | vector graphics + flat file | 0 | 0 | 0 | M | 0 | 0 | | | | | | | | | | | | | N |
| 5.2 c | Receive geodata as: | | | | | | | | | | | | | | | | | | | |
| 5.2 c 0.1 | bitmap image of map and data | 0 | 0 | 0 | M | 0 | 0 | | | | | | | | | | | | | N |
| 5.2 c 0.2 | vector graphics or native GIS | 0 | 0 | 0 | M | 0.01 | 0.01 | | | | | | | | | | | | | N |
| 5.2 c 0.3 | vector graphics or GIS, + attributes: | | | | | | | | | | | | | | | | | | | |
| 5.2 c 0.3a) | flat file format (csv or Excel) | 0 | 0 | 0 | M | 0.03 | D | | | | | | | | | | | | | N |
| 5.2 c 0.3b) | relational table format,+ schema | 0 | 0 | 0 | M | 0.03 | D | | | | | | | | | | | | | N |
| 5.30 | Create Derivative Products: | | | | | | | | | | | | | | | | | | | |
| 5.3 d | for internal use | 0 | 0 | 0 | M | 0.03 | 0.03 | | | | | | | | | | | | | N |
| 5.3 e | for external use | 0 | N | N | N | 0.03 | N | | | | | | | | | | | | | N |
| 5.40 | Data Update | N | 0 | N | N | N | N | | | | | | | | | | | | | N |
| 5.50 | Data Redistribution | | | | | | | | | | | | | | | | | | | |
| 5.5 g | to Members or to Trusted Users | N | N | N | N | 0.03 | N | | | | | | | | | | | | | N |
| 5.5 h | to unknown users. | N | N | N | N | N | N | | | | | | | | | | | | | N |

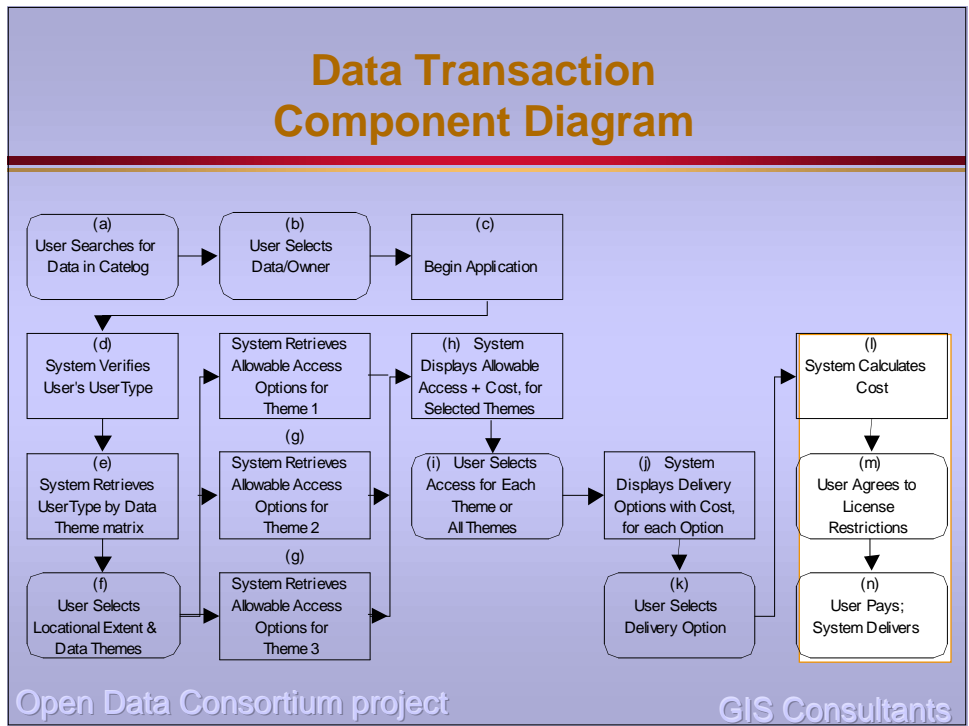
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User Type by Distribution Method

| | UserType | | | | | | | | | |
|---------------------------------------|----------|----|----|----|----|-----|-----|----|-----|-----|
| Distribution Method | | | | | | | | | | |
| view the data (no download) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| as a bitmap image | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| vector graphics or native GIS format | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| vector graphics or GIS,+ data | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Send the data | | | | | | | | | | |
| Send data in digital hardcopy | | | | | | | | | | |
| as a bitmap image | 25 | 0 | 25 | 25 | 25 | 25 | 0 | 25 | 25 | N |
| vector graphics or native GIS format | 50 | 0 | 50 | 50 | 50 | 100 | 50 | 0 | 50 | 50 |
| vector graphics or GIS,+ data | | | | | | | | | | |
| data in flat file format (csv, Excel) | 25 | 0 | 25 | 25 | 25 | 150 | 25 | 0 | 25 | 25 |
| relational table format,+ schema | 50 | 0 | 50 | 50 | 50 | 200 | 50 | 0 | 50 | 50 |
| Send as controlled download | | | | | | | | | | |
| as a bitmap image | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N |
| vector graphics or native GIS format | 0 | 0 | 0 | 0 | 0 | 100 | 50 | 0 | 0 | 50 |
| vector graphics or GIS,+ data | | | | | | | | | | |
| data in flat file format (csv, Excel) | 0 | 0 | 0 | 0 | 0 | 150 | 75 | 0 | 75 | 75 |
| relational table format,+ schema | 0 | 0 | 0 | 0 | 0 | 200 | 100 | 0 | 100 | 100 |
| Send as uncontrolled download | | | | | | | | | | |
| as a bitmap image | na | na | na | na | na | na | na | na | na | 0 |
| vector graphics or native GIS format | na | na | na | na | na | na | na | na | na | na |
| vector graphics or GIS,+ data | | | | | | | | | | |
| data in flat file format (csv, Excel) | na | na | na | na | na | na | na | na | na | N |
| relational table format,+ schema | na | na | na | na | na | na | na | na | na | na |

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ODC Open Data Consortium Next Steps YOU Can Do

- Inform people & organizations about the ODC model data distribution policy
- Formulate or modify your agency's data policy and distribution license following the ODC Model
- Suggest sources of **\$ponsorship \$upport**
- Volunteer to Help the ODC project

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- Malcolm Adkins, Kylami

Additional Sponsors are Welcome

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Why?

"Why should a national map company have free access to our data when they sell digital tourist maps for profit"

- K.M., Nashville Metro Commission

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

- N.W., TeleAtlas North America

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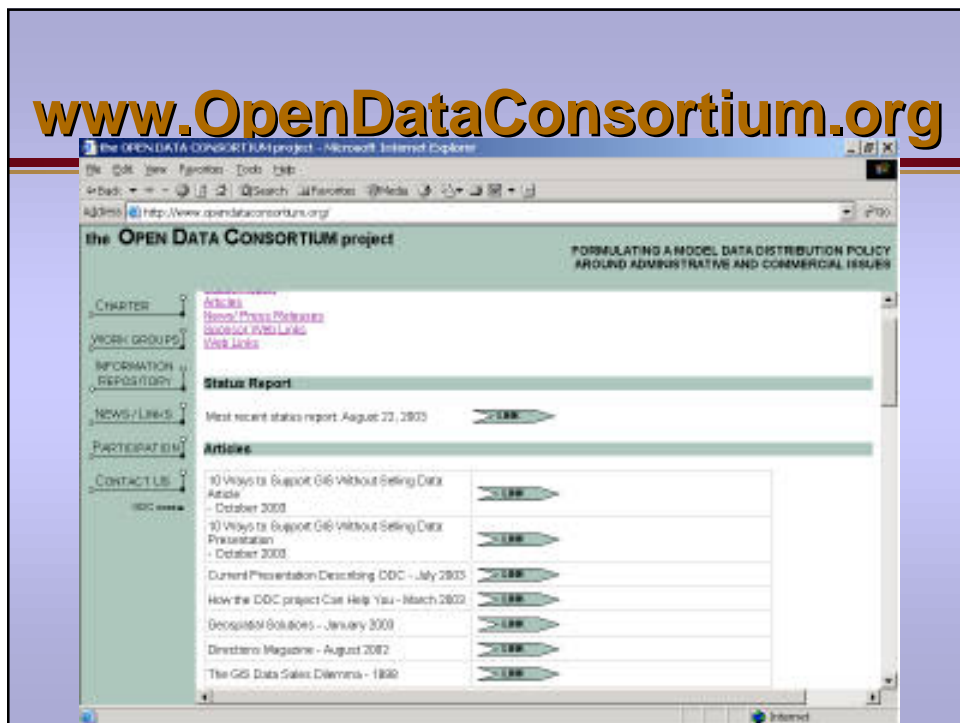
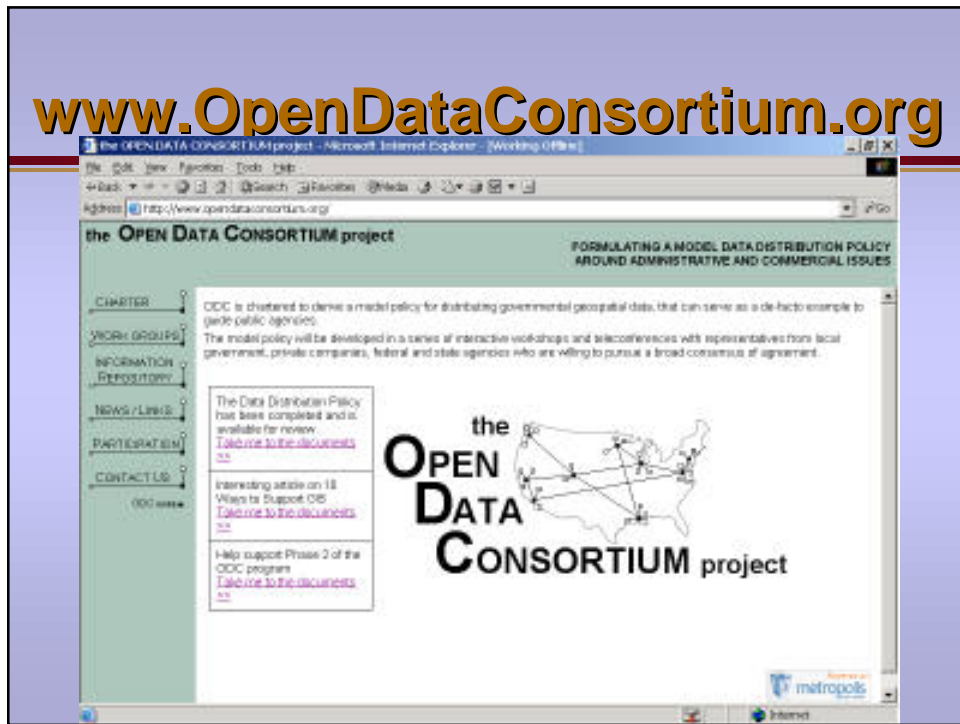
Topics for Discussion

- **Encouraging Local Governments to adopt a data distribution policy and license, based on the ODC Model Policy**
- **Procedures needed to identify revenues and cost savings accrued from using GeoData**
- **Implementing GeoAuditing to increase taxable revenues**
- **Forging agreement on supporting GeoData operations from revenues and cost savings**

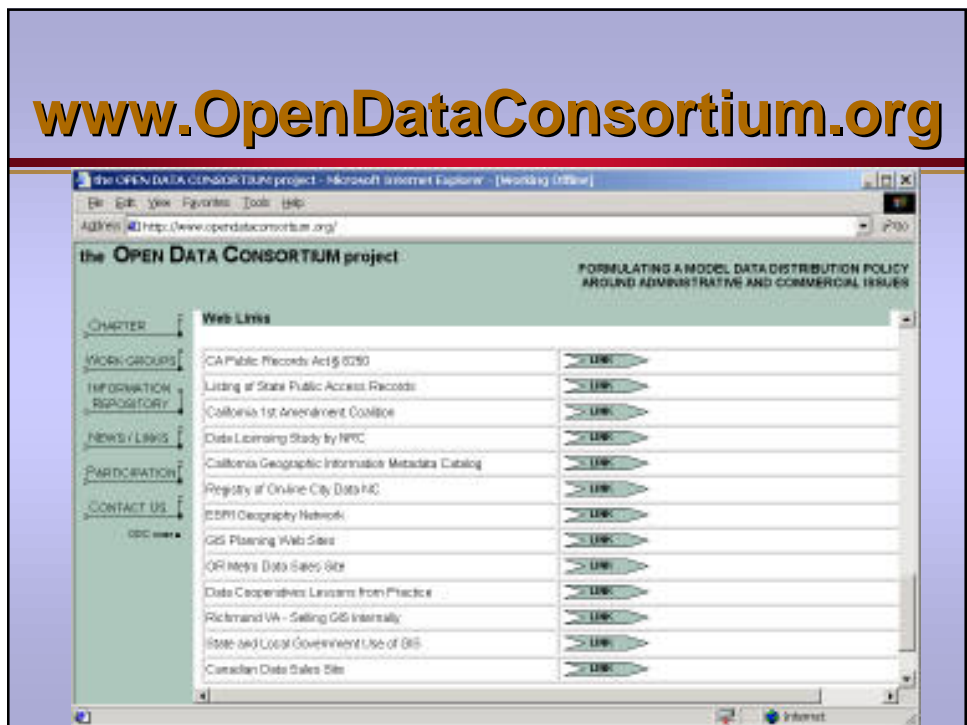
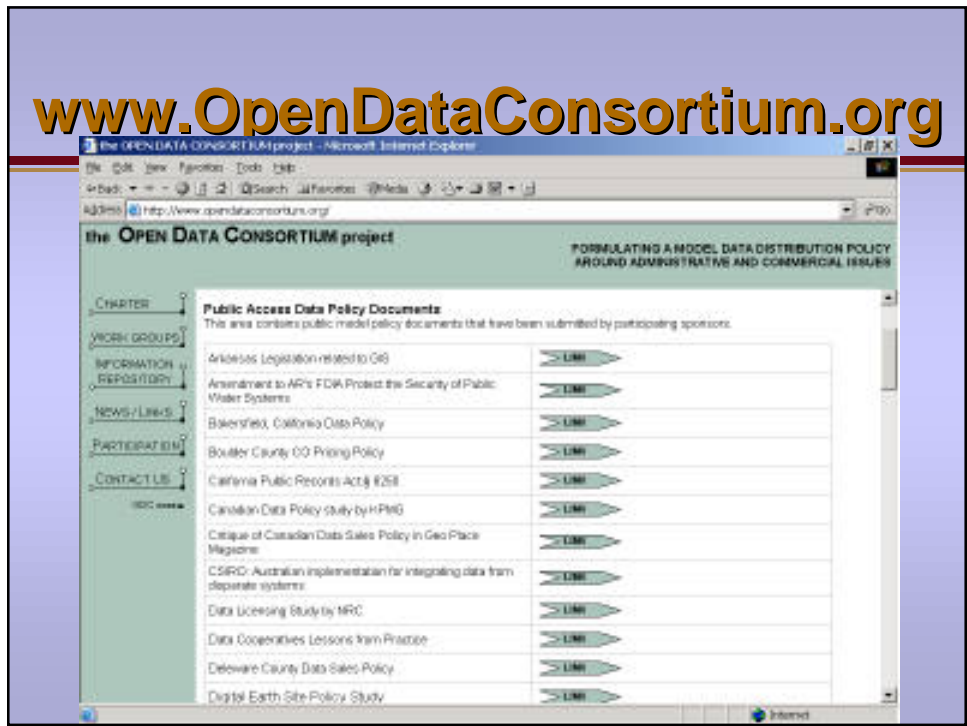
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