

**OREGON GIS UTILITY PROJECT—PHASE 1  
REQUIREMENTS ASSESSMENT AND BUSINESS CASE**

**Technology and Data Inventory  
for  
The Non-Public Sector GIS Community in Oregon**

**PlanGraphics Deliverable 8C**

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## **SECTION 1 INTRODUCTION**

### **1.1 THE OREGON GIS UTILITY PROJECT**

The Oregon GIS Utility Project was initiated by the State of Oregon to plan and design a statewide GIS utility. The concept of the GIS utility is to create a system and a supporting institutional structure to support consistent, efficient statewide geographic information sharing, maintenance, and GIS services supporting the business needs of the government and non-governmental community in Oregon. The GIS Utility includes— a) a robust computing infrastructure and network for statewide access, b) up-to-date, multi-theme geographic data, c) GIS applications enabling access and use of the geographic database, and d) an organizational structure supporting statewide coordination and long-term enhancement of GIS resources.

The GIS Utility is based on several important principles:

- Participation by a wide community of users—the “extended enterprise” (state, federal, tribal and local governments; regional agencies; private businesses; academia; not-for-profit sector; general public)
- Practical use of accepted technology standards that promote efficiency in data development, access, and exchange
- Service-oriented
- Requires investment with an expectation of long-term benefits
- Stable infrastructure with commitment to ongoing operations and maintenance
- Sustainable—financially, politically, and operationally.

The Geospatial Enterprise Office of the Oregon Information Resources Management Division administers the project.

### **1.2 THE OREGON GIS UTILITY SURVEY FOR THE NON-PUBLIC SECTOR—PURPOSE AND METHOD**

The Oregon GIS Utility Survey was established to help in the assessment of GIS technology, data use, and needs of the public and private user community in Oregon. This will aid in the preparation of a business case and the accompanying organizational and financial support for GIS Utility development and operation. The survey is important because user knowledge about the geospatial data for a particular business area or jurisdiction (and, conversely, any lack of availability) will help to solidify a business case

for increased funding. The following text presents the results of the GIS Utility Survey for the non-public sector. The results of the public sector survey are presented in a separate report.

Private and non-governmental entities were invited to take the survey. These entities include non-public sector groups from a variety of business types, including citizen and advocacy groups, private companies, non-profit organizations, academic institutions, professional societies, and others. A list of respondents is provided in Appendix A.

To ensure the security of responses, the survey could only be accessed by using a password. The password was provided to specific individuals who were invited to participate or other venues that were specifically asked to take the survey.

### **1.3 THE OREGON GIS UTILITY PROJECT WEB SITE**

The project Web site was established for the Geospatial Enterprise Office of Oregon to provide information about the Oregon GIS Utility project and to facilitate communication during the planning, design, and subsequent development process. The site includes publicly accessible and password-protected information and project resources, as well as links to the Oregon GIS Utility Survey. The project Web site can be found at: [http://www.plangraphics.com/projects/Oregon\\_GIS\\_Utility/](http://www.plangraphics.com/projects/Oregon_GIS_Utility/). This site contains a wealth of information about the project, as well as numerous resources, reports, and documents. From here, a user can access the project survey Web site through a link found in the left margin of the page or can go directly to the site at: [http://confdemo.plangraphics.com:8080/private\\_survey5/src/surveyform.html](http://confdemo.plangraphics.com:8080/private_survey5/src/surveyform.html).

Also included here is a link to a page called *Frequently Asked Questions*. This page contains commonly asked questions and answers about the GIS Utility project mission, as well as explanations about how the survey will help the overall mission of the GIS Utility project and how the GIS Utility will work. Survey instructions are provided in Appendix B.

### **1.4 THE OREGON GIS UTILITY SURVEY CONTENT**

The non-public sector survey was initiated in March 2005 using a Web-based survey designed specifically to collect information from the non-public sector needed for the GIS Utility business case study. However, the survey continued to be open for response beyond May 31 to accommodate additional responses.

This report includes responses received through June 2005. The complete survey form is included in Appendix C. The survey questions are organized into four sections:

- A. General information about the responding organization
- B. GIS technology infrastructure and applications
- C. GIS data holdings and needs
- D. GIS outsourcing, data sharing, and program collaborations.

Responses to the Web-based survey are automatically loaded in an Access database. This is a raw, un-normalized database designed simply for easy capture of responses. The un-normalized data is then exported to a normalized Access database in which data tables and keys are set up to facilitate data summaries and analysis. A database dictionary describing more detailed information and the physical characteristics of both the raw and normalized database tables will be provided as a separate deliverable. The details of the survey questions are described below.

### **Part A—Organization Background Information**

This section contains basic questions about the responding organization, including detailed contact information, as well as the type of organization, the business sector of the organization, status of the organizations' GIS technology use and level of importance to the organization, GIS products and services provided by the organization, and the service area that the GIS program supports.

- A.1: Name of organization
- A.2: Department or office
- A.3: Contact name
- A.4: Contact title
- A.5: Contact information
- A.6: Main office location
- A.7: Organization Web site URL
- A.8: Size of organization staff in Oregon
- A.9: Type of organization
- A.10: Business sector of organization
- A.11: GIS products and services provided by the organization
- A.12: Status of current GIS technology use
- A.13: Level of importance of GIS technology
- A.14: Service area of organization's operations

## **Part B—GIS Technology Infrastructure and Applications**

Part B includes information about the technology infrastructure or the responding organization. Participants were asked to identify client and server operating systems, database and GIS software products used, and GIS applications currently used, planned, or in development.

- B.1: GIS server operating systems
- B.2: GIS server database software
- B.3: GIS server software
- B.4: Client/Desktop operating systems
- B.5: Client/Desktop database software
- B.6: Client/Desktop GIS or mapping software
- B.7: Field/Mobile computer type and operating system
- B.8: Field/Mobile GIS or mapping software
- B.9: GPS data collection systems
- B.10: Other mapping, data collection, and GIS software
- B.11: Current or planned GIS applications

## **Part C—Geographic Data Needs and Status**

Part C explores the GIS data holdings of the responding organizations. This section includes four categories—status, source, update frequency, and a comment box. Information gathered in Part C will help determine the core data sets that are the backbone of any GIS utility.

- C.1: GIS data themes
- C.2: External data sets used or integrated with GIS
- C.3: Metadata use
- C.4: GIS standards
- C.5: Major database development or migration, plans, and current projects

## **Part D—GIS Outsourcing, Data Sharing, and Program**

In Part D, information is gathered to provide an indication of GIS services that are outsourced, as well as the level of collaboration with other GIS programs and organizations.

- D.1: Use of outsourced services
- D.2: Participation in GIS programs, consortiums, or partnerships with a public agency
- D.3: License data to other organizations
- D.4: License data from other organizations
- D.5: Other GIS agreements of GIS project collaboration with other organizations

In addition, respondents could request to be included in a statewide directory of GIS professionals to be managed by the Geospatial Enterprise Office.

## 1.5 SUMMARY OF SURVEY RESPONSES

While most of the respondents to the non-public sector survey answered all of the survey questions, some did not. This is important to note when reviewing the data as there is not always a one-to-one correspondence between the number of respondents and the number of responses. Also of note, in some cases, a respondent may have chosen more than one answer. For example, when asked to describe the GIS services or products provided, a business might provide more than one GIS service type, so although 36 non-public sector organizations responded, the total GIS services provided could significantly exceed the number of responding agencies.

More than 200 non-public sector organizations were invited to take part in the survey. These groups were chosen to reflect the broadest possible range of non-public sector business types. Although many of the groups solicited expressed interest in GIS, as of June 15, 2005, 36 non-public sector agencies had responded, including three citizen or advocacy groups, 10 non-profits, and 21 private companies. Two respondents did not complete the majority of the survey questions. In an attempt to increase response rates, these agencies were repeatedly contacted individually by phone and by email and encouraged to respond to the survey. Table 1-1 shows the organizations that responded and their business types.

**Table 1-1: List of Respondents by Business Type**

Organization	Business Type
Oregon Cranberry Network	Citizen or Advocacy Group
Assn. of Oregon Rail & Transit Advocates	Citizen or Advocacy Group
Oregon League of Conservation Voters	Citizen or Advocacy Group
Harney Electric Cooperative, Inc.	Not-for-Profit Organization
Mercy Flights, Inc.	Not-for-Profit Organization
Native Forest Council	Not-for-Profit Organization
Northwest Habitat Institute	Not-for-Profit Organization
ONRC	Not-for-Profit Organization
Oregon Natural Desert Association	Not-for-Profit Organization
Pacific States Marine Fisheries Commission	Not-for-Profit Organization
Siuslaw Watershed Council	Not-for-Profit Organization
The Nature Conservancy	Not-for-Profit Organization
Waterwatch of Oregon	Not-for-Profit Organization
VARGIS	Private Company
Western Helicopter Services, Inc.	Private Company
Coos Curry Electric Cooperative, Inc.	Private Company
David C. Smith and Associates, Inc.	Private Company
ESRI	Private Company
GeoSolve Inc.	Private Company
High Desert Geo-Technologies, Inc.	Private Company
IONIC Enterprise Inc.	Private Company



**Table 1-1: List of Respondents by Business Type (continued)**

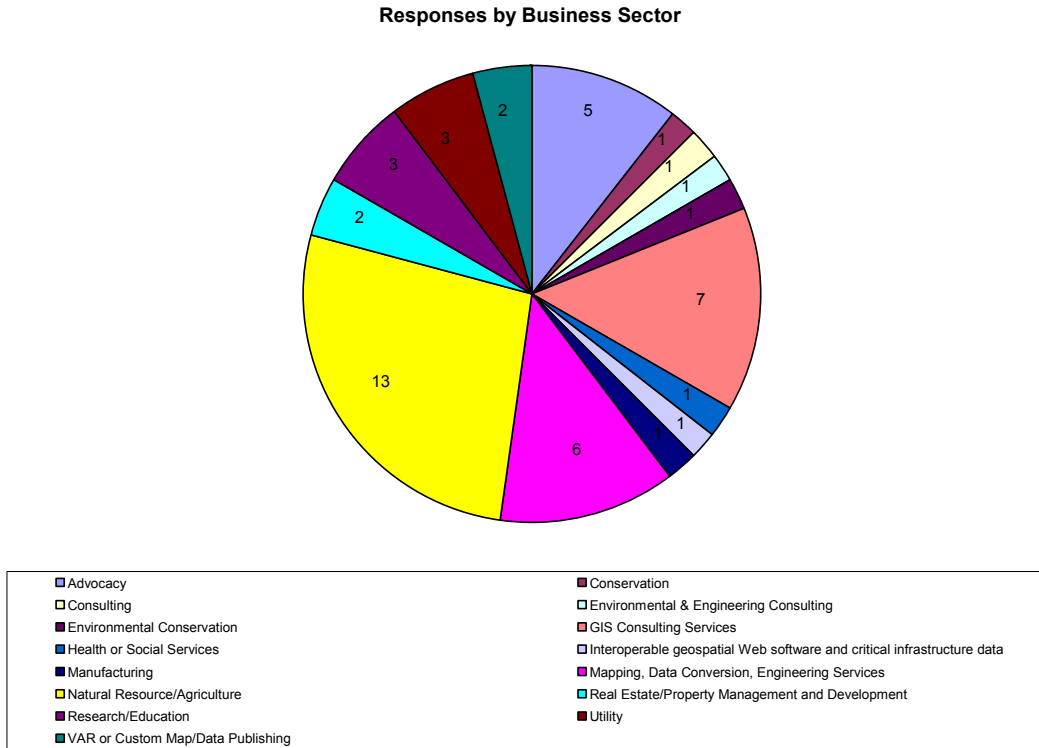
<b>Organization</b>	<b>Business Type</b>
KPFF Consulting Engineers	Private Company
Oregon First	Private Company
Visual Risk Technologies	Private Company
Seneca Jones Timber Company	Private Company
ValueCAD	Private Company
Olympic Resource Management LLC	Private Company
Applied Ecosystem Services, Inc.	Private Company
Weyerhaeuser	Private Company
The Campbell Group	Private Company
Starker Forests, Inc.	Private Company
Portland General Electric	Private Company
Rocking C Ranch	Private Company
Maul Foster Alongi Inc.	Private Company

A wide range of business areas are represented, including private utilities, environmental advocacy groups, paper companies, and GIS consultants, to name a few. The business sector with the highest response rate to the non-public sector survey is primarily concerned with natural resources and agriculture as seen in Table 1-2 and Figure 1-1. Please keep in mind that a single respondent could have chosen more than one business area.

**Table 1-2: Response Rate by Business Areas**

<b>Business Area</b>	<b>Frequency</b>	<b>Percentage</b>
Advocacy	5	10.4%
Conservation	1	2.1%
Consulting	1	2.1%
Environmental and Engineering Consulting	1	2.1%
Environmental Conservation	1	2.1%
GIS Consulting Services	7	15%
Health or Social Services	1	2.1%
Interoperable Geospatial Web Software and Critical Infrastructure Data	1	2.1%
Manufacturing	1	2.1%
Mapping, Data Conversion, Engineering Services	6	13%
Natural Resource/Agriculture	13	27.1%
Real Estate/Property Management and Development	2	4.2%
Research/Education	3	6.3%
Utility	3	6.3%
VAR or Custom Map/Data Publishing	2	4.2%

**Figure 1-1: Represented Business Areas**



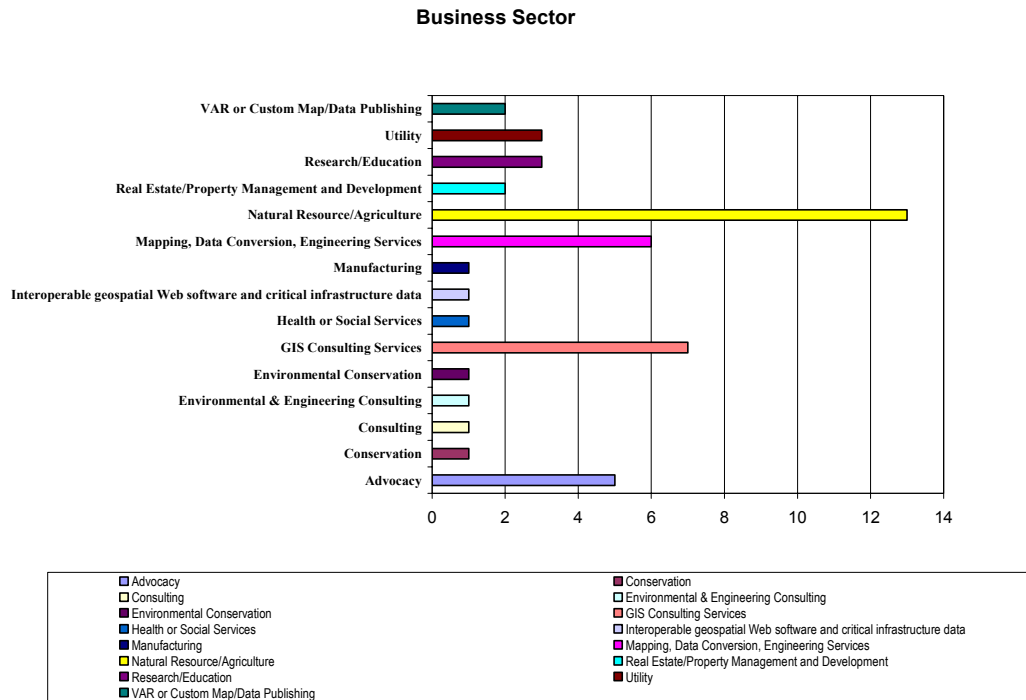
Of the 36 non-public sector organizations represented, 26 have GIS capabilities, and only one respondent did not answer the question (see Table 1-3).

**Table 1-3: Status of GIS Program**

Status	Number of Responses	Percentage
Currently Operational	26	74%
In Development	4	11%
In Planning Stages	3	9%
No Program Planned or in Operation	2	5%
No Response	1	1%

Figure 1-2 illustrates the status of GIS usage by business sector. The highest number of currently operational GIS programs is found in the GIS consulting services group, with 26, followed by natural resources and agriculture at 22. Only two respondents have no GIS program capabilities and no plans for GIS within their organizations.

**Figure 1-2: GIS Usage by Business Sector**



Nineteen organizations provide GIS services. The most common GIS service is custom map products followed by map compilation/conversion and project management services. Many organizations provide more than one type of GIS service (see Table 1-4).

**Table 1-4: Respondents' GIS Services**

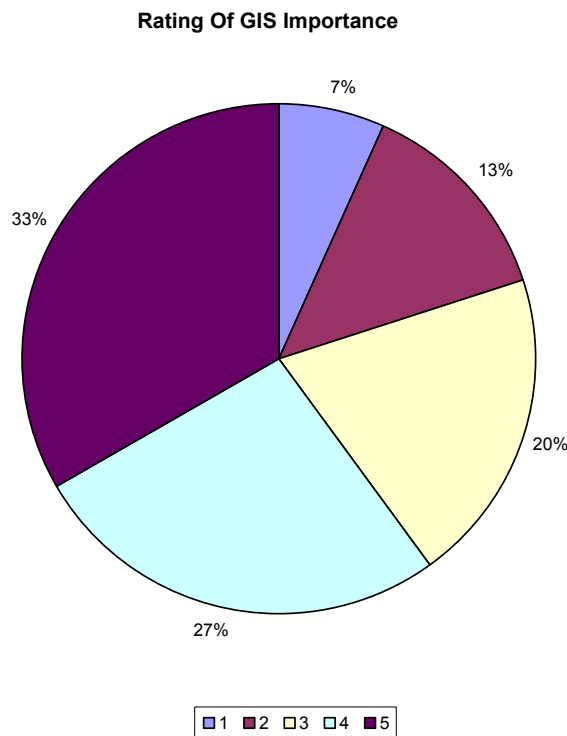
Service Types	Number of Responses
Custom Map Products	12
Map Compilation/Conversion	9
Project Management Services	9
Field Data Inventory	8
Custom Database Products	7
Database Design Services	7
Needs Assessment or GIS Planning	7
Database Development Specifications	5
Orthoimage Compilation	5
Aerial Surveys	4
Photogrammetric Mapping Services	3
Satellite Imagery	3
Forest Management Services and Consulting	1

**Table 1-4: Respondents' GIS Services (continued)**

Service Types	Number of Responses
GIS Data of Aerial Application Activity	1
Land Survey Services	1
OGC Compliant Web Services	1

Most respondents have a service area that covers multiple states, and four organizations do business internationally. Five serve the entire State of Oregon, eight serve multiple counties, and two serve a local county or municipality.

These organizations were also asked to rate the importance of GIS to their business. The rating uses a scale of 1 to 5. A rating of 1 indicates GIS plays no significant role, while a rating of 5 indicates that GIS is critical to the organizations' mission or business. As seen in Figure 1-3, the majority of respondents indicate that GIS is extremely important to their business. GIS was rated as playing no significant role by advocacy groups such as the Oregon League of Conservation Voters and the Oregon Cranberry Network.

**Figure 1-3: Overall Importance of GIS**

## SECTION 2 GIS TECHNOLOGY USE AND APPLICATIONS

### 2.1 GIS TECHNOLOGY INFRASTRUCTURE

A GIS infrastructure is defined as the underlying foundation or basic framework built to support GIS programs and applications. This includes server and desktop operating systems and server and desktop databases. The following tables and figures include information regarding the GIS infrastructure throughout the non-public sector in the State of Oregon. It is important to remember, as noted in the introduction, that not all respondents answered all of the questions, and, for some questions, a single respondent may have had multiple answers. Table 2-1 shows information about server operating systems. While some groups have more than one type of server operating system, the most commonly used operating system is Microsoft Windows.

**Table 2-1: Respondents' Use of Server Operating Systems**

Server OS Type	Number of Responses
MS Windows (NT, 2000, 2003, XP)	25
Linux	6
None	5
Unix	3
IBM WebSphere	1
No Response	1

Table 2-2 shows information about desktop operating systems. Again, Microsoft Windows was the most commonly used operating system.

**Table 2-2: Respondents' Use of Desktop Operating Systems**

Desktop OS Type	Number of Responses
MS Windows (NT, 2000, 2003, XP)	31
Linux	5
Unix (e.g., HP-UX, AIX, other)	2
Apple OS	1
Windows 98	1
No Response	2

Table 2-3 shows the number of responses for server database software. The most common two database software products are Microsoft SQL Server and Microsoft Access. The least common are PostgreSQL, MySQL, and IBM DB2. Seven of the respondents indicated that they use Oracle.

**Table 2-3: Respondents' Use of Server Database Software**

Server Database Type	Number of Responses
MS SQL Server	15
MS Access	13
None	8
Oracle	7
IBM DB2	2
MySQL	2
PostgreSQL	1
No Response	4

Table 2-4 shows desktop database software. The two most common database software products are Microsoft Access and Microsoft SQL Server. Only one respondent uses no desktop database software.

**Table 2-4: Respondents' Use of Desktop Database Software**

Desktop Database Software Use	Number of Responses
MS Access	18
MS SQL Server	6
Oracle	3
IBM DB2	1
None	1
No Response	14

Table 2-5 shows the GIS server software corresponding to the total number of responses. The most commonly used software products are ArcSDE v 9 and ArcIMS v 9.

**Table 2-5: Respondents' Use of GIS Server Software**

GIS Server Software Use	Number of Responses
ESRI ArcSDE v 9	11
ESRI ArcIMS v 9	7
None	5
Oracle Spatial	3
Autodesk Map	2
ESRI ArcSDE v 8	2
Intergraph GeoMedia Professional v 5	2
Intergraph GeoMedia v 5	2
Leica-ERDAS Imagine	2
ArcGIS Server, ArcWeb Services	1
Autodesk GIS Design Server	1
Autodesk Map Guide	1

**Table 2-5: Respondents' Use of GIS Server Software (continued)**

<b>GIS Server Software Use</b>	<b>Number of Responses</b>
ESRI ArcEditor v 9	1
ESRI ArcIMS v 1-4	1
ESRI ArcView 3.2	1
GRASS, PostGIS, QuantumGIS	1
Intergraph FRAMME	1
Intergraph GeoMedia Web Map v 5	1
IONIC RedSpider	1
MapInfo Map Xtreme	1
MapInfo Professional	1
RescueNet Dispatch Software	1
No Response	6

Table 2-6 shows the GIS desktop software. The most common GIS software at the desktop is ArcGIS v 9. Four respondents had no GIS desktop software.

**Table 2-6: Respondents' Use of GIS Desktop Software**

<b>GIS Desktop Software Use</b>	<b>Number of Responses</b>
ESRI ArcGIS v 9 (ArcView, ArcEditor, ArcInfo)	14
ESRI ArcView v 7	7
ESRI ArcGIS v 8 (ArcView, ArcEditor, ArcInfo)	4
None	4
Intergraph GeoMedia v 5	2
Leica-ERDAS Imagine	2
Autodesk AutoCAD pre-v 2005	1
Autodesk AutoCAD v 2005	1
Autodesk Land Desktop pre-v 2005	1
Bentley InRoads, Bentley MicroStation	1
ESRI Arc Explorer	1
ESRI ArcGIS Engine, ESRI MapObjects, ESRI ArcReader	1
ESRI ArcView 3.2	1
Intergraph GeoMedia Professional v 5	1
MapInfo Professional v 7	1
Maptitude	1
RescueNet Dispatch	1
No Response	4

Table 2-7 shows the field/mobile computer type and operating system. The majority of users use standard Windows-based laptops or Windows-based PDAs.

**Table 2-7: Respondents' Use of Field/Mobile Computers**

Field/Mobile Computer Operating Systems Use	Number of Responses
Standard Laptop Windows OS	11
PDA Windows OS	8
None	4
Tablet Computer Windows OS	4
PDA Palm OS	2
Cell Phone-based LBS	1
GeoXT	1
TDS Ranger	1
Trimble Geo XM	1
No Response	16

Table 2-8 shows the types of GPS systems used. Trimble GPS Pathfinder is the most popular system, followed by Garmin and Magellan. Four respondents use no GPS systems.

**Table 2-8: Respondents' Use of GPS Data Collection Systems**

GPS Data Collection Systems Use	Number of Responses
Trimble GPS Pathfinder	8
Garmin	4
None	4
Magellan	3
Earthmate Bluetooth Logger	1
Navman	1
Sokia, other Trimble devices (GeoXT, GeoXM, Recon)	1
Trimble Geo XM	1
Trimble Geo XT	1
No Response	18

The majority of respondents are using ESRI ArcPad software for their mobile mapping solutions (see Table 2-9). Other GIS field software listed includes Intergraph's FieldView and other ESRI-based field applications. One respondent reported using a Web-based mapping application via a wireless system.

**Table 2-9: Respondents' Use of Field/Mobile GIS/Mapping Software**

Mobile GIS Software Use	Number of Responses
ESRI ArcPAD	11
None	6
Other	3
No Response	17



Other mobile mapping software used is listed in table 2-10 below:

**Table 2-10: Respondents' Use of Other Mapping, Data Collection, and GIS Software**

Other Mobile GIS, Data Collection, and Mapping Software Use	Number of Responses
County Web sites, RMLS, MapQuest	1
IONIC RedSpider Web, IONIC RedSPider Studio	1
Topo!	1
Other Trimble Devices	1
No Response	33

The non-public sector organizations that responded listed a wide variety of GIS applications that are currently in use or planned. The most common applications or planned applications are for map production and plotting followed by basic geographic query, display, and reporting. The least common applications are used for orthoimage compilation or vehicle tracking as seen in Table 2-11.

**Table 2-11: Current or Planned GIS Applications Used by Respondents**

Types of GIS Applications Planned or Currently In Use	Number of Responses
Map Production/Plotting	17
Basic Geographic Query, Map Display, Reporting	15
Map or Database Update	15
Custom Thematic Mapping	13
Distance and Area Calculation/Reporting	12
Internet-enabled GIS Applications	12
Inventory of Assets/Facilities	11
Field Data Compilation	10
Map-based Query and Access to Digital Documents	9
Address Matching/Address Incident Mapping	8
Natural Resource Inventory	8
Route Tracing or Analysis	8
Infrastructure Query and Management	7
Land Use/Growth Analysis	7
Terrain Analysis/3-D Display	7
Engineering Planning and Analysis	6
Environmental Impact Analysis	6
Site Suitability Analysis	6
Spatial Pattern Analysis	6
Emergency Response Support	5
Maintenance Management Support	5
Network Flow Analysis	5
Service Area Analysis	5
Call Center Support	4
Permit/Plan Review	4
Historical Trend Analysis	3
Vehicle Location and Tracking	2
Ortho-imagery Compilation	1
No Response	14

## SECTION 3 GEOGRAPHIC DATABASE STATUS AND DEVELOPMENT

### 3.1 GEOGRAPHIC DATA HOLDINGS STATUS

Respondents were asked to inventory their data holdings by indicating one of three status categories—currently available, planned, and no current access or plans. Table 3-1 shows that the majority of data themes are current and complete. The data theme definitions are located in Appendix D. Percentages are based on the number of responses for each status category by data theme, divided by the total number of responses for the particular data theme. Again, it is important to remember, that not all respondents answered all of the questions and when asked to indicate the source of a particular data theme, a single respondent may have indicated multiple sources.

The most widely held data theme is transportation at 92 percent, followed by census, hydrology, and rail at 84 percent. It is notable that 80 percent of respondents currently have site address themes, critical for incident mapping and address matching. Other common data themes are bridges and culverts, cultural planimetrics, election districts, and other administrative boundaries. The data themes least likely to be in the non-public sectors data holding are snowfall, gas, temperature, water, and wastewater.

**Table 3-1: Respondents GIS Data Holdings by Theme**

Theme	Count Current	Current	Count No Access	No Access	Count Planned	Planned	Total
Admin Boundaries	16	76%			5	24%	<b>21</b>
Archeology	20	69%	7	24%	2	7%	<b>29</b>
Bridges and Culverts	19	79%	2	8%	3	13%	<b>24</b>
Cadastral	21	78%	3	11%	3	11%	<b>27</b>
Census	19	83%	3	13%	1	4%	<b>23</b>
Cultural Planimetrics	20	77%	2	8%	4	15%	<b>26</b>
Election Districts	15	75%	4	20%	1	5%	<b>20</b>
Electric Utilities	19	66%	5	17%	5	17%	<b>29</b>
Elevation	16	73%	1	5%	5	23%	<b>22</b>
Fish Habitat	20	69%	5	17%	4	14%	<b>29</b>
Gas	17	68%	7	28%	1	4%	<b>25</b>
Geodetic Control	15	63%	5	21%	4	17%	<b>24</b>
Geology/Soils	19	76%	4	16%	2	8%	<b>25</b>
Historic Sites	17	68%	6	24%	2	8%	<b>25</b>
Hydrology	21	84%	2	8%	2	8%	<b>25</b>
Landcover	17	68%	3	12%	5	20%	<b>25</b>
Landuse	17	68%	4	16%	4	16%	<b>25</b>
Orthoimagery	20	80%	1	4%	4	16%	<b>25</b>
Rail	21	84%	4	16%			<b>25</b>
Rainfall	16	64%	6	24%	3	12%	<b>25</b>

**Table 3-1: Respondents GIS Data Holdings by Theme (continued)**

Theme	Count Current	Current	Count No Access	No Access	Count Planned	Planned	Total
Riparian Habitat	16	64%	4	16%	5	20%	<b>25</b>
Site Addresses	20	80%	2	8%	3	12%	<b>25</b>
Snow Fall	14	56%	9	36%	2	8%	<b>25</b>
Soils	20	80%	2	8%	3	12%	<b>25</b>
Telecommunications	14	56%	5	20%	6	24%	<b>25</b>
Temperature	14	56%	9	36%	2	8%	<b>25</b>
Transportation	23	92%			2	8%	<b>25</b>
Vegetation Habitat	15	60%	6	24%	4	16%	<b>25</b>
Wastewater	15	60%	8	32%	2	8%	<b>25</b>
Water	16	64%	8	32%	1	4%	<b>25</b>
Wetlands	17	74%	2	9%	4	17%	<b>23</b>
Wildlife	14	56%	6	24%	5	20%	<b>25</b>
Zoning	18	72%	2	8%	5	20%	<b>25</b>

A total of 12 respondents have one or more tabular data sets integrated or used with their GIS databases. The most common tabular data used with GIS is parcel/property data and land use, as seen in Table 3-2.

**Table 3-2: Respondents' Use of Non-GIS Data Used with GIS**

Type	Number of Responses
Parcel/Property Data	13
Land Use	11
Engineering Design or Survey Data	9
Natural Resource Inventory	7
Demographic Data	6
Traffic/Transportation Data	6
Document Database	5
Infrastructure Inventory	5
Permit Database	5
Environmental Sampling	3
Public Safety Incidents	3
Maintenance Management	2
Customer Information Database	1

### 3.2 GEOGRAPHIC DATA SOURCE AND MAINTENANCE

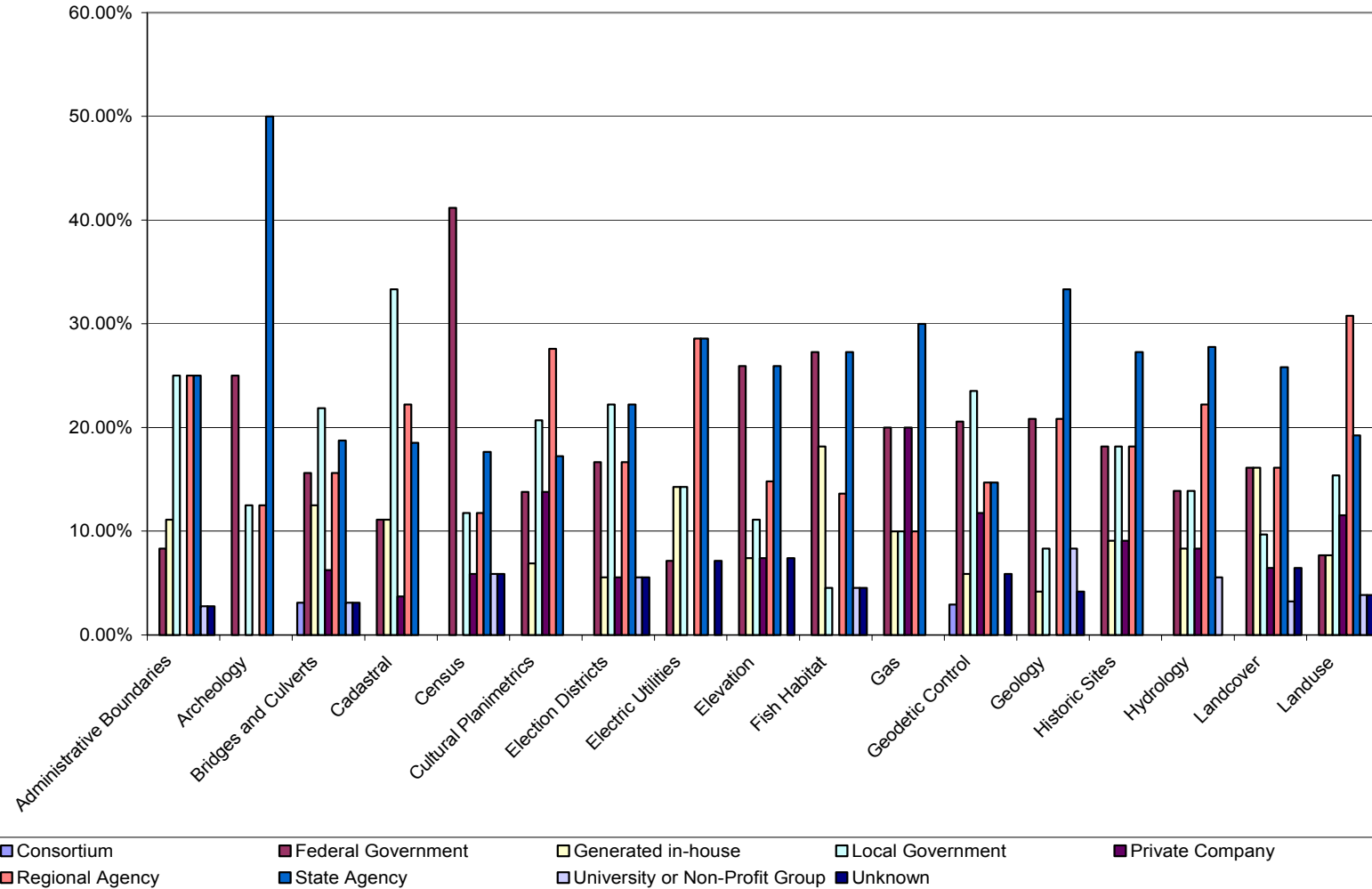
As can be seen in Figure 3-1, a few respondents indicate that they generate GIS data in-house, but by far, the majority of non-public sector data holdings originate with State or regional agencies, followed by local and federal government. Most organizations obtain their GIS data from multiple sources. Organizations generating GIS data in-house are generally CAD vendors, utility companies, natural resource management organizations, or timber companies. Relative few themes originate with private companies. Themes most likely to originate with private companies include

geodetic control and cultural planimetrics. Themes least likely to originate from private companies include site addresses and electric utilities. It is important to note that, in some cases, respondents indicated multiple sources for a single data theme. Themes more likely to come from multiple sources include transportation, geodetic control, vegetation, and wetlands. Due to the number of GIS data themes inventoried, the responses are represented in Table 3-3, as well as in Figure 3-1. There are nine GIS sources for each data theme, including state government, local government, federal government, regional agency, consortium, university or non-profit, generated in-house, private company, and unknown. The percent shown in Figure 3-1 is derived from the total number of responses for each data theme and not the total responses for all data themes.

**Table 3-3: Respondents Source of GIS Data**

Theme	Consortium	Federal Government	Generated In-house	Local Government	Regional Agency	State Agency	University or Non-Profit Group	Private Company	Unknown	TOTAL
Administrative Boundaries		3	4	9	9	9	1		1	36
Archeology		2		1	1	4				8
Bridges and Culverts	1	5	4	7	5	6	1	2	1	32
Cadastral		3	3	9	6	5		1		27
Census		7		2	2	3	1	1	1	17
Cultural Planimetrics		4	2	6	8	5		4		29
Election Districts		3	1	4	3	4	1	1	1	18
Electric Utilities		1	2	2	4	4			1	14
Elevation		7	2	3	4	7		2	2	27
Fish Habitat		6	4	1	3	6	1		1	22
Gas		2	1	1	1	3		2		10
Geodetic Control	1	7	2	8	5	5		4	2	34
Geology		5	1	2	5	8	2		1	24
Historic Sites		2	1	2	2	3		1		11
Hydrology		5	3	5	8	10	2	3		36
Land Cover		5	5	3	5	8	1	2	2	31
Land Use		2	2	4	8	5	1	3	1	26
Orthoimagery		8	4	5	7	9	1	1	2	37
Rail		2	2	2	3	5		1		15
Rainfall		1		1	1	4			1	8
Riparian Habitat	1	5	5	3	4	7	1	1		27
Site Addresses	1	1	2	7	5	2				18
Snowfall		1				2			1	4
Soils		5	3	4	5	9	1		2	29
Telecommunication			1	1	2	2		3		9
Temperature						1			1	2
Transportation	1	6	5	8	9	12	1	3	3	48
Vegetation	1	5	2	1	2	6	2	1	1	21
Wastewater				4	3	3				11
Water		1		5	3	3		1		13
Wetlands	1	8	3	5	7	9	2	1		36
Wildlife		6	4	1	1	5			2	19
Zoning				9	7	2			2	20

**Figure 3-1: Source of GIS Data Theme by Percent of Responses for Each Data Theme**



**Figure 3-1: Source of GIS Data Theme by Percent of Responses for Each Data Theme (continued)**

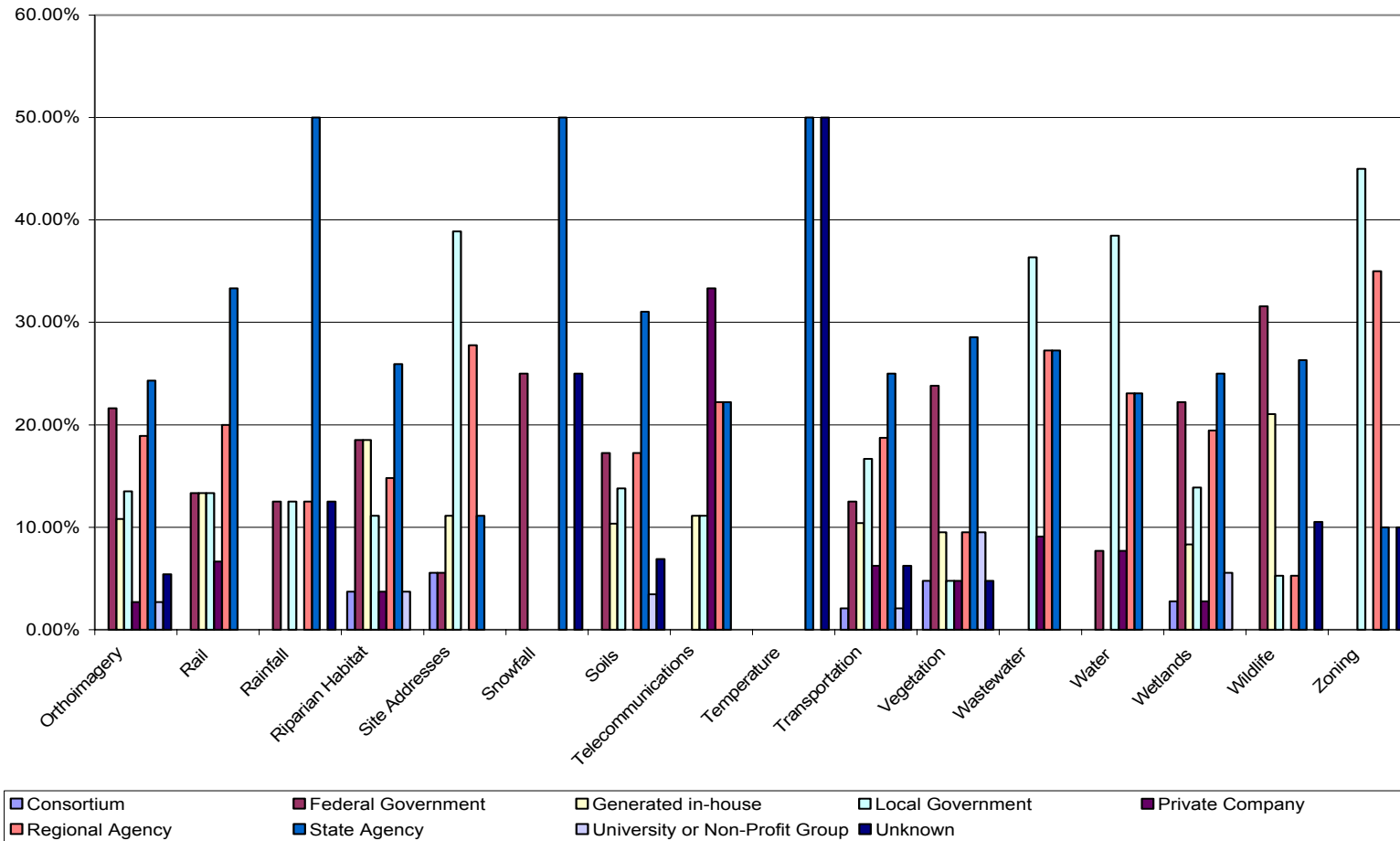
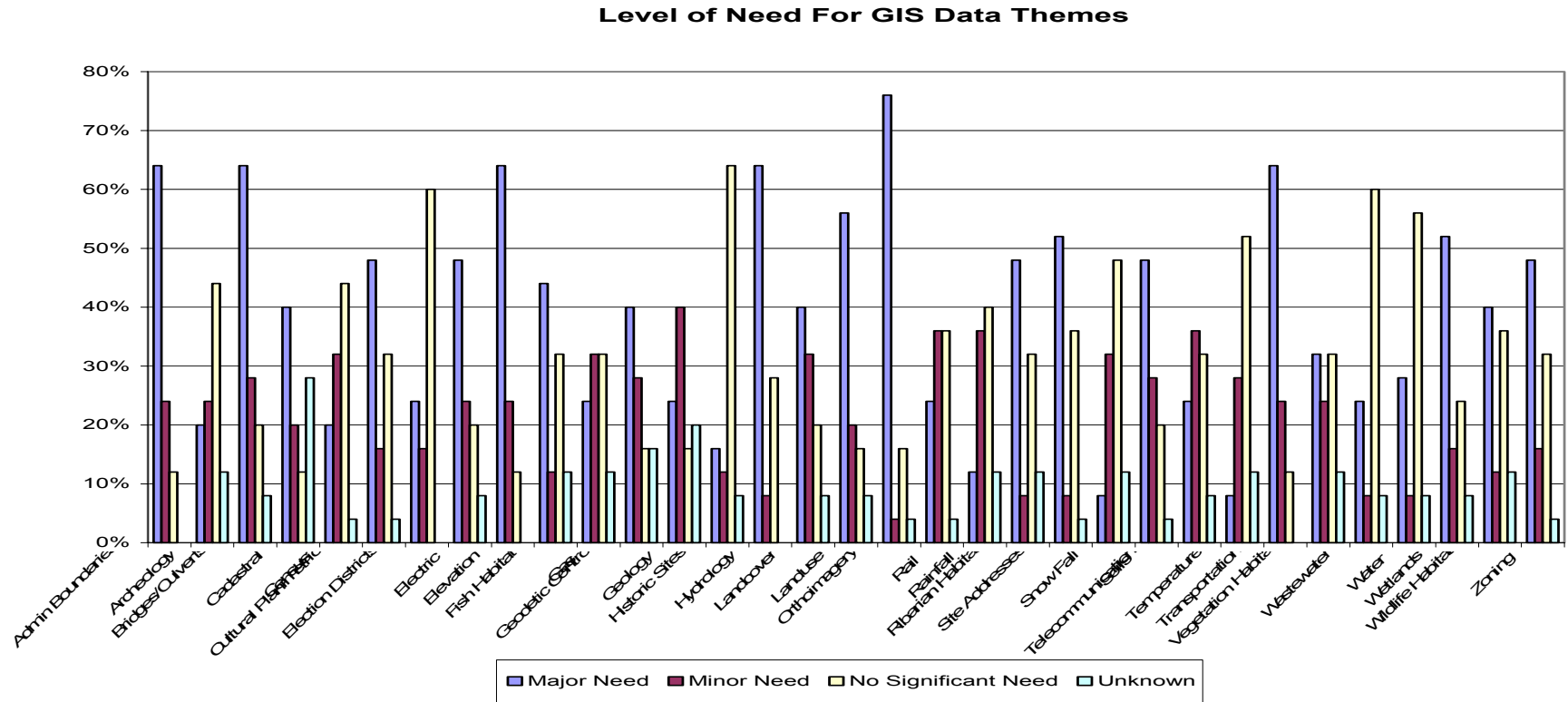


Figure 3-2 shows the level of need for selected data themes. Orthoimagery was listed as a major need for 19 of the 25 responses to the questions, followed by administrative boundaries, elevation, transportation, and hydrology. Historic districts, wastewater, election districts, and water were most commonly indicated by respondents as having no significant need.



Figure 3-2: Level of Need for GIS Data Themes



**SECTION 4**  
**GIS PROGRAM COLLABORATION, DATA SHARING, AND OUTSOURCING**

**4.1 GIS OUTSOURCING**

Table 4-1 shows GIS activities that are outsourced. The top three are GIS training, GIS mapping or data conversion, and GIS application design/development. The least likely GIS activities that are outsourced are GIS needs assessment or planning and GIS program management.

**Table 4-1: Respondents' Use of GIS Outsourcing**

Use of GIS Outsourcing	Number of Responses
GIS Training	9
GIS Mapping or Data Conversion	7
GIS Application Design/Development	7
Field GIS Data Collection	6
General Technical Support	5
Aerial Survey	5
Technical Design, Specifications, Vendor Procurement Support	4
Ortho or Satellite Image Acquisition	4
GIS Data/Application Integration	4
GIS Program Management Support	1
GIS Needs Assessment or Planning	1

**4.2 PARTICIPATION IN GIS PROGRAMS AND CONSORTIUMS, OR PARTNERSHIPS WITH PUBLIC AGENCIES**

Table 4-2 shows the level of participation with public agency programs, partnerships, or consortiums. Eleven of the responses to this question indicate collaborative programs currently in place. Most of the collaborations are for data sharing, government program collaborations, or development of standards.

**Table 4-2: Respondents' Use of GIS Collaborations**

Status of GIS Collaborations	Number of Responses
Currently in Place	11
None in Place or Planned	21
Unknown	3
In Development	1

### 4.3 LICENSING OF DATA TO EXTERNAL ORGANIZATIONS

As can be seen in Tables 4-3 and 4-4, only non-public sector organizations that responded to the survey currently license data to external organizations. Numerous non-public sector groups license data from external organizations, while the majority of responses indicate these organizations have no licensing agreements with external organizations.

**Table 4-3: Respondents' GIS Data Licensing to External Organizations**

Status of Data Licensing to External Organizations	Number of Responses
None in Place or Planned	11
Currently in Place	3
Unknown	3
Past	1
Planned	1

**Table 4-4: Respondents' GIS Data Licensing from External Organizations**

Status of Data Licensing from External Organizations	Number of Responses
None in Place or Planned	8
Currently in Place	7
Unknown	3
In Development	1
Planned	1

## **SECTION 5 SUMMARY**

The responses to the non-public sector survey are representative of a wide variety of businesses and organizations. The results show that all sorts of non-public sector entities ranging from small family farms to large utility companies value GIS. These private entities rely extensively on government agencies for their GIS data. And their use of GIS illustrates the endless applications of this technology, used to monitor family farms, for environmental management, outage management for utility companies, risk management, ecosystem management and preservation, location analysis and marketing, etc. Almost 50 percent of the respondents view GIS as critical to their organizations' mission and business goals.

The results clearly show a mutually beneficial relationship between the non-public sector and public sector organizations. GIS data provided by public agencies is used extensively in the non-public sector. GIS has become part of the business fabric of many of these non-public sector groups. Procedures that were once cumbersome manual processes are now automated due to the data provided by public agencies and the tools provided by GIS software. Conversely, the public sector relies heavily on the services provided by these private entities. These entities provide a range of specialized services that would not be cost-effective for public agencies to do in-house, including data conversion, GIS applications development, photogrammetry, and aerial surveys.

Widely available GIS data and services are clearly needed, and the non-public sector is well prepared technologically to participate in a GIS utility network. An interdependent network of GIS users already exists that is willing to share data and develop common standards in an effort to improve business processes and decision-making throughout the non-public sector. The more widely available GIS becomes, the better for both private and public interests.

**APPENDIX A**  
**INDIVIDUAL ORGANIZATIONS RESPONDING TO THE SURVEY**

**APPENDIX A**  
**INDIVIDUAL ORGANIZATIONS RESPONDING TO THE SURVEY**

<b>Organization</b>	
Oregon Cranberry Network	ESRI
Assn. of Oregon Rail & Transit Advocates	GeoSolve Inc.
Oregon League of Conservation Voters	High Desert Geo-Technologies, Inc.
Harney Electric Cooperative, Inc.	IONIC Enterprise Inc.
Mercy Flights, Inc.	KPFF Consulting Engineers
Native Forest Council	Oregon First
Northwest Habitat Institute	Visual Risk Technologies
ONRC	Seneca Jones Timber Company
Oregon Natural Desert Association	ValueCAD
Pacific States Marine Fisheries Commission	Olympic Resource Management LLC
Siuslaw Watershed Council	Applied Ecosystem Services, Inc.
The Nature Conservancy	Weyerhaeuser
Waterwatch of Oregon	The Campbell Group
VARGIS	Starker Forests, Inc.
Western Helicopter Services, Inc.	Portland General Electric
Coos Curry Electric Cooperative, Inc.	Rocking C Ranch
David C. Smith and Associates, Inc.	Maul Foster Alongi Inc.
Oregon State University	URISA

**APPENDIX B**  
**SURVEY INSTRUCTIONS**

## APPENDIX B SURVEY INSTRUCTIONS

### How to get Started

**Beginning a new survey:** Click the "START NEW SURVEY" link at the bottom of the introductory page to begin a new survey. You can also click "Next page" in the upper-right or lower-right corner of the introductory page to enter the survey.

**To save and finish the survey later:** Click the "Submit" link, found at the bottom of any page. (Note: You must first enter the required information, noted by an asterisk (\*) on the first page of the survey.) You will receive a confirmation number by e-mail. To restart your incomplete survey, return to the survey site and enter the "Search" page by clicking the "Resume Survey" link at the bottom of the opening page. In the "Return to Survey" section, enter your confirmation ID and click "Retrieve."

### General

**Platform and Browser:** This survey form is designed to run in Internet Explorer on a Windows computer.

**Help Boxes:** A gray box with a question mark inside indicates that additional helpful information is available for that topic. Clicking on a Help Box will cause an informational pop-up window to appear. These provide an explanation of response(s) needed or the definition for a relevant term.

**Multiple Pick Lists:** When selecting more than one option from a multiple pick list, hold down the "Control (Ctrl)" key while scrolling and/or until finished selecting. Multiple pick lists should state in parentheses to "select all applicable—hold 'Control' key to select more than one."

**Check Boxes:** While selecting from the check boxes, put the cursor inside the box and click the left mouse button to add a check inside the box. Please confirm that you are checking the correct square beside the appropriate box to regulate accuracy.

**"Select One" Questions:** For the "select one" questions, place the cursor inside the circle and click the left mouse button to add a dot inside the circle. These questions will not allow you to select more than one response. If you need to change your response, the dot will not stay in the first choice.

**"Other" Responses:** If your organization's situation requires you to specify "Other" as your response, please provide an informative explanation of the "Other" situation that you have. Please do not leave the "Other" comment field blank.

**Moving to the Next Page:** To move to each subsequent page of the survey, click "Next page" in the upper-right or lower-right corner of the survey page.

**Reviewing Earlier Answers:** To review earlier information in your survey, click on the "Previous page" link in the upper-right or lower-right corner of the survey page, or click on the browser window's "Back Arrow" button (usually located in the upper-left corner of the browser application).



**CAUTION:** If for some reason you accidentally go back to the Welcome Menu/Page, DO NOT click on "START NEW SURVEY" again. This will cause the survey application to lose all responses that you have already entered. To re-enter the correct page of the survey, click on your Internet browser application's "Forward Arrow" button.

**Don't Know the Answer to a Question?** If you are unsure about a question, it is okay to skip it and leave it blank in order to continue with the survey. You can always save/submit the survey and return to it at a later time.

**Submitting the Survey:** At the bottom of each page of the survey, you will find the "Submit Survey" link. When you are finished with the survey, simply click this button to submit the survey. If you wish to return to the survey to make a change, simply use your confirmation ID and follow the steps described in the "[How to Get Started](#)" section of the document.

**APPENDIX C**  
**NON-PUBLIC SECTOR SURVEY FORM**

**APPENDIX D**  
**DATA THEME DEFINITIONS**

## APPENDIX D

### DATA THEME DEFINITIONS

Themes	Definitions
<b>Geodetic Control/ Survey Monuments</b>	Geodetic control provides the means for determining locations of features referenced to common, nationally used horizontal and vertical coordinate systems. Geodetic data provide the basic reference framework for all geodata, as well as a method for relating different layers and sets of geodata to one another. Geodetic data are essential in developing a common coordinate reference for all other geographic features. Horizontal or vertical location is used as a basis for obtaining locations of other points.
<b>Cadastral</b>	Cadastral or land rights information is the graphic and attribute data describing parcels of land and the rights to those parcels. Cadastral data serves as the foundation upon which the majority of local thematic geodata is compiled. In Oregon, the Public Land Survey System (PLSS) serves as the cadastral reference grid to which land rights features and attributes are linked.
<b>Administrative Boundaries</b>	
General	Other geographically defined areas that have some significance to local or statewide programs. This includes zip code areas and permanent or temporary areas to which service boundaries are defined or restrictions are in place that apply.
Zoning	Area defined by a local jurisdiction, which specifies acceptable types of development and activities.
Census Boundaries	Census tracts and blocks derived by the Census Bureau to a geographic representation of census data.
Election Districts	The boundaries of a type of district represented by an elected official such as a judge, member of the city council, state representative, state senators, etc.
<b>Cultural Features</b>	
Planimetric (Building outlines, physical features)	Features captured from aerial photography. Some features are digitized from aerial photography through stereo compilation or sometimes field data capture. Both are large-scaled. The captured features include selected man-made structures (buildings, tanks, etc.). The digitized features contain many detailed features such as sidewalks, curb and road edges, building outlines, parking lots, and man-made structures (storage tanks).
Site Address	Addresses are typically attribute information that are linked to individual tax lots as discrete location address(es). Site address is composed of house #, street prefix, street name, and suffix. Because of the one-to-many and many-to-one aspects of the relationship between addresses and tax lots, it is necessary, or at least advisable, to develop a graphic point coverage for situs addresses.
Archeology Sites	Locations of architectural survey sites, archeological survey sites, sites being evaluated as National Register Sites, and other types of cultural resources.
Historic Sites	The list of actual sites that are recorded in the U.S. Park Services National Registry or the state historic registry.
<b>Transportation</b>	
Bridges and Culverts	Infrastructure related to the construction and operation of highways and roads, such as bridges, overpasses, highway signs, and pavement characteristics.
Road Centerline	Network of intersecting nodes interconnecting centerlines that portray highway and road networks. Other components of a street centerline include address ranges, mile points, etc.
Railroads	All facilities that support railroad operations, including active and abandoned rail lines, railroad stations, etc.
<b>Digital Orthoimagery</b>	An orthoimage is a georeferenced image prepared from a perspective photograph or other remotely-sensed data in which displacements of images due to sensor orientation and terrain relief have been removed. Many geographic features can be interpreted and compiled from the orthoimage. Orthoimages can serve as a backdrop, in addition to linking the results of an application to the landscape.

Themes	Definitions
<b>Elevation Data</b>	Elevation refers to a spatially referenced vertical position above or below a datum surface. Digital, georeferenced elevation data can exist in several forms, including digital elevation models (DEMs), triangulated irregular networks, vector contour files, and spot elevations. Other forms of elevation data can be derived from DEMs, so the DEM should serve as the minimum element for data within the Oregon geodata framework.
<b>Hydrography</b>	Hydrography defines a surface water feature that may or may not be connected to other surface water features. These surface water features are commonly referred to as reaches.
<b>Utilities</b>	
Electric Transmission/Distribution	The facilities that form the infrastructure supporting the distribution, generation, and transmission of electrical power. Features may include power generation plants, transmission towers, substations, transmission lines, poles, distribution lines, and transformers.
Gas or Oil Transmission/Distribution	The infrastructure required to extract, process, and transmit oil and gas from sites of production to sites of consumption.
Water Distribution	All water distribution facilities, including mains, hydrants, valves, service lines, pump stations, etc.
Wastewater Collection	All facilities associated with collection and treatment of wastewater. Features include treatment plants, interceptor lines, sewer mains and laterals, lift stations, manholes, etc.
Telecommunications	All facilities supporting telecommunications, including cellular phone towers, telephone lines, and exchange boxes, as well as cable TV infrastructure.
<b>Geoscience Features</b>	
Geology	Composition and geological type of bedrock or unconsolidated geological deposits at the surface or immediately below the soil.
Soils	General soil associations mapped for large areas giving a general indication of soil characteristics and topographic location.
<b>Bioscience Features</b>	
Wildlife Habitat	Provides a water supply and vegetative habitat for wildlife.
Fish Habitat	Areas upon which fish depend in order to meet their requirements for spawning rearing food supply and migration.
Vegetation Species	Types of plant life located in a particular region.
Wetlands	Land areas in which the water table is high and which exhibit seasonal, intermittent, or permanent wet conditions.
Riparian Areas	Areas adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem.
<b>Land Cover/Land Use</b>	
Land Cover	A characterization of the vegetative or non-vegetative cover at the surface. Land cover is differentiated from "land use" which classifies areas based on the use of the land.
Land Use	General categories or current land use usually mapped using small-scale imagery such as satellite imagery or high-altitude aerial photography and not referenced to parcel or lot boundaries.
<b>Climate</b>	Weather in a particular location averaged over some long period of time.