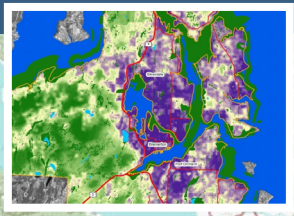
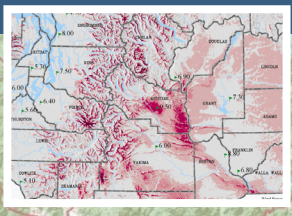
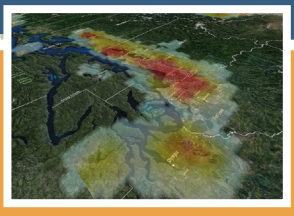
Washington Geographic Information Council

GEOGRAPHIC INFORMATION SYSTEMS STRATEGIC PLAN: MAPPING WASHINGTON'S FUTURE, 2010-2014







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GEOGRAPHIC INFORMATION SYSTEMS STRATEGIC PLAN
MAPPING WASHINGTON'S FUTURE, 2010-2014

Executive Summary

This Plan builds off Washington State's 2005 Geographic Information Systems (GIS) Strategic Plan. It addresses new needs, opportunities, and challenges that have emerged in GIS. This Plan also supports the National Spatial Data Infrastructure (NSDI) by developing goals and strategies to facilitate the coordination of geospatial programs, policies, and technologies at the state level.

The Plan lays out each of the strategic goals in more detail, defines implementation objectives for each goal; outlines the action steps that can be accomplished in short- and long-term timeframe, and defines the desired outcomes to be achieved for each goal.

Strategic Planning Process

The strategic planning process was conducted under the auspices of the Information Services Board Geographic Information Technology Committee (ISB-GIT) and coordinated by the Washington Geographic Information Council (WAGIC) Executive Committee.

Washington's GIS stakeholders, including the user community in federal and state agencies, regional organizations, counties, cities, tribes, educational institutions, utilities, and the private sector were engaged in multiple ways during the strategic planning process. A WAGIC executive committee focus group was convened, as well as a discussion group with the ISB-GIT committee, to develop potential themes and priorities for the strategic plan. These themes and priorities were then discussed by the larger GIS user community at regional listening sessions and through an online survey. The input shaped the goals included in this Plan.

Vision and Mission

The vision and mission of the state's GIS community highlights the need to use geospatial information to benefit the public through improved decision-making at multi-jurisdictional levels and through the development of geospatial solutions:

VISION: Utilize geospatial technology to facilitate decision-making to benefit Washington State citizens.

MISSION: Work in partnership with public and private sector statewide to provide accurate, consistent, accessible, and comprehensive GIS resources for decision-makers and the public.

This Plan falls into the larger structure of the Washington State Strategic Information Technology Plan and its objectives and follows the spirit of the Governor's recent efforts on shared services and improving efficiencies in state government.

Strategic Goals

The overarching strategy encompasses the following concepts in an effort to fulfill the mission and vision of this Plan:

- Promote data development, sharing and access through the development of common standards and guidelines
- Facilitate coordination and communication
- Promote the value of GIS in decision-making

Based on the statewide outreach efforts, the following **five goals** have been established:

Goal 1: Establish Access Mechanism for Washington Geospatial Data

There is a significant need for a data discovery and access mechanism that is easy to use, well-organized, searchable, and consistently updated. Benefits of such a tool include the ability to easily find and share data, reduced data redundancy, and increased opportunities for inter-governmental collaboration.

Goal 2: Staff GIS Program Office and Recruit a State Geospatial Information Officer

In order to implement the overarching strategic goals, it is necessary to fully staff the existing state GIS Program Office, and recruit a state Geospatial Information Officer (GIO). The GIO will coordinate interagency and intergovernmental efforts and will provide executive leadership for the state's GIS user community.

Goal 3: Strengthen Coordination across Jurisdictions and Agencies

All members of Washington's GIS community need to be involved in gathering and improving geospatial information. This is necessary to support the development of the State Spatial Data Infrastructure.

Goal 4: Develop Statewide Standards and Guidelines for Data and Services

A vital component of improved data sharing and access is development of statewide data standards and guidelines for commonly used and shared data, particularly framework layers. Functional data standards and guidelines will increase the effectiveness of the data discovery and access mechanism, the ease of integrating datasets from multiple sources, and will improve the quality of data used by Washington's geospatial community.

Goal 5: Increase Awareness and Support for GIS through Education and Outreach

Effective communication highlighting Washington's many diverse geospatial technology applications will increase awareness and support for geospatial information, including a potential increase in future funding.

In addition, the last chapter of this Plan outlines some of the technical and organizational requirements that need to be in place to implement the goals and objectives. It provides a brief assessment of the state's existing strengths and weaknesses and what the GIS community needs to do to realize a Washington State Spatial Data Infrastructure. These implementation elements include:

- Organizational Needs
- Executive Support
- Coordination and Oversight Procedures
- Policy
- Staffing
- Costs
- Outreach and Community Development
- Assessing Risk

GEOGRAPHIC INFORMATION SYSTEMS STRATEGIC PLAN
MAPPING WASHINGTON'S FUTURE, 2010-2014

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GEOGRAPHIC INFORMATION SYSTEMS STRATEGIC PLAN
MAPPING WASHINGTON'S FUTURE, 2010-2014

1.0 INTRODUCTION

This Plan builds off Washington State's 2005 Geographic Information Systems (GIS) Strategic Plan. The Plan is based on extensive input from the statewide GIS community, reflects current business needs in Washington, and supports the National Spatial Data Infrastructure (NSDI)[1].

Purpose of the 2010 GIS Strategic Plan

Some of the strategies and objectives from the 2005 GIS Strategic Plan have been successfully realized. It served a useful purpose in guiding statewide initiatives over the past five years. It also served as an important communication tool and provided guidance and justification for coordination. Since the implementation of that plan, technology has changed and the user community has grown.

This updated Plan addresses new needs, opportunities, and challenges that have emerged in GIS. It outlines new goals, strategies, and objectives, based on stakeholder input and the state's role in GIS.

National Spatial Data Infrastructure (NSDI) and the Fifty States Initiative

The Federal Geographic Data Committee (FGDC) promotes the coordinated development, use, sharing, and dissemination of geospatial data on a national basis. The NSDI is a physical, organizational, and virtual network designed to enable the development and sharing of digital geographic information resources nationally.

FGDC has partnered with the National States Geographic Information Council (NSGIC) for the *50 States Initiative* which is designed to bring public and private stakeholders together in statewide GIS coordination. This Plan is in support of the Initiative and the NSDI by developing goals and strategies to facilitate the coordination of GIS programs, policies, and technologies.

2.0 STRATEGIC SITUATION ASSESSMENT

2.1 Washington GIS Community

Washington's geospatial technology organizational structure is complex and includes several statewide coordinating entities and a variety of stakeholders.

Statewide Coordinating Entities

The Information Services Board (ISB) is a legislatively created, 15-member Board that develops information technology (IT) policies and oversees the IT projects of executive branch agencies. The ISB delegates IT authority and funding to other non-executive state agencies and houses three committees:

- The Geographic Information Technology Committee (ISB-GIT);
- The Enterprise Architecture Committee;
- The State Interoperability Executive Committee.

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[1] See **Appendix A** for a full List of Acronyms

The Information Services Board Geographic Information Technology Committee (ISB-GIT) is the governing body for GIS in Washington State. The Committee membership includes state agency executives; representatives from the State Legislature, federal, state, and local jurisdictions; and Washington Geographic Information Council (WAGIC) Chair. The Committee provides leadership in geospatial information technology and recommends state policy and standards to the ISB for adoption.

The ISB-GIT Committee was formed in 2001, chartered to... "*represent the strategic interest of a coordinated, enterprise approach to utilizing geographic information technology and provide leadership for implementation of cost effective, collaboratively developed, spatial data management solutions."*

Washington Geographic Information Council (WAGIC). Washington State has had a long history of GIS coordination at the state agency level. In the early 1980's the natural resource agencies formed the first coordination group called the Washington Geographic Group (WG2), which was soon followed by the Washington State Mapping Advisory Council. The 1990's saw the establishment of WAGIC with wide participation from the federal, tribal, state, and local levels. In 1994 this volunteer council was formally recognized and received staffing assistance from the Department of Information Services.

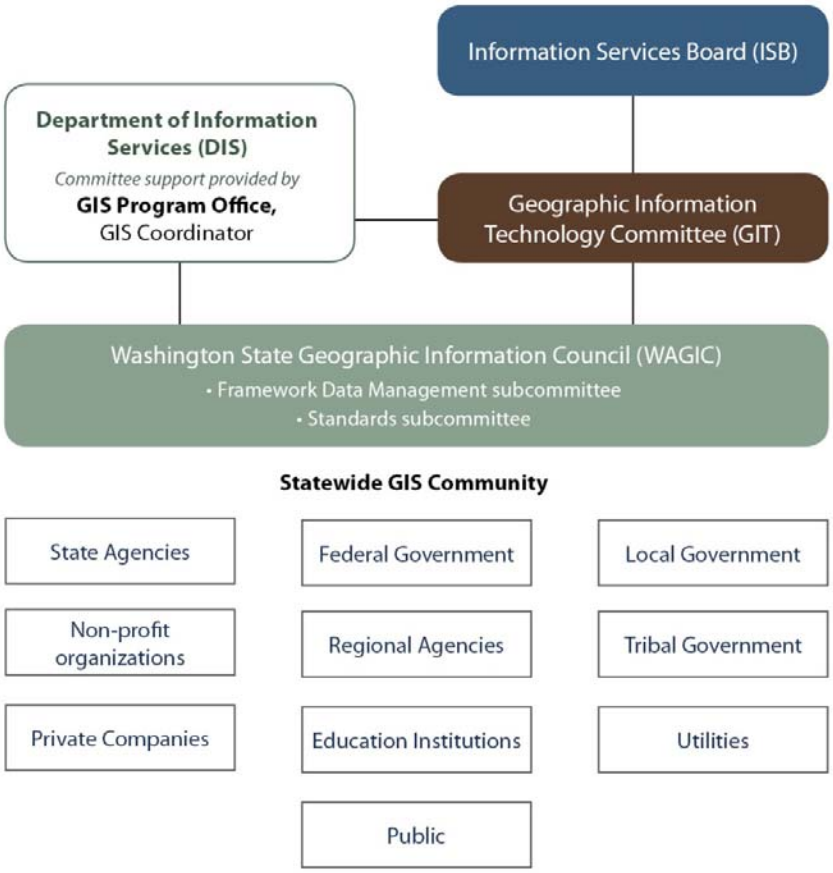
WAGIC is the state's multi-jurisdictional technical advisory group, working to facilitate GIS use around the state and coordinating technology and infrastructure development. WAGIC's chartered duties include identifying geospatial information needs, developing standards and policies, promoting information sharing, and assisting in geospatial partnerships.

State agency GIS managers and the Chair of WAGIC also serve as technical support to the ISB-GIT Committee.

The Department of Information Services (DIS) provides technology services to state agencies, local governments, and public nonprofit entities. DIS implements policies and standards developed by the ISB and reviews agencies' IT requests. DIS also funds and hosts the GIS Coordinator who assists the ISB-GIT on GIS initiatives and council activities, provides support to WAGIC members, and coordinates activities across the state.

Exhibit 1 below shows the current organizational structure of GIS in Washington.

Exhibit 1
Current Organizational Structure for Washington State GIS Community



Source: DIS, 2010; BERK, 2010

The strategic planning process is being conducted under the auspices of the ISB-GIT Committee and coordinated by the WAGIC Executive Committee. WAGIC members have been involved in the development and execution of statewide outreach efforts, and the development of the draft plan. The GIS coordinator has been responsible for the management of outreach efforts; development of the draft plan; and interfacing with the ISB-GIT, the executive sponsor of the project.

GIS Stakeholders

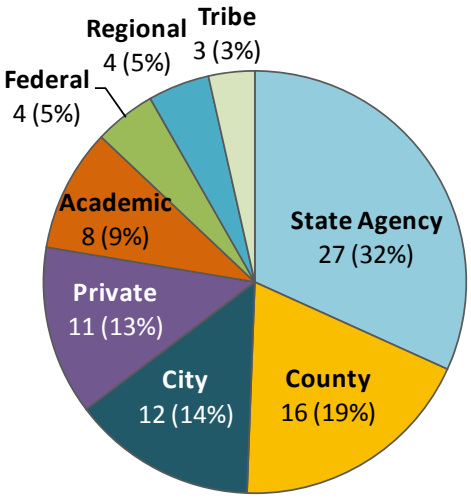
Stakeholder groups in Washington include the user community in federal and state agencies, regional organizations, counties, cities, tribes, educational institutions, utilities, and the private sector.

Stakeholders were engaged in multiple ways during the strategic planning process. A WAGIC executive committee focus group was convened, as well as a discussion group with the ISB-GIT committee to develop potential themes and priorities for the strategic plan. These themes and priorities were then discussed by the larger GIS user community, through an online survey and at regional listening sessions. The input from these forums shaped the goals and strategic actions included in this plan. More information, including the content of the meetings, survey, and the outreach findings can be found in **Appendix B**.

Regional Listening Sessions. There were four regional listening sessions held around the state in Everett, Olympia, Spokane, and the Tri-Cities. A total of 85 people attended, representing 58 agencies and organizations (Exhibit 2). The discussions centered on Washington's GIS challenges, particularly data access and coordination.

Exhibit 2
Listening Session Attendees

Attendee Type	# of Attendees
State Agency	27
County	16
City	12
Private Organization	11
Academic	8
Federal Agency	4
Regional Organization	4
Tribe	3
Total	**85**

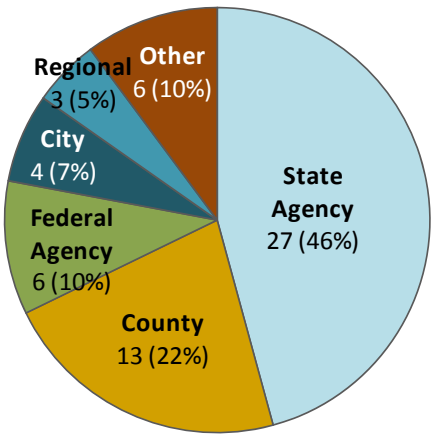


Source: BERK, 2010

Survey. An online survey was also made available for individuals who were unable to attend a listening session. There were a total of 59 respondents, representing 34 agencies and organizations (Exhibit 3 below).

Exhibit 3
Online Survey Respondents

Respondent Type	# of Respondents
State Agency	27
County	13
Federal Agency	6
City	4
Regional Organization	3
Other	6
Total	**59**



Source: BERK, 2010

Focus Groups. Three focus group meetings were held to obtain perspectives on what had been accomplished since the completion of the 2005 Strategic Plan, and the current needs, challenges, and opportunities for the state's GIS strategy. These groups included: the WAGIC executive committee members, ISB-GIT Committee, and the Peninsula Work Group.

The objectives, goals, and strategic actions of this Plan are a direct result of that input.

2.2 Current State of GIS in Washington

Washington State GIS coordinating entities, including ISB-GIT, WAGIC, and the State's GIS Coordinator have accomplished a number of initiatives in the past several years:

Governance and Stewardship

- The ISB-GIT Committee updated its Charter to address membership, add a process for voting and non-voting members, and provide clarification on administration and duties.
- Incorporated GIS-specific goals and objectives into the 2008-14 Washington State Strategic IT Plan
- Established the formal governance structure for statewide orthoimagery framework data stewards and Orthoimagery Portal Operations Technical Steering Committee.
- WAGIC user retreat provided guidance and recommendations on renewing its connections with GIS users. One recommendation included embarking on the update of the state's GIS Strategic Plan and the creation of a business plan.

Data Creation and Acquisition

- ***A Shared Statewide parcels*** data set for the Washington pilot project was first provided in 2009. It is currently in the process of being updated for the second time; however, gaps remain for a few eastern Washington counties.
- ***National Agriculture Imagery Program*** (NAIP) imagery acquisition of 2006 and 2009 uses a multi-organizational approach to acquiring funding needed to participate in this program. Agencies hope to continue this three-year data acquisition cycle.
- ***Hydrography Framework Project*** is the cooperative effort to define, implement, and maintain a single high resolution hydrography network. This is a multi-agency pilot test of the National Hydrography Data (NHD) model that covers the merger and loading two watersheds into the regional NHD Clearinghouse.
- ***WA-Trans Pilot Project*** has moved into phased implementation. The WA-Trans database is a consistent, unified source for integrated geospatial transportation data in urban areas and consists of tools for the collection of the best data available from multiple sources.
- ***Geodetic Control*** is coordinated through the Washington State Reference Network (WSRN) and is a regional cooperative of Global Positioning System (GPS) reference stations and data that enables cost-saving solutions for public and private sectors in the fields of surveying, mapping, and other high accuracy location technology needs.

Services and Infrastructure

- ***Washington Orthoimagery Data Portal*** is the state's first shared service which is jointly funded by state agencies and provides public access to imagery viewing, data downloads, and various agency-only geospatial web services.

- ***Geospatial Data Clearinghouse*** was established in 1998 through partnerships between state agencies and the University of Washington. Improvements to the clearinghouse interface are being made to ensure easier methods for posting metadata and geospatial services.
- ***Continuously Operating Reference Stations (CORS)*** Global Positioning System (GPS) Data Files with real-time services are available through partnerships, memberships, and subscriptions. The WSRN serves as an integral part of the state's modernization of the Spatial Reference System.
- ***Shared Services Pilot Projects*** continue to move forward on a number of fronts. Service Oriented Architecture (SOA) guidance standards are being incorporated into criteria for hosting and maintaining geospatial shared services in a cloud environment. The first services to be tested include Washington Location Finder Geoprocessing Service and Address Correction and Geocoding Services. This pilot and other similar Pacific Northwest efforts are currently being tested.

Geographic Data Development Status

High-quality and well-maintained data is the cornerstone of the spatial data infrastructure (SDI) framework. Exhibit 4 below provides a summary of the status of development of the NSDI in Washington, the State Spatial Data Infrastructure (SSDI). This Exhibit, along with the references in the section above, provides a status of present data activities.

Exhibit 4
Status of Current SSDI Framework Layers in Washington

DATA THEMES	ELEMENTS FOR SUCCESS: Executive Sponsor	Charter/ Business Plan	Data Steward	Data Model	Pilot Project	Adopted Standard	Infra-structure	Fully Im-plemented	Sustained Funding
Geodetic Control	DONE	DONE	DONE		DONE		DONE	DONE	–
Governmental Units									–
Hydrography	DONE								–
Orthoimagery	DONE	DONE	DONE	N/A	DONE	N/A	DONE	DONE	–
Elevation									–
Transportation	DONE	DONE	DONE	DONE	DONE		DONE		–
Cadastral		DONE	DONE	DONE	DONE				–
Parcels					DONE				–

DONE Complete; + Funded; In Progress; P Partially Funded; Inactive; – Unfunded

Source: DIS, 2010; FGDC, 1997; BERK, 2010

Washington has also identified several additional data sets as important to building the SSDI, and data development efforts are underway at various levels of completeness. These data sets include:

- **Public Safety and Structures**: military facilities, public safety station locations, dam facilities, commercial key assets, port facilities (air, sea, river), public building footprints, hospitals and medical facilities, state police, post boundaries, hazardous materials sites, public safety response areas, emergency service zones, evacuation routes, and rail facilities.
- **Land Use and Land Cover**: land use and land cover (general), zoning, eco-regions, land use (detailed), archaeological sites, zoning (all lands), and historic sites.
- **Reference**: demographic data, Geographic Names Information System, and coordinate systems.
- **Utilities**: telecommunication facilities, electric generation and transmission facilities, oil and gas supply and transmission facilities, utility service areas, and gas distribution facilities.
- **Geo Sciences**: soils and geology.
- **Hazards**: coastal erosion areas, floodplains, earthquake hazards, and tsunami inundation zones.

Common Criteria for the 50 States Initiative

In support of the FGDC's 50 States Initiative, the NSGIC developed nine criteria for effective statewide coordination of geospatial information technologies. At present, Washington fully meets six of the nine criteria established by the NSGIC and partially meets the remaining three criteria (Exhibit 5).

Exhibit 5
Current Status of NSGIC Coordination Criteria in Washington

NSGIC Criteria	Status	Status Description
1. A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans.	Meets	Paid State GIS Coordinator is housed within DIS.
2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production.	Meets	The legislatively created Information Services Board has a subcommittee focused on Geographic Information Technology. The GIS Coordinator is assigned as staff to this executive committee.
3. The statewide coordination office has a formal relationship with the state's Chief Information Officer (or similar office).	Meets	The GIS Program and GIS Coordinator are housed within DIS. The DIS Director is the state's Chief Information Officer (CIO).

4. A champion (politician or executive decision-maker) is aware and involved in the process of coordination.	Partially Meets	ISB-GIT functions as the champion for GIS in state government, and the committee is comprised of state agency CIOs. There is still a need to cultivate a closer working relationship with Governor's staff to advance geospatial activities.
5. Responsibilities for developing the National Spatial Data Infrastructure and a State Clearinghouse are assigned.	Meets	Responsibility for the SSDI coordination and the Geospatial Clearinghouse is out of the DIS's GIS Program Office. The Clearinghouse is a shared responsibility between the University of Washington and DIS.
6. The ability exists to work and coordinate with local governments, academia, and the private sector.	Partially Meets	There is active coordination with the GIS community (federal, state, local government, academia and the private sector) via the GIS user group WAGIC. Video conference meetings are held every other month to promote technical sharing at all levels. There is room for improvement in federal, county, and city coordination and participation.
7. Sustainable funding sources exist to meet projected needs.	Partially Meets	Funding exists for core coordination functions (one staff person) and state agencies provided staff support for GIS initiatives and projects. No sustainable funding exists for framework data development activities. Data creation and acquisitions occur on an ad-hoc basis with funding levels and donations changing from biennium to biennium and agency to agency.
8. Coordinators have the authority to enter into contracts and become capable of receiving and expending funds.	Meets	The GIS Coordinator has authority to enter into contracts and administer grants and receive and administer funds.
9. The federal government works through the statewide coordinating authority.	Meets	There is strong coordination with the federal governmental organizations in Washington. As with all coordination efforts, it is sometimes difficult to keep the lines of communication open and all parties in alignment.

Source: DIS, 2010

2.3 Strengths, Weaknesses, and Opportunities

WAGIC executive committee members discussed the current needs, challenges and opportunities for the state's geospatial system, providing a starting point for the development of statewide goals and objectives. The following is the group's assessment, augmented by the stakeholders' perspectives from the regional listening sessions and the online survey:

Exhibit 6
Current Strengths, Weaknesses, and Opportunities in Washington

STRENGTHS	OPPORTUNITIES	CHALLENGES AND WEAKNESSES
Coordination, collaboration and state leadership		
• The state is well organized to accomplish large projects, and is taking on a coordinating role in these projects, such as data acquisition. • There is support for information and ideas in the GIS community, as well as executive support for ISB-GIT. • There is a collaborative environment between private sector, agencies, and other entities. • The meetings at the state level on GIS services and technology are well attended.	• More organizations (cities, counties, academia, tribal, and others) should participate in ISB-GIT. • There is currently a good GIS coordinator; there is an opportunity to have this recognized at the Governor's level and procure more sustainable funding for GIS initiatives. • Need to clearly define the value of WAGIC and its relationship to ISB-GIT. • Need to increase involvement and attendance at WAGIC meetings.	• There is a lack of a recognized central coordinating agency at the statewide level. • Local, federal, or tribal organizations have difficulty partnering with Washington state agencies when agencies act as individual organizations rather than as a collaborative GIT enterprise. • The Priorities of Government (POG) process does not work for partnering on cross-agencies (e.g. hydro project had support from three agencies, but it did not take off because the agencies' own priorities came first).
GIS Technology		
• Most state agencies and local governments share common technology platform. • GIS in the state is well established; there is a lot of expertise. • There is a common understanding of technology and shared vision.	• Need to expand on shared infrastructure and move to shared services provided through GIS technology. • Potentially partner with Urban and Regional Information Systems Association (URISA).	• Needs sustained funding for infrastructure consolidation in order to realize cost savings and better service to users across the state.
Data Sharing, Development, and Standards		
• There is an existing mechanism to take standards forward.	• Publish links to or make data available from one location for access and download to minimize duplication. • Good standards have been established, but need more work.	• Current state data clearinghouse is outdated, difficult to use, and provides access to few datasets. • It is challenging to collect data from the variety of sources that is accurate and current. It is difficult to know what data is available. • Need to have data stewards responsible for maintenance and updates. • There are no commonly accepted standards for GIS base data (e.g. roads, hydro, parcels, etc.) that would facilitate easy data sharing.

STRENGTHS	OPPORTUNITIES	CHALLENGES AND WEAKNESSES
Funding		
• State agencies that see the value in geospatial data have helped fund data collection through one-time in-kind contributions of staff resources and dollars.	• Procure more federal funding for other types of GIS data. • Opportunity exists to develop a common funding model based on data steward agencies that will serve all agencies well into the future. • Need clear delineation of framework responsibilities between agencies with the goal of having one framework layer assigned to one agency in order to reduce duplication of efforts.	• Funding for development, maintenance, and operation of framework data layers is difficult to obtain. • Financial commitment is large as it relates to improving GIS. Therefore, managers and decision-makers should be able to see the appropriate return on investment, to make sure that long-term benefits outweigh the short-term costs. • It takes time and money to collaborate and participate. These costs should be tracked.
GIS Marketing and Outreach		
	• There is an opportunity to demonstrate GIS successes both within and outside the GIS user community. • There is a need to market the work that has been done (e.g. orthoimagery portal, hydro project). • There is a need for educating management, staff, and decision-makers about GIS capabilities, complexities, and the need for more resources.	• There are constraints in promoting accomplishments—can WAGIC be an advocate for GIS?
Other		
	• Look at other arenas (such as revenue department or legislative branch) and combine into state statistics (dashboards): o Increase accessibility through one-stop shop; o Promote government transparency; o Bring perspectives from business sides.	• There are fragmented resources (people, hardware, and software) and lack of focus and direction in the statewide GIS community. • Insufficient resources result in the inability to maintain functional GIS programs within rural local governmental organizations. • There is a need to address the "early adopter penalty" – help ensure cost sharing for those that have made initial investments. It is also difficult to identify the beneficiaries of different initiatives.

2.4 Key Themes

During the statewide outreach efforts, several common themes emerged. Regardless of region or jurisdiction type, stakeholders and GIS users expressed similar issues and ideas on how the state could help address those issues. The following sections highlight those themes.

Recognition and Interest in the Evolving Role of GIS

All groups expressed a growing recognition of the role of GIS in agency and organization functions. The technology is being employed in various ways to accomplish organizational goals, and people have recognized that it is a powerful and dynamic tool for spatial analysis and decision support. Stakeholders indicated that the technology is being used in more innovative ways and that its importance is evolving in various new sectors.

Need for Stronger Statewide Coordination

Data Coordination. Many stakeholders across regions and jurisdictions highlighted the need for stronger coordination to address the following current challenges:

- Redundant data creation and maintenance efforts.
- Lack of central access to spatial data.
- Lack of statewide data standards to facilitate data compatibility and ensure data quality.
- Inconsistent data naming conventions across jurisdictions.
- Inconsistent updates and data documentation.

Communication. Stakeholders expressed desire for more effective coordination across multiple agencies and jurisdictions, not only in terms of data sharing, but also in terms of communication and collaboration. Examples include establishing more public-private partnerships, focusing on regional coordination, and exploring new web-based methods of communication.

Emphasis on Education and Outreach of GIS

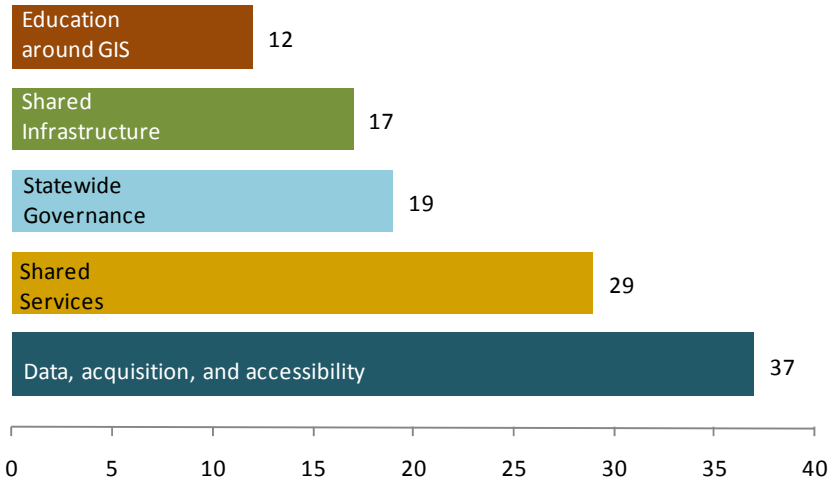
Stakeholders indicated that some decision-makers remain unaware of modern spatial technologies, including their capabilities, value, costs, and benefits. There is a need for increasing understanding and awareness of GIS to decision-makers, management, and the public. Many stakeholders noted that outreach alone is not enough; there is a need to make a clear business case for GIS technology by calculating and demonstrating return on investment (ROI), as well as other impacts, of different GIS investments.

Desire to Strengthen the State's Role

Many stakeholders stated their desire for the state to take on a stronger role with respect to GIS coordination and outreach. Currently, there is one full-time statewide GIS Coordinator position, funded by DIS. In addition, WAGIC is the main statewide body tasked with coordinating and facilitating the use and development of Washington State's geospatial information; however, the organization is run on a volunteer basis with few dedicated resources. All stakeholder groups identified the need to establish a Geospatial Information Officer (GIO) that would provide statewide GIS coordination and serve as a single voice for the GIS community.

In addition to common themes outlined above, the online survey respondents indicated that data, the acquisition of data, and data accessibility are the most important areas of improvement in GIS (respondents were able to choose more than one key area of importance).

Exhibit 7
Online Survey Responses: Key Areas for Improving Statewide GIS



3.0 VISION AND GOALS

3.1 Vision and Mission

The vision and mission of the State's GIS community highlights the need to use geospatial information to benefit the public through improved decision making at multi-jurisdictional levels and through the development of geospatial solutions.

Vision: Utilize geospatial technology to facilitate decision-making to benefit Washington State citizens.

Mission: Work in partnership with the public and private sectors statewide to provide accurate, consistent, accessible, and comprehensive GIS resources for decision-makers and the public.

This Plan falls into the larger structure of the Washington State Strategic Information Technology Plan and its objectives and it follows the spirit of the Governor's recent efforts on shared services and improving efficiencies in state government.

3.2 Strategic Goals and Objectives

The overarching strategy encompasses the following concepts in an effort to fulfill the mission and vision of this Plan:

- Promote data development, sharing, and access through the development of common standards and guidelines;
- Facilitate coordination and communication;
- Promote the value of GIS in decision-making.

Based on the statewide outreach efforts, **five goals** and corresponding **objectives** have been established, which are described in detail below.

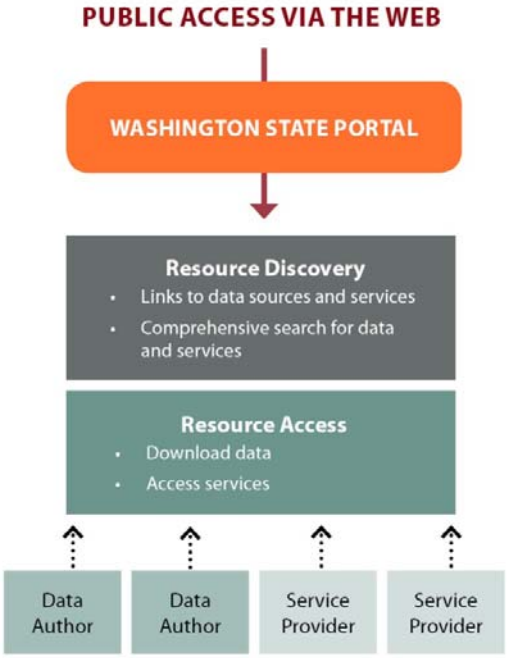
Goal #1: Establish Access Mechanism for Washington Geospatial Data

There is a significant need for a data discovery and access mechanism that is easy to use, well-organized, searchable, and consistently updated. Benefits of such a tool include the ability to easily find and share data, reduced data redundancy, and increased opportunities for inter-governmental collaboration. This tool – a Washington Geospatial Data Portal – should have the following components:

- Mechanism for **resource discovery**: a clearinghouse that would serve as an inventory of data and links to sources;
- Mechanism for **resource access**: a data interface for using or downloading commonly used data;
- Interface for provisioning shared services.

Exhibit 8 below demonstrates the vision for a web-based Washington State geospatial resource portal.

Exhibit 8
Vision for Geospatial Data Discovery and Access Portal



This mechanism for discovery and access to geospatial resources aligns with the Governor's priorities calling for the use of shared services to improve service delivery and reduce costs.

Implementation Objectives:

A. Identify and inventory publicly accessible data and geospatial services created and stored at the various agencies and jurisdictions across the state.
   - Describe the data and services, such as timeline of updates, file types, and contacts.

B. Establish standards for data and services storage, exchange, and updating.

C. Update the Washington State Clearinghouse mechanism for data discovery and access to support both metadata and geospatial services.

D. Implement a shared storage and retrieval infrastructure for data and services.
   - Assess federated approach to web services.
   - Develop protocols for providing access to archived data.

E. Develop a funding model for the development and maintenance of the portal.

Goal #2: Staff GIS Program Office and Recruit a State Geospatial Information Officer

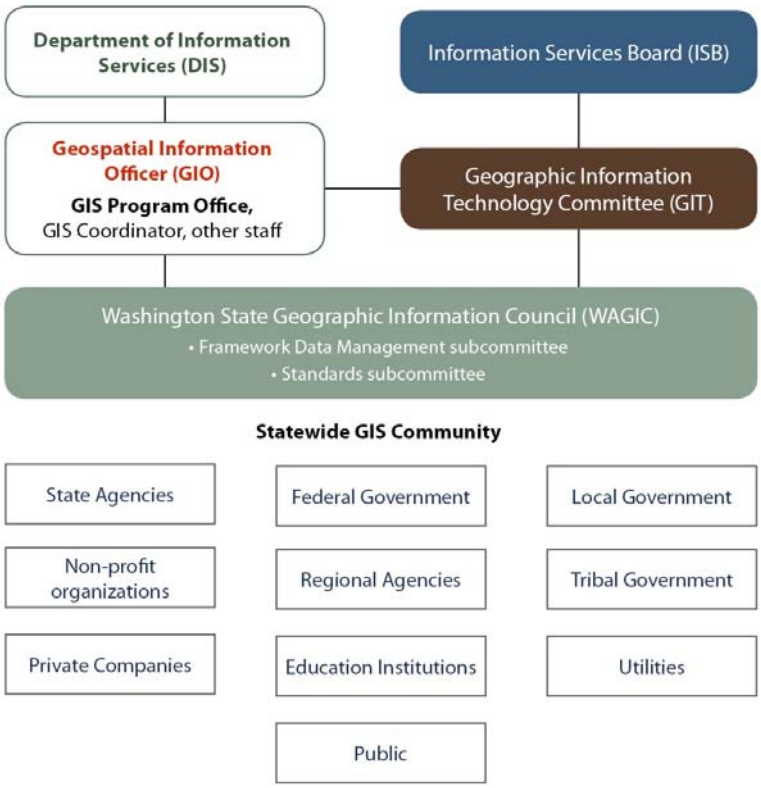
An effective statewide geospatial structure should include the following components:

1. A comprehensive statewide strategy and supporting policies;
2. Systems and processes to allow the implementation of statewide strategy;
3. Organizational and governance framework to support the strategy.

In order to implement the overarching strategic goals, it is necessary to fully staff the existing state GIS Program Office at DIS, and recruit a State GIO. The GIO will coordinate interagency and intergovernmental efforts and will provide executive leadership for the state's GIS user community.

Exhibit 9 below demonstrates proposed organizational framework for the Washington State GIS community.

Exhibit 9
Proposed Organizational Framework for Washington State GIS Community



Implementation Objectives:

A. Staff the existing state GIS Program Office, to enable the following actions:

- Coordinate geospatial efforts across agencies and levels of government;
- Recommend data standards;
- Research and recommend best practices and current technology;
- Provide technical assistance and resources;
- Spearhead outreach, education, and coordination efforts;

- Identify opportunities to consolidate efforts and minimize redundancy in data collection, management, distribution, and access;
- Expand and operate the Washington State Portal and the Washington State Geospatial Clearinghouse.

B. Develop dedicated funding for the GIS Program Office.

C. Recruit a full-time GIO.

- Develop and formalize the roles and authority at the executive level.
- Establish a reporting structure and organizational home for the GIO.

D. Develop a communication strategy for the GIO, to facilitate statewide coordination.

E. Establish GIS regional support to provide services and technical support to Washington regions with insufficient local resources for development or maintenance of critical data.

- Address the digital divide issues that exist in Washington where framework level data is non-existent or poorly maintained due to resource issues.

Goal #3: Strengthen Coordination across Jurisdictions and Agencies

Jurisdictions and agencies vary in their GIS needs and capabilities. However, there are many opportunities for coordination that will allow each agency and jurisdiction to more efficiently acquire data, engage in professional development, and champion GIS programs. Efforts that may be costly for a single agency to undertake alone can be made feasible when coordinated across agencies or jurisdictions. In return, more agencies can both contribute to and benefit from the data.

There is a link between framework data efforts, the desire for more information, and the building of the State Spatial Data Infrastructure (SSDI). All members of the GIS community need to be involved in gathering and improving geospatial information so that the state can serve as a central coordinating entity for the SSDI.

Implementation Objectives:

A. Coordinate statewide data acquisition, development, and update efforts to eliminate duplication of efforts.

- Focus on large framework data acquisition and development across multiple agencies.
- Communicate acquisition opportunities early on to allow participation by multiple entities and to enable incorporation of data investments into entities' budgets.
- Engage in more private-public partnerships, for geospatial data access and services to improve efficiencies and eliminate duplication.

B. Develop statewide enterprise license agreements for third party geospatial products.

C. Coordinate regional efforts to address the digital divide and improve data in rural areas of Washington.

- Identify optimal approach to coordination in rural areas.
- Establish regional resource centers, potentially utilizing educational institutions.

Goal #4: Develop Statewide Standards and Guidelines for Data and Services

A vital component of improved data sharing and access is development of statewide data standards and guidelines for commonly used and shared data, particularly framework layers. Functional data standards and guidelines will increase the effectiveness of the data discovery and access mechanism, the ease of integrating datasets from multiple sources, and will improve the quality of data used by the state geospatial community.

Implementation Objectives:

A. Compile and review current standards and guidelines, including standards and guidelines from Washington state agencies, other states, private organizations, and the federal government, with the purpose of promoting existing standards for metadata to avoid data and services redundancies.

B. Determine standards and guidelines for various data types focusing on enhancing data exchange.

- Focus on commonly used and shared data types, particularly base data such as roads, hydrographic, parcels, traffic incident data, etc.
- Establish standards for file type, structure, and quality.
- Align with or adapt the standards and guidelines from existing national or industry standards.

C. Establish requirements or incentives for adherence to data standards and guidelines.

Goal #5: Increase Awareness and Support for GIS through Education and Outreach

The role and capabilities of GIS are becoming more commonly understood by the public, but there is still a need to communicate the importance of this technology to management and decision-makers. GIS education and outreach is currently done on an ad hoc basis, thereby limiting its effectiveness.

Effective communication highlighting Washington's many diverse geospatial technology applications will increase awareness and support for geospatial information, including a potential increase in future funding.

Implementation Objectives:

A. Develop an outreach program to target decision-makers.

- Increase awareness of GIS's capabilities and benefits, WAGIC, and ongoing coordination efforts through multiple channels, including presentations and compelling communication materials.

B. Redesign WAGIC's web site to make it more accessible, user-friendly, and informative (include existing documentation).

C. Create non-technical communication materials and talking points highlighting GIS' merits and uses.

D. Conduct a Return on Investment case study to make the business case for GIS investments.

E. Promote regional trainings and workshops for the user community, and publish relevant opportunities, such as conferences, trainings, and materials on the WAGIC's website.

F. Explore new methods of outreach and social networking tools to keep in touch with GIS users.

4.0 REQUIRED ELEMENTS FOR IMPLEMENTATION

Outlined below are some of the technical and organizational requirements that need to be in place to implement the goals and objectives identified in Section 3. It provides a brief assessment of the state's existing strengths and weaknesses and what the GIS community needs to do to realize a Washington State Spatial Data Infrastructure (SSDI).

Background: Over the past two decades, Washington has taken a multilateral approach to the deployment and management of geospatial information. Framework and agency specific data are managed within the steward agencies, which provide the data management and infrastructure resources needed to support these activities.

The current geospatial infrastructure supports the following state services from a single point of entry via the WAGIC web site:

- Index of publicly available state data;
- General text-based information;
- Access to online raster data for viewing and download;
- Access to the Washington Metadata Clearinghouse;
- Links to framework data efforts and related data standards.

To develop a federated approach, including a state consolidated infrastructure that supports data and infrastructure management and shared services, additional resources will be required to support the functions and tasks as outlined in this Plan.

4.1 Organizational Needs

Statewide Coordination. The WAGIC has been successful in coordinating data acquisition, standards development, and cross-agency coordination over the past 20 years. However, as with many volunteer organizations, there is an ebb and flow of participation over time. The 1990's saw the height of local government involvement, but in the last decade there has been a change in participants, focus, and interest. New energy and support is needed at the state level in order to move geospatial initiatives forward.

The WAGIC volunteer model has not been able to significantly advance the state's current GIS initiatives. The current governance structure and processes are not adequately leveraged nor communicated to the user community. This is demonstrated in the fact that many of the critical issues identified during the listening sessions (establishing a program office, place to access metadata, mechanisms to establish standards, leadership, etc.) have been moved forward, but have not been well communicated or fully funded.

State Governance. The ISB-GIT was established to provide leadership and governance in geospatial information technology and recommend policy and standards to the ISB for cross-agency implementation. The ISB-GIT has been successful in providing leadership to the state GIS community and participation in this governing body has expanded beyond the state's natural resource agencies. Washington has some organizational challenges, but in general is well positioned to implement the goals and objectives outlined in Goals #1, #3, #4, and #5, provided that there is adequate funding and support.

Because of existing organizational challenges, implementing Goal #2 will facilitate successful implementation of Goals #1, #3, #4, and #5.

4.2 Executive Support

Currently, statewide GIS activities and initiatives are being coordinated through the ISB-GIT with members from state agencies, the federal government, and the WAGIC's Chair representing the GIS user community.

A significant gap that remains is a single, focused champion for geospatial technologies at the executive level. Furthermore, there is a need for an advocate that can articulate the geospatial resource requirements, as well as the benefits of making GIS investments.

Implementing Goal #2 supports the Plan's overarching strategic goals by establishing a state Geospatial Information Officer (GIO). The GIO will coordinate the state's spatial data infrastructure efforts and provide a voice for geospatial activities at the executive level.

4.3 Coordination and Oversight Procedures

The ISB-GIT still lacks active participation from the Legislature, the Governor's office, and various federal, tribal, county, and city governments. Much of what is outlined in Goals #3 and #5 could be achieved if those outside of state government were more fully participating in the process. This increased participation would help lend credence and validity to the existing process and would further GIS coordination across Washington State.

A common point of access (as outlined in Goal #1) to a federated state GIS would help support better coordination with and between the key entities in Washington as discussed in Goals #3 and #5. This would provide services to the public more efficiently and effectively.

4.4 Policy

Washington is well positioned to enact policy and standards through the ISB-GIT. A standards adoption process has been established which outlines how geospatial standards are moved forward by state and local entities.

An increased understanding of the policy process and willingness on the part of the user community to leverage this process will help advance Goal #4.

4.5 Staffing

GIS staff at the federal, state, tribal, and local government levels is responsible for moving many of the state's enterprise GIS activities forward. This is demonstrated through recent accomplishments (see Section 2.2 for a detailed list). This work has been done primarily in a voluntary, collaborative manner.

The GIS Program Office presently includes only the GIS Coordinator; its current staffing level has been static since 1994 and is not adequate to accomplish existing tasks. Any efforts to move this Plan forward will require additional staffing resources.

4.6 Costs

Similarly to other states, cost saving efforts are underway in Washington. Within the natural resource agencies, GIS data, infrastructure, and governance consolidation are being considered in order to improve efficiencies and save money.

A consolidated and expanded infrastructure approach would host geospatial applications, framework data, data standards, metadata and many other geospatial web services for public viewing and use. This single expansion would help address most of the goals and objectives outlined in this Plan. By implementing these goals and objectives the state will realize savings and improve service to the public.

4.7 Outreach and Community Development

The GIS community and the state continue to grapple with outreach and communication challenges: while there is a high level of technical proficiency, there is lack of time and expertise invested in communication and marketing.

GIS practitioners in public, commercial, and non-profit sectors are all stretched for time and resources. For this Plan to be successful, active participation is needed from all sectors of the geospatial community. This participation will promote and foster Goals #3 and #5.

4.8 Assessing Risk

In the past, we have made great strides with small levels of funding and participation. However, as the Strengths, Weaknesses, and Opportunities assessment highlights, we are at risk for not achieving continued progress under the current configuration of institutional and financial support. Especially because many of the successful efforts were accomplished by collaborative, voluntary means, the State runs the risk of a stalled or failed implementation of the SSDI should the past supporters become unable or unwilling to continue their levels of participation and support. In addition, as the current support group retires or leaves state service, we face the challenge of recruiting and supporting the next generation of supporters and participants in building and fostering the SSDI.

Given the current state financial situation, we also risk leaving many critical tasks incomplete should ad-hoc funds previously relied on become unavailable. Without identified and secure institutional and financial support and commitment, it seems likely that progress will falter.

Other risks might include inability to successfully identify the required amounts of institutional and financial support within state government, as well as unexpected events (as seen lately nationally) causing priorities to change. However, it is clear that the risks of not moving forward outweigh the risks of moving forward.

5.0 IMPLEMENTATION PLAN

5.1 Phasing and Milestones

ACTION ITEMS	IMPLEMENTATION TIMELINE					RESPONSIBILITY		DESIRED OUTCOME/RESULTS
	2010	2011	2012	2013	2014	LEAD	SUPPORT	
Goal #1: Establish Access Mechanism for Washington Geospatial Data								
A. Identify and inventory publicly accessible data and geospatial services across the state.	✸	—	—	—	✸	DIS	WAGIC /User Community	Full inventory of publicly accessible data is available via WAGIC web site. Data is refreshed on an annual basis.
B. Establish standards for data and services storage, exchange, and updating.		✸				ISB-GIT/ISB	WAGIC /User Community	Processes and governance established and aligned with the state's Service Oriented Architecture and Shared Services efforts. Information made available at WAGIC web site.
C. Update the Washington State Clearinghouse mechanism for data discovery and access to support both metadata and geospatial services.	✸	—	—	—	✸	WAGIC/UW	DIS / User Community	Migration to new infrastructure platform is underway. New mechanism for documenting geospatial services and metadata should be available by 9/1/2010 via WAGIC web site. User community publishes metadata to the repository or to Geodata.gov.
D. Implement a shared storage and retrieval infrastructure for data and services.		✸				DIS	ISB-GIT	Existing portal services are available for imagery data. Expansion of portal services will continue into the next biennium at www.geography.wa.gov.

ACTION ITEMS	IMPLEMENTATION TIMELINE					RESPONSIBILITY		DESIRED OUTCOME/RESULTS
	2010	2011	2012	2013	2014	LEAD	SUPPORT	
E. Develop a funding model for the development and maintenance of the portal.		✸	✸			ISB-GIT	DIS	Funding strategies and mechanisms for state government are identified. Funding partnerships with other entities (federal, tribal, local, non-profit) are established.
GOAL #2: Staff GIS Program Office and Recruit a State Geospatial Information Officer (GIO)								
A. Staff the existing state GIS Program Office.		✸	✸			DIS	ISB-GIT	Staffing level is expanded beyond the single position in GIS Program Office. Funding strategies are identified and resource requirement analysis is conducted.
B. Develop dedicated funding for GIS Program Office.		✸	✸			DIS	ISB-GIT	Funding strategies are identified and decision packages are submitted to the Office of Financial Management.
C. Recruit full-time Geospatial Information Officer.		✸	✸			DIS	ISB-GIT	GIO position within the Chief information Officer's Program Office is established; effective GIO is recruited.
D. Develop a communication strategy for the GIO, to facilitate statewide coordination.		✸	✸			DIS	ISB-GIT	Strategy is developed by working with stakeholder community.
E. Establish GIS regional support for regions with insufficient local resources.				✸	✸	GIO	WAGIC / Regional User Community	Region-specific needs and resource requirements are identified; funding is procured. Regional entities are engaged in the process.

ACTION ITEMS	IMPLEMENTATION TIMELINE					RESPONSIBILITY		DESIRED OUTCOME/RESULTS
	2010	2011	2012	2013	2014	LEAD	SUPPORT	
Goal #3: Strengthen Coordination across Jurisdictions and Agencies								
A. Coordinate statewide data acquisition, development, and update efforts to eliminate duplication of efforts.	✸	—	—	—	✸	ISB-GIT/ GIO/ WAGIC	GIS User Community	Continue to identify opportunities to purchase data through funding and acquisition partnerships with governmental entities. Opportunities are advertised to the GIS community. GIS community is actively engaged in activities occurring at the state and regional level.
B. Develop statewide enterprise license agreements for third party geospatial products.	✸	—	—	—	✸	ISB-GIT/GIO	WAGIC	Continue to identify opportunities based on community interest and their funding ability. Potential opportunities are advertised via the WAGIC List Serve.
C. Coordinate regional efforts to address the digital divide and improve data in rural areas of Washington.			✸	✸		ISB-GIT/GIO	WAGIC / Regional User Community	Region-specific needs and resource requirements are identified; funding procured; partnerships are established. Regional entities are engaged in the process.
• Identify optimal approach to coordination in rural areas.			✸			ISB-GIT/GIO	WAGIC / Regional User Community	Specific regional approaches are developed.
• Establish regional resource centers, potentially utilizing educational institutions.					✸	ISB-GIT/GIO	WAGIC/ Higher Education	Regional resource centers are established, leveraging the K-20 education system.

ACTION ITEMS	IMPLEMENTATION TIMELINE					RESPONSIBILITY		DESIRED OUTCOME/RESULTS
	2010	2011	2012	2013	2014	LEAD	SUPPORT	
Goal #4: Develop Statewide Standards and Guidelines for Data and Services								
A. Compile and review current standards and guidelines.		✸	—	—	✸	ISB-GIT/ISB	WAGIC	Standards and guidelines are reviewed.
B. Determine standards and guidelines for various data types focusing on enhancing data exchange.		✸	—	—	✸	ISB-GIT/ISB	WAGIC	Standards and guidelines are determined.
C. Establish requirements or incentives for adherence to data standards and guidelines.		✸	—	—	✸	ISB-GIT/ISB	WAGIC	Requirements or incentives are established.
Goal #5: Increase Awareness and Support for GIS through Education and Outreach								
A. Develop an outreach program to target decision-makers.			✸	✸		ISB-GIT	WAGIC/ WAURISA	Outreach program is developed.
B. Redesign WAGIC's web site to make it more accessible, user-friendly, and informative.	✸	✸				DIS	WAGIC	Web-site redesign is completed and implemented.
C. Create non-technical communication materials and talking points highlighting GIS' merits and uses.				✸		WAGIC	WAGIC/ WAURISA	Communication materials are created and disseminated.
D. Conduct a Return on Investment (ROI) case study to make the business case for GIS investments.		✸	—	—	✸	GIO	ISB-GIT	ROI study is completed.
E. Promote regional trainings and workshops and publish relevant opportunities and materials on the WAGIC's website.			✸	✸		WAGIC		Continue to promote regional trainings and workshops.
F. Explore new methods of outreach and social networking tools to keep in touch with GIS users.					✸	WAGIC		New methods of outreached are researched and implemented.

5.2 Monitoring and Measuring Success

In order to keep this Strategic Plan relevant to the needs of the Washington GIS community, progress should be reviewed and the plan revisited at least once a year. The progress toward goals and implementation objectives should be assessed against the corresponding desired outcomes. Depending on this evaluation, strategic direction may be adjusted or new action plan may be called for.

APPENDIX A: LIST OF ACRONYMS

CIO	Chief Information Officer
CORS	Continuously Operating Reference Stations
DIS	Department of Information Services
FGDC	Federal Geographic Data Committee
GIO	Geospatial Information Office
GIO	State Geospatial Information Officer
GIS	Geographic Information System
GIT	Geographic Information Technology
GPS	Global Positioning System
ISB	Washington State Information Services Board
ISB-GIT	Information Services Board Geographic Information Technology Committee
NAIP	National Agriculture Imagery Program
NHD	National Hydrography Data
NSDI	National Spatial Data Infrastructure
NSGIC	National State Geographic Information Council
POG	Priorities of Government
ROI	Return on Investment
SDI	Spatial Data Infrastructure
SOA	Service Oriented Architecture
SSDI	State Spatial Data Infrastructure
URISA	Urban and Regional Information Systems Association
WAGIC	Washington Geographic Information Council
WG2	Washington Geographic Group
WSRN	Washington State Reference Network