

# Washington State Department of Ecology Information Technology (IT) Portfolio

*(Last update completed in September 2011.)*

The information technology (IT) portfolio is a tool for making better decisions about the agency's investments in data, software, hardware, networks, and supporting facilities. It is a summary containing the essential information required for effective executive management and oversight of technology within the agency.

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Note: "Current" projects/investments are those scheduled and funded in the current biennium. "Planned/proposed" projects/investments are those for which funding has not yet been committed.

### [Section 6. Annual Technology Investment and Project Reviews](#)

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### [Clarity IT Portfolio Management System \(ITPMS\) \(\*restricted access\*\)](#).

#### ITPMS Reports

- [Enterprise Reporting](#) (*restricted access*).
- [Enterprise Reporting](#) (via Fortress) (*restricted access*)

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#### Related Information:

##### [ISB Policies](#)

#### Background/Historical Information:

- [2007-2009 Information Technology Strategic Plan \(Feb. 2008\)](#)
- [Information Access: Ecology's Information Management Vision and Strategy \(Nov. 2001\)](#)
- [Information Technology Strategic Plan \(Oct. 1996\)](#)
- [Information Strategy Plan \(June 1995\)](#)

# Section 1: Portfolio Overview

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## 1.A. Purpose

The information technology (IT) portfolio is a primary tool to support decision-making for investments in IT (data, software, hardware, networks, supporting facilities, training, etc.). An IT portfolio demonstrates the relationship between current and planned investments. The intent is to manage IT investments as assets in much the same way as one manages a portfolio of financial investments.

Ecology's baseline portfolio was prepared in 1999 and has been updated on an ongoing basis to reflect completed investments, changes in the agency's needs, and the advance of technology.

This document contains summaries of Ecology's business strategies and the supporting IT strategies, the current IT infrastructure, and current and planned/proposed projects. This information is intended to support effective executive management and oversight of Ecology's IT investments.

This portfolio enhances the ability of key decision-makers to assess the probable impact of IT investments on the agency's programs and IT infrastructure as well as on the State's IT infrastructure. These decision-makers include Ecology's management, the Department of Information Services (DIS), the Information Services Board, the Office of Financial Management (OFM), the State IT Transformation Executive Steering Committee, the Governor, and members of the Legislature.

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## 1.B. Convergence of Business Mission and Information Technology Vision

### Agency Mission

Ecology's mission is to protect, preserve and enhance Washington's environment, and promote the wise management of our air, land and water for the benefit of current and future generations.

### Agency Goals

- Prevent pollution
- Clean up existing pollution
- Support sustainable communities and natural resources

The above goals and associated performance measures are presented in the Department of Ecology's [current performance progress report](#).

### Legislative Mandates

Ecology's broad spectrum of environmental management authorities and activities are based on a series of Legislative mandates beginning in 1917. These are listed by program in the Department of Ecology's [2009-2011 Strategic Plan](#).

### Ecology's Strategies for Accomplishing its Mission and Achieving Its Goals

Ecology's strategic priorities are as follows:

- Protect and restore Puget Sound
- Reduce toxic threats
- Support successful water management
- Address climate change
- Improve the success of environmental mitigation projects

Ecology also plans to continue progress in our core work:

- Improve air quality
- Reduce and manage hazardous wastes
- Reduce and manage solid wastes
- Clean up toxic sites
- Clean up the Hanford nuclear reservation
- Protect wetlands, shorelines and watershed health
- Improve water quality
- Manage the sustainability of water resources
- Monitor and assess environmental conditions
- Prevent and clean up oil, hazardous spills and illegal dumps
- Provide efficient and effective administrative support

A more in-depth discussion of the Ecology's priorities and strategies is included in the Department of Ecology Strategic Plan for 2011-2013 presented in Section 2.

## **Alignment of Current IT Investments with Business Objectives**

Ecology's IT Strategic Plan sets IT direction for Ecology in three major areas:

- Long-term enterprise-level technology initiatives
- Strategic changes in IT governance
- Agency organizational changes for managing IT

See the [IT Strategic Plan](#) for further details.

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## **1.C. IT Plans, Proposals, and Acquisitions Process**

### **Review of IT Plans, Proposals, and Acquisitions**

Ecology conducts a comprehensive review of its IT plans, proposals, and planned acquisitions biennially as part of the agency's biennial strategic planning and budget development process. In odd-numbered calendar years (i.e. budget "off-years"), Ecology reviews major IT priorities as part of the annual update of the IT portfolio. Throughout each year (usually quarterly or semi-annually) the agency reviews application development priorities. All of these reviews are conducted by Ecology's IT Steering Committee.

### **IT Acquisition Process**

In the 2007-2009 biennium major changes were introduced in IT acquisitions across Washington State government which affected the way that Ecology and other state agencies carry out IT projects. These changes included the new IT Technology Pool which included two Ecology projects in the biennium, and the new "903" consultation requirement affecting all IT acquisitions. Further changes occurred beginning in 2008 and continuing today as the State government struggles to manage the effects of an unprecedented recession. Increasing restrictions were placed on purchasing including IT acquisitions.

### **State Technical Standards**

Ecology is aware of and adheres to state technical standards for IT. Historically, Ecology has advocated an enterprise approach to IT investments. We currently use a number of State enterprise IT solutions and are actively participating in several enterprise initiatives. We are not aware of any exceptions to or deviations from current standards. Beginning in 2009, Ecology has been actively working to support the State's "IT Transformation".

## IT Acquisition Complaint and Protest Procedures

Ecology is aware of and adheres to state complaint and protest procedures as outlined in the IT Investment Policy and Standards. Historically, Ecology has received very few complaints and protests. As noted above, Ecology's IT managers maintain a close working relationship with the DIS technology management consultant and seek advice on the handling of any complaints or protests.

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## 1.D. Overview of Infrastructure

### Enterprise-Wide View of the Current IT Investment

- **Network Infrastructure**

#### **Wide Area Network (WAN)**

Ecology's facilities include the Lacey office, which houses headquarters and the Southwest Regional Office, and eleven remote offices. WAN connectivity between the Lacey office and ten of these offices is accomplished via leased line connections to the Department of Information Services MPLS state-wide network. The available bandwidth for each connection varies based on both the number of users and the data flow to and from each office. Several offices (Padilla Bay, Manchester Lab/Port Orchard, Manchester Lab Accreditation Unit, Vancouver and Wenatchee connect via DS1/T1 links providing 1.54 megabits of bandwidth. Larger offices (Bellevue, Spokane, Yakima, Richland and Bellingham) are connected using 10 megabit Ethernet service. The Lacey office connects using 100 megabit Ethernet service. The Twisp and Walla Walla offices are connected via ground-based relay to a satellite, using VPN. The Environmental Assessment Program (EAP) Operations Center is connected directly to the Lacey office with a leased DS1/T1 link. The Air Program uses VPN over broadband cable and phone lines to connect monitoring stations to the Lacey office. EAP is using satellite connections for a number of its water quality monitoring stations.

High-availability switching technology is used for all of Ecology's internal and external connections.

#### **Domain Administration**

In mid-2004, Ecology migrated from a Microsoft Windows NT Server network to Microsoft Windows Server 2003 Active Directory and joined the statewide "forest". Remote access services are provided using DIS-provided virtual private network (VPN) services and a small amount of Remote Access Service (RAS).

#### **Messaging**

Ecology uses Shared Services Email, implemented by DIS, to provide email service to staff.

## **Servers and Storage**

Consistent with industry trends and the State direction, Ecology has been working to centralize/consolidate and virtualize servers to reduce costs. This has occurred through the following:

- Elimination of distributed servers and server administration at Ecology headquarters - To date, approximately 65% of the program servers have been eliminated and the applications that they were supporting have been migrated to the agency platform. This project is expected to be completed by the end of FY 2012, but is paused as of August 2011 in order to complete the virtualization and/or consolidation of physical servers described below.
- Virtualization and/or consolidation of physical servers:
  - Server Virtualization - As of August 2011 Ecology is operating 222 servers of which 179 are located at headquarters. Of those 199 servers, approximately 50% are now virtual machines and we plan to increase this percentage to over 80% by the end of FY 2012.
  - Consolidation – Existing applications on underutilized servers are being migrated to a central platform to increase its overall utilization rate. An example of this approach is the elimination of four remote Exchange Servers and the migration of all user mailboxes to Share Services Email at DIS.

In an additional cost-cutting initiative, Ecology has been working to bring our backup retention cycles more in line with industry and DIS best practices. By reducing our retention cycles we have avoided purchasing additional tapes and our costs for off-site storage are starting to decline. This will be completed by September 2011.

Ecology uses an HP SAN system, purchased in 2003, to consolidate user data stored online.

A major challenge in the above work is managing the change related to the State IT Transformation and the human impact. Current IT staff are understandably concerned about their futures.

## **Minicomputers**

An IBM AS/400 Minicomputer hosts only the Water Adjudications System. The IBM AS/400 environment is "contained" and new development is being done in the Windows environment.

## **Telecommunications**

Ecology's voice services strategy is based on applying cost effective technology to meet identified business needs.

The telephone lines for the Lacey office are brought into the building on fiber optic cable. In Ecology's other offices, telephone lines are brought into the building over copper. Lines are extended from the D-mark in each building to desktops via twisted-pair, shielded plenum cable. As facilities have been re-wired, Ecology has adopted the AT&T Wiring Standard; offices are equipped with two jacks each for voice (CAT 3) and data (CAT 5). An exception to this configuration is the Northwest Regional Office that was recently re-wired with three interchangeable CAT 5E jacks in each office.

Ecology voice lines are Centrex lines provided by Qwest through DIS except the Richland and Padilla Bay offices served by Verizon. When the Hanford Project Office moved from Kennewick to Richland, CENTRANET was installed as the voice system. Though most lines are analog, approximately eight percent of the lines are Integrated Signaling Digital Network (ISDN) Services -- employed in the Lacey, Bellevue, Vancouver, Yakima, and Spokane locations only. A monthly inventory detailing individual line service(s) and cost(s) is provided by DIS.

Ecology's cellular service is primarily tri-mode and the vast majority of cellular services are provided by Verizon or AT&T.

- ***Desktop Infrastructure***

- **Standard Desktop Computer**

- Ecology purchases desktop computers centrally. Until recently, desktop computers were replaced on a four-year cycle. In response to the recent budget challenges, the agency increased the replacement cycle to five years. If a computer fails in the fifth year (i.e. after the warranty has expired), the defective component will be repaired or replaced, the computer will be replaced using existing agency stock, or a new computer will be purchased, whichever is more cost-effective. The desktop hardware standard is reviewed and updated quarterly to guide any needed purchases.

- **Standard Desktop Products**

- See [current software: standard desktop image](#).

- ***Application and Data Infrastructure***

- See [IT Contractor / Developer Guidelines](#).

- ***Geographic Information System (GIS) Infrastructure***

- Ecology's GIS Technical Services Unit's goal is to support the spatial information needs of Ecology's staff. This is ensured through system and data access and infrastructure support. The strategy for accomplishing this goal consists of:

- Providing consistent data through a statewide approach to data collection, creation and documentation.
      - Increasing integration of spatial and tabular data.

- o Making GIS practical on the desktop through the provision of appropriate tools, data, and training.

Access and infrastructure support is provided to the agency using the standard GIS hardware and software components identified below. Further details on Ecology's GIS standards are available on the agency's Intranet.

<b>Ecology's GIS Standards</b>	
<b>GIS Software</b>	
GIS Software	Environmental Systems Research Institute (ESRI) ARC/INFO 9.x on Microsoft Windows
GIS to RDBMS Interface	ESRI's Spatial Database Engine (SDE) for Microsoft SQL
RDBMS Software	Microsoft SQL
Internet Mapping	ArcInternet Map Server 9.x
Address Matching Software	ESRI ArcWebServices; ESRI StreetMap
Desktop Mapping	Windows ArcGIS 9.x
<b>GIS Hardware</b>	
RDBMS Platform	Compaq DL-class servers; Windows Server 2003
GIS Platform	Dell desktop PCs; Compaq DL-class servers
Peripherals	ESRI Class 1 supported products only
<b>GIS Application Development</b>	
GIS Application Development Environments	ESRI's Arc Macro Language (AML) and ArcObjects 2.1; VBA, C#, and Visual SourceSafe
GIS Application Development Approach	Ecology standards
Programming Components/Coding Strategy	ESRI's ArcTools Design and Coding Standard, ArcObjects, and selected business-compatible components of ESRI GeoDatabases
Graphical User Interface (GUI)	ESRI's ArcGIS Graphic User Interface
<b>GIS Data And Database Administration</b>	
Spatial Data Management Strategy	WA State Geospatial Data Initiative Guidelines
Spatial Metadata Documentation	FGDC Content Standards for Digital Geospatial Metadata; ArcCatalog
Spatial Database Administration Standard Formats	Agency data stored in file-based and ArcSDE formats in WA State Plane Coordinates, NAD'83, Washington South Zone, U.S. Survey Feet

- ***Ecology's Critical Applications***

The following two applications (systems) support the agency's one identified "Tier 1" critical business activity, Spill Prevention and Response Field Operations:

- New Environmental Report Tracking System (NERTS)
- Marine Information System (MIS)

However, since neither NERTS nor MIS are required within the first two weeks following a disaster, neither is considered to be a "critical" application/system.

In addition to the above critical business activity, Ecology has identified several critical support activities and related applications/systems including:

- Internal Communications - Ecology's Messaging System
- External Communications - Ecology's Public Web Site
- Payment Processing - Cashiering System

## **How is the IT Work Organized?**

Since 1997 Ecology has implemented a series of reorganizations of the IT functions within the agency. Each reorganization has enhanced the agency's enterprise approach to IT.

- In 1997, Ecology began to transition its IT organization to better support an enterprise approach to IT.
  - Program and regional office desktop and network support staff were transferred to the central IT organization.
  - The scope of responsibilities of the Administrative Services Manager (now the Administrative Services Director) was redefined to provide much greater emphasis on IT effectively creating a Chief Information Officer (CIO) for Ecology.
- In mid-2000 the central IT organization was restructured to further consolidate desktop and network support within the central IT organization, enhance the integration of spatial and tabular data and applications, and provide for a more strategic approach to the use of Web technology.
- In early 2006 the central IT organization again was restructured to consolidate the desktop and network support functions at the section level and transfer several non-IT functions out of the IT organization.
- In early 2008 a somewhat less significant change was approved -- the centralization of application servers in Ecology as a step toward server consolidation and potential future migration to DIS.
- In mid-2009, the Enterprise Applications and Data Services Manager was re-defined as the Chief Information Officer. The Network and Desktop Services Manager and the IT Strategic Planner began reporting to the CIO rather than the Administrative Services Director whose responsibilities include risk management, transportation, facilities management, and business continuity planning. This reorganization was designed to provide more focused management of agency IT activities and increase

executive-level attention on IT at a time when considerable change was occurring in IT at the state level.

The [Information Technology Services Office organization chart](#) presents the central IT organization. Not shown is the "dotted-line" relationship of program IT staff to the Chief Information Officer.

### Who is Doing the IT Work?

- **Agency-wide IT Organization:** The agency's IT staff are IT professionals with considerable State experience as indicated in the following table. (Note: Information is not readily available on how much IT experience (in State service and elsewhere) the agency's IT staff have.)

	Experience Levels of IT Personnel				
	0-2 Years	3-10 Years	11-20 Years	21-30 Years	>30 Years
1999	5%	47%	34%	14%	0%
2000	11%	33%	41%	13%	1%
2001	21%	24%	40%	14%	1%
2002	22%	25%	40%	11%	2%
2003	20%	25%	43%	11%	2%
2004	15%	31%	42%	15%	2%
2005	7%	38%	34%	17%	3%
2006	12%	38%	30%	17%	4%
2007	16%	34%	30%	18%	3%
2008	17%	33%	24%	22%	4%
2009	12%	38%	22%	22%	6%
2010	8%	34%	28%	22%	8%
2011	4%	34%	26%	28%	8%

As of July 2011, 33% of Ecology's IT staff were eligible to retire in the next 24 months.

- **Central IT Organization:** The FTE count for Ecology's central IT organization was 39 during the 1997-1999 biennium. As a result of the reorganization, the FTE count increased to 56 for the 1999-2001 biennium. The central IT organization included 72 FTEs in the 2009-2011 biennium.

The current central IT organization includes two Washington Management Service (WMS) positions, positions in a number of IT classifications, and a Secretary Senior.

- **Program-Specific IT Staff:** Approximately 47 additional staff provide IT support to individual program areas of the agency. These staff fill both IT and non-IT classified positions.

- **Contractual Services/Outsourcing:**

Ecology contracts for IT services when:

- Opportunity exists for savings;
- New technologies are being considered or used;
- An independent view is sought;
- IT priorities exist but Ecology has a shortage of internal IT staff resources;
- Opportunity exists for Ecology to avoid pitfalls and for IT staff to learn from a contractor who has provided a similar solution to other organizations.

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## 1.E. Analysis

Presented below is a series of questions related to IT investments. Although a number of these questions cannot be answered easily and accurately today, Ecology will be using AFRS, time accounting, personnel, IT project tracking, systems management, etc. over time to collect the information needed to answer more of these questions in the future.

### Budget

- **Relationship of IT investments to major business initiatives**

Of the 36 current investments, 9 are infrastructure projects and 27 relate directly to Ecology's major business initiatives. Similarly, of the 28 planned investments, 9 are infrastructure projects and 19 relate directly to the agency's major business initiatives. *(Based on August 2010 project list.)*

- **Percentage of agency budget and staff allocated to IT**

In the 1997-1999 biennium approximately 8% of the agency's total budget was allocated to IT and 7% of the agency total staff was allocated to IT. These are estimates since IT budgets and staff were not tracked separately across the agency at that time. Beginning in the 1999-2001 biennium, IT expenditures have been reported across the agency to identify more accurately agency-wide IT expenditures (see [Information Services Cost Accounting](#)).

	97-99	99-01	01-03	03-05	05-07	07-09	09-11
Total agency staffing (annual FTEs)	1434	1426	1460	1385	1511	1594	1552
IT staffing (annual FTEs)	?	91.7	97.7	102.6	113.2	120.2	114.3
<b>IT staff as a % of total</b>	<b>est. 7%</b>	<b>6.4%</b>	<b>6.7%</b>	<b>7.4%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.3%</b>

	97-99	99-01	01-03	03-05	05-07	07-09	09-11
Total agency operating budget (\$ million)	238.1	290.9	320.3	318.9	402.0	467.8	446.5
IT budget (\$ million)	?	21.0	26.2	26.6	28.3	28.1	29.4
<b>IT budget as a % of total</b>	<b>est. 8%</b>	<b>7.2%</b>	<b>8.2%</b>	<b>8.3%</b>	<b>7.0%</b>	<b>6.0%</b>	<b>6.6%</b>

- **IT expenditures by major functional area**

As noted above, beginning in the 1999-2001 biennium, IT expenditures have been reported across the agency to identify more accurately agency-wide IT expenditures. These expenditures have been reported by functional area so that this data can be rolled up to the agency level by functional area (see [Information Services Cost Accounting](#)).

As noted in "Information Services Cost Accounting" (linked above), beginning with FY 2011, a new definition of IT is being used by all agencies per July 2010 revisions to the State Administrative and Accounting Manual (SAAM) by the Office of Financial Management (OFM). However, the cost categories used in the DIS (Clarity) IT Portfolio Management System haven't yet been realigned with the state chart of accounts (budget objects and sub-objects). This is anticipated following completion of the ongoing OFM IT Data Improvement Project. Given the change in IT cost accounting at the state level, Ecology has changed its internal reporting of IT expenditures to rely more on AFRS for actual expenditures for the past year.

Ecology IT Funding and Staffing by Major Functional Area												
	1999-2001		2001-2003		2003-2005		2005-2007		2007-2009		2009-2011	
	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs
Desktop support	4,534	24.2	4,942	22.5	5,249	16.1	5,913	21.8	4,193	23.0	3,936	22.4
Network support (includes printer support)	2,260	12.6	3,103	14.4	3,939	19.8	4,861	18.9	3,288	17.7	3,176	17.5
Data base administration and applications development and maintenance	6,0271	37.0	9,898	44.2	9,195	48.7	9,042	51.2	11,706	56.0	11,155	51.8
GIS	1,581	9.5	1,559	9.4	2,129	11.2	1,765	13.3	2,392	15.6	2,345	14.8
Web (excludes content development and web)	1,344	8.4	1,263	7.2	1,106	6.8	1,370	7.8	1,269	8.0	1,355	7.8

Ecology IT Funding and Staffing by Major Functional Area												
	1999-2001		2001-2003		2003-2005		2005-2007		2007-2009		2009-2011	
	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs	\$ (1,000s)	FTEs
applications dev. & maintenance)												
Telecommunications (staff FTEs and \$ included in Network support above)	3,428	---	3,490	---	2,678	---	3,409	---	4,333	---	4,478	---
Data processing services (DIS service charges)	1,778	---	1,986	---	2,289	---	2,277	---	3,092	---	2,939	---
<b>Total</b>	<b>20,952</b>	<b>91.7</b>	<b>26,241</b>	<b>97.7</b>	<b>26,584</b>	<b>102.6</b>	<b>28,637</b>	<b>113.2</b>	<b>30,273</b>	<b>120.3</b>	<b>29,384</b>	<b>114.3</b>

## Staffing

- **Ratio of IT staff to Non-IT Staff**

The table below displays the IT staff to non-IT staff ratio, that is, the number of non-IT classification positions that each IT staff position (excluding WMS staff) supports. The ratio has increased from approximately 1:21 in the late 1990's to approximately 1:12 in the past four years. *(Note: A substantial portion of the increase occurred from 1999 to 2000 when new IT job classes were implemented resulting in the reclassification of 16 positions from non-IT classes to IT classes.)*

IT Staff to Non-IT Staff Ratio																	
	July 1995	July 1996	July 1997	July 1998	July 1999	July 2000	July 2001	July 2002	July 2003	July 2004	July 2005	July 2006	July 2007	July 2008	July 2009	July 2010	July 2011
All Staff	1395	1348	1325	1318	1333	1319	1371	1434	1448	1518	1509	1559	1541	1557	1566	1586	1561
Non-IT Class Staff	1337	1288	1263	1259	1265	1237	1286	1338	1346	1413	1408	1451	1423	1437	1444	1465	1440
IT Class Staff	59	61	63	60	68	82	85	96	102	105	101	108	118	120	122	121	121
IT Support Ratio	1:22.7	1:21.1	1:20.0	1:21.0	1:18.6	1:15.1	1:15.1	1:13.9	1:13.2	1:13.5	1:13.9	1:13.4	1:12.1	1:12.0	1:11.8	1:12.1	1:11.9

- **Turnover and vacancy rates of IT staff vs. other staff in Ecology**

Turnover of staff in IT positions and all Ecology positions in recent years is presented in the table below.

Fiscal Year	Ecology IT Positions			All Ecology Positions		
	Avg. # of positions	# of appointments	Turnover	Avg. # of positions	# of appointments	Turnover
1996	73.0	11	15%	1488.7	161	11%
1997	71.3	13	18%	1434.3	144	10%
1998	75.7	12	16%	1449.3	213	15%
1999	77.0	14	18%	1460.3	218	15%
2000	80.0	16	20%	1446.7	253	17%
2001	93.0	15	16%	1511.0	270	18%
2002	101.7	13	13%	1575.7	304	19%
2003	104.3	7	7%	1543.3	174	11%
2004	108.7	17	16%	1510.3	169	11%
2005	111.0	17	15%	1535.0	243	16%
2006	114.7	21	18%	1584.3	291	18%
2007	115.0	19	17%	1683.0	336	20%
2008	119.3	14	12%	1734.0	283	16%
2009	121.7	7	6%	1716.3	170	8%
2010	123.0	3	2%	1701.0	86	5%
2011	121.7	5	4%	1692.0	76	5%

"Appointments" include new hires, agency transfers, and agency promotions.  
 "Appointments" do not include reallocations or temporary appointments.

- **Depth of skilled staff supporting mission critical services**

(To be developed in the future as part of business continuity planning.)

### Project Management

- **Project success (percentage of projects that achieve objectives within schedule and budget)**

(To be developed in the future through project tracking.)

## User/Desktop Support

- **Customer (Ecology staff) satisfaction**

In December 1998 a computer customer satisfaction survey was conducted of staff in Ecology's Lacey Building (HQ and SWRO). From July 1999 through January 2003, an agency-wide survey was conducted semi-annually. In 2003 the survey was changed to an annual survey, and a survey was been conducted each year through 2007. Surveys now are being conducted biennially given that recent ratings have been both relatively stable and relatively high. The next survey is scheduled for early 2012. Results of the surveys to date (excluding the mid-CY surveys in 1999-2002) are presented below.

Level of satisfaction	Dec. 1998 (Lacey Bldg. only)	Jan. 2000	Jan. 2001	Jan. 2002	Jan. 2003	Dec. 2003	Dec. 2004	Dec. 2005	Dec. 2006	Dec. 2007	Dec. 2009	Dec. 2011
<b>1 (Low)</b>	3%	1%	1%	0%	1%	1%	1%	2%	2%	3%	1%	NA
<b>2</b>	6%	3%	2%	2%	1%							
<b>3</b>	19%	13%	7%	9%	6%	4%	2%	7%	6%	4%	3%	NA
<b>4</b>	46%	43%	38%	40%	28%	28%	29%	24%	26%	23%	25%	NA
<b>5 (High)</b>	26%	40%	52%	49%	65%	67%	67%	67%	66%	70%	71%	NA
<b>Average rating</b>	3.9	4.2	4.4	4.4	4.6	4.6	4.6	4.5	4.5	4.6	4.7	NA
<b>Response rate</b>	NA	34%	31%	27%	34%	30%	20%	35%	43%	43%	45%	NA

- **Service request response time -- Percentage of priority 1 problems are responded to within one hour**

(This information is not currently being published.)

## Network Services

- **Network costs -- acquisitions, support, WAN services, etc. -- \$ per FTE per year (over time and compared against other agencies)**

(See Budget – IT expenditures by major functional area.)

- **Network availability -- Percentage of standard work hours all network services are available**

(This information is not currently being published.)

## Applications Development and Maintenance

- **Project management - Percentage of projects identified in the portfolio that have project plans or project authorization documents**

(This information is not currently being published.)

## Internet

- **Daily average number of visits to Ecology's web site**

Statistics on the usage of Ecology's web site are available on the agency's Intranet. From 1995 through 2005, usage as measured by the number of visits per weekday doubled every two years. However, over the past few years, usage has leveled off and year-over-year there has been very little change in traffic excluding "bots".

- **Customer satisfaction**

Early in the history of Ecology's Web site, the agency used a number of indirect measures of customer satisfaction with the agency's web-based information and services. Beginning in 2003-2005, an attempt was made to measure customer satisfaction more directly. Initially, this effort focused on comments received via e-mail, but no meaningful data was compiled due to a number of limitations with this approach. In late CY 2006 and early CY 2007, a survey form was deployed broadly on Ecology's Web site and approximately 1,000 responses were received. These survey responses and other available data were used to design a benchmark usability study conducted in late CY 2007. This study yielded an overall average System Usability Score of 61 (0-100 scale). In May 2009 another on-line survey was conducted and 238 responses were received; the reported success rate in finding information improved from 57.5% in the prior survey to 80.4%.

## Voice/Telecommunications

- **Voice service costs (dial tone, SCAN, cellular, pagers) -- \$ per FTE per year**

(See Budget – IT expenditures by major functional area.)

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## 1.F. Challenges and Opportunities

### Given the State of IT Currently, What Challenges Face Ecology?

Staff and clients of business and government alike demand improved access to needed information and services. IT "lifecycles" are relatively short. This environment has existed for a number of years and continues to present many challenges for Ecology.

- How to fund the implementation of new technologies given the three-year budget planning horizon and the faster pace of technological development.
- How to fund initial IT investments that have a "payback period" of more than two years (i.e. a biennium).
- How to help Ecology's users and IT staff adapt to a change from one set of tools and/or processes to another.
- How to determine the best time for the agency to move to a new technology.

- How to get IT involved up-front in efforts by agency business areas to address business problems.
- How to participate in enterprise initiatives and achieve their longer-term benefits while meeting the shorter-term needs of the smaller business units (programs within an agency or agencies within State government)?
- How to measure the business value of IT?

In the past few years, the agency has been experiencing growing budget challenges and there has been an increased demand for IT services particularly in the area of application development. This has made priority-setting more challenging.

Most recently, the State IT Transformation effort is presenting a number of new challenges:

- Preparing staff for the change that will come with the IT Transformation.
- Maintaining quality service levels during IT Transformation implementation.
- The need for up-front investments to implement some of the IT transformation concepts.

### **What Does Ecology Need to Succeed?**

Several factors are and will continue to be key to the agency's successful use of IT:

- Obtaining and maintaining executive management's support and participation in IT priority setting.
- IT participation in the identification and evaluation of business solutions.
- Maintaining a stable, well trained, competent IT staff with appropriate depth in critical functions.
- Providing appropriate and timely IT training to IT staff and all users.
- Encouraging and stimulating the investigation of emerging technologies that hold promise for improving Ecology's abilities to perform its business functions.
- Viewing and managing all Ecology data as enterprise data.
- Enhancing the agency's IT infrastructure including desktop resources, server storage, network bandwidth, etc.
- Organizing processes to roll out applications effectively and efficiently on an agency-wide basis.
- Determining appropriate times to upgrade and/or move to new technologies balancing issues of training with increased availability of capabilities.

### **Are There Opportunities for Data or Resource Sharing?**

There continue to be opportunities for increased data and resource sharing both within Ecology and among agencies. Ecology's enterprise systems have clearly established significant benefits of data sharing to the agency, external stakeholders and interested parties. Ecology's business priorities increasingly require effective data sharing and integration, and the agency's 2007-2009 Information Technology Strategic Plan highlighted data integration as one of three major initiatives.

Among other work, two notable projects are expected to substantially enhance Ecology's data sharing in the future:

- Development of a data integration strategy.
- Implementation of Microsoft Office SharePoint Server 2007 to support collaboration sites for Ecology staff and selected external users.

## How Can Ecology Contribute to Achieving the State's IT Plan?

Ecology has been committed to a state enterprise approach for some time. Toward that end, Ecology has participated in a number of state enterprise initiatives including e-permitting, e-forms, Windows 2000 implementation, security (WACIRC), web content management, web presentation guide, project management, non-English language web portals, business continuity, business portal development, and enterprise architecture. Most recently, Ecology's CIO and selected IT managers and staff have had key roles in the development and implementation of the State Shared Services initiatives.

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## 1.G. Solutions: Current and Future IT Investments

### Applying IT to Achieve Business Objectives Now and in the Future

The discussion above in Section 1.B. under "Ecology's Strategies for Accomplishing its Mission and Achieving Its Goals", "Alignment of Current IT Investments with Business Objectives", and "Importance of IT in Helping Ecology Meet Its Goals", describe Ecology's current use and continued reliance on IT to achieve its business objectives. As evidenced by the list of planned investments, Ecology will continue, perhaps even more so than today, to rely on IT. Ecology looks to new technologies that offer ways to improve and increase its services while reducing costs and streamlining processes.

### What does Ecology's Success Look Like?

Ecology's success looks like:

- *Executive Management*: Executive management supports and actively participates in IT priority setting.
- *Public and Stakeholders*: The public and stakeholders have access to needed services and information, including tabular and geo-spatial data, through the Internet. Use of paper and postage is replaced by Internet forms and applications. Through the use of information readily available via the Internet, citizens become more effective advocates for sound environmental management.
- *Ecology Users*: Each has a desktop equipped with all needed hardware, software, and connections to all needed applications. Each receives appropriate and timely training to use the provided hardware and software. Each is confident in their ability to help each other resolve minor software problems. Each receives timely, competent service when problems require IT staff attention.

- *IT Staff:* Each is well-trained and competent in their assigned technical areas and understands their stewardship responsibilities for public information and the associated investments. Each receives appropriate and timely training for new tasks and technology. Each is encouraged to keep abreast of emerging technologies, keeping in mind existing and potential Ecology needs. Critical functions have adequate staff coverage to maintain services in the event of unanticipated staff absences and separations.
- *Ecology's Network and Electronic Messaging System:* The systems are stable with a minimum frequency and duration of down times.
- *Ecology's Applications Development:* Applications are designed to reuse code. They are developed in a manner that combines expertise from program areas, central IT organization staff, and external assistance where appropriate.
- *Enterprise Data:* All of Ecology's data are of high quality and are integrated. There are no redundancies. Data needed by an individual authorized to access that data, within or outside Ecology, can be accessed readily.
- *Data Sharing:* Ecology and other state agencies and other partners share appropriate data at no cost.

### How Will Ecology's Challenges Be Addressed?

Ecology has experienced significant success and will continue to address IT challenges by conducting pilot projects for proof of concept and by building incrementally. This strategy reduces risk, builds experience and expertise, and produces useable products in relatively short periods of time.

### Overview of Current and Planned/Proposed Projects/Investments (Summary based on August 2010 project list)

Sections 4 and 5 include a table of Ecology's current and planned/proposed IT projects/investments. These investments are distributed among business areas and infrastructure as shown below:

	Current	Planned / Proposed
<b>BUSINESS AREA INVESTMENTS</b>		
Laboratory Analysis		
Environmental Monitoring	6	3
Natural Resources	2	
Facility/Site Identification / Permitting and Compliance	7	11
Enforcement		1
Incident Response	1	
Site Cleanup	3	

Litter Cleanup		
Recycling	1	
<b>Environmental Business Area Subtotals</b>	<b>20</b>	<b>15</b>
Human Resource Management	1	1
Time Accounting		1
Budgeting		
Contract Administration		
Grants and Loans Administration		
Purchasing and Inventory		
Revenue Generation		1
External Reporting and Outreach		
Interested Party Involvement	1	
Facilities Management		
Information Management	5	1
<b>Administrative Business Area Subtotals</b>	<b>7</b>	<b>4</b>
<b>Business Area Subtotals</b>	<b>27</b>	<b>19</b>
<b>INFRASTRUCTURE INVESTMENTS</b>		
Desktop Computing / IT Help Desk	1	
Printing		
Domain Administration		
Messaging		1
Network Infrastructure		2
Applications Infrastructure		2
Data/Database Administration	1	
GIS Environment	7	4
<b>Infrastructure Subtotals</b>	<b>9</b>	<b>9</b>
<b>TOTALS</b>	<b>36</b>	<b>28</b>

A severity (impact) and risk assessment has been completed for each project using the [DIS severity \(impact\) and risk criteria](#). These assessments are reported in sections 4 and 5.

### **Alignment of Planned IT Investments with Ecology Objectives**

All of the agency's planned IT investments/projects support priority business strategies.

### **Impact of Planned IT Investments on Existing Investments**

The impact of the planned investments on existing investments generally can be categorized as follows:

- None (or not substantial)
- Enhances, upgrades or replaces existing investment
- Increases access to services and information

### **Consistency of Planned IT Investments with state's IT Strategic Plan**

Historically, Ecology has sought to align its IT investments with the state's IT Strategic Plan.

### **Priority and Justification of Project or Cluster of Projects**

(See Department of Ecology Strategic Plan 2009-2011.)

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## **1.H. Prioritization Process**

Since the 1995-1997 biennium or earlier, Ecology has been prioritizing IT resources. The prioritization process has evolved during this time. The allocation of funds at the agency-level to the central IT organization (via either "indirect funding" or cost allocation) sets broad priorities. Within each individual program the relative priority of the IT function is set by the allocation of funds to IT projects. (For more background on the processes used in the past, see earlier versions of this Overview section of the IT Portfolio.)

The Chief Information Officer and the IT Management Team work with Ecology's Business Advisory Team (BAT) and IT Steering Committee (ITSC) to identify planned/proposed projects/investments and their priorities. These priorities are driven primarily by business needs. Other characteristics of this process include:

- Different criteria are applied to different categories of IT projects, e.g. Infrastructure, Applications Maintenance, Applications Enhancement/(Re)Development.
- Different evaluation processes and decision makers are used for different categories of projects.
- Applications Enhancement/(Re)Development projects provide the most discretion and greatest involvement of business/program interests in priority-setting.

The principal priority-setting criteria for Applications Enhancement/(Re)Development are:

- Alignment with key business strategies
- Support of Information Strategic Plan initiatives (Integration, Efficiency, and Access)
- Cross-program/cross-agency benefit
- Innovation
- Risk
- Total project cost including IT staff resources, program IT staff resources, and program business staff resources
- Available funding and staff resources (IS and business) within the affected programs
- Staff skill match and available capacity within IT
- Project continuity

In 2008 the ITSC implemented a "pair-wise" prioritization process in its work to provide input to Ecology's internal budget development process for the 2009-2011 biennium.

In 2009 BAT used a two-stage process. First, a pair-wise prioritization process was used to identify preliminary priorities. After the first stage, a "scoping analysis" was carried out for any higher-ranked projects for which scoping had not yet been completed. More detailed information on the higher-ranked projects then was compiled for the second stage in the process.

At this writing, no further priority setting has been done.

Additional information on Ecology's BAT and ITSC are available on the agency's Intranet.

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## Section 2: Agency Strategic Business Plan

[Department of Ecology 2011-2013 Strategic Plan](#)

**Related Information (Office of Financial Management)**

[State Budgets](#) (includes 2011-2013 Enacted Budgets)

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## Section 3: Agency Technology Infrastructure

- A. **Current and Projected IT Spending**
- B. **Current and Projected IT Personnel**
- C. **Personal and Workgroup Computing**
- D. **Geographic Information Systems (GIS) Resources**

Note: Sections A, B, C and D are provided to DIS via the [Clarity IT Portfolio Management System](#) (*restricted access*).

### E. **IT Security and Disaster Recovery Plan (Not available on-line)**

### F. **Public Access**

This section of the IT Portfolio is intended to describe the agency's "progress toward [providing] electronic access to public information and enabling citizens to have two-way interaction ... for obtaining information and services..." (RCW 43.105.270).

Ecology continues to expand and enhance the agency's Web site. In early 2007 an on-line survey was conducted of the users of Ecology's Web site to better understand the audiences, their top tasks, and site design issues. In November 2007, the agency conducted a [benchmark usability study](#) (*not currently available outside the state network*) to identify problems users were experiencing when visiting the site and to establish baseline data for measuring progress in making the site easier to use. Results of that testing and an on-line "card-sort" study conducted in late 2008 drove further enhancements launched in March 2009. Features of the March 2009 redesign included topical primary navigation and improved visibility of information on the agency's top priorities. An on-line survey conducted in May 2009 provided evidence of continuing improvement in the usability of the site. Most recently, in February 2011, the home page was redesigned and the design of all top-level pages was modified to widen and center the pages to conform more closely with contemporary Web page design.

In addition to Ecology's public Web site, the agency has been providing selected "external" users with secure access to collaborative Web sites (Microsoft SharePoint) since 2005 for the purpose of supporting various projects and work groups. These sites were improved in September 2009 when Ecology migrated to SharePoint 2007, and the number and use of these "Partner Web" sites has continued to increase.

Ecology has continued exploring and implementing various social media opportunities and "Web 2.0" technologies to better engage Washington's citizens in environmental issues and further enhance Ecology's Web resources. RSS feeds (see [Ecology's news page](#) and elsewhere) were added in December 2006 and bookmarking tools (see [Ecology's home page](#)) were added in July 2008. More recently the agency deployed an [Ecology YouTube channel](#) and an [Ecology blog site](#) in June 2009 and created an

[Ecology Twitter account](#) in August 2009. Other social media opportunities continue to be explored including use of Flickr (two-way photo sharing), FaceBook (dissemination of environmental status information), and WordPress (public discussions).

Ecology continues to make extensive use of listserv e-mail lists and on-line comment forms to support two-way interaction. As of July 2011, Ecology supported \_\_\_ listserv lists (compared with 72 lists in July 2010 and 62 lists in July 2009) and all public review processes provided on-line comment options.

Ecology also continues to work with the U.S. Environmental Protection Agency and other partners to improve "data flows" between various information systems as part of the implementation of the [National Environmental Information Exchange Network](#) including the [Pacific Northwest Water Quality Data Exchange](#).

Additional projects that will enhance public access to Ecology's information and services are listed in Sections 4 and 5 of the Portfolio.

## G. Application Information

See [list of applications](#) for selected information on Ecology's production applications. Additional information on these applications is available via the [Application Inventory System](#) (ongoing updates). (*This system is not currently accessible by the public.*)

## H. Database Information

See above information on applications.

**Also see the following additional information on Ecology's technical infrastructure:**  
(NOTE: The information linked below is not currently available to the public via these links.)

### Desktop Standards

[Desktop Services Best Practices](#) (see Appendices A, B, and C for hardware standards, software standards, and desktop configuration standards.)

Also see [IT Purchasing](#)

### Network

[Local and Wide Area Networks](#)

### Applications and Data

[Software Development Center](#)

### Geographic Information Systems (GIS)

[Standards, software licensing, servers, etc.](#)

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# Sections 4 and 5. Current and Planned/Proposed Projects/Investments

[Current and Planned/Proposed Projects/Investments \(pdf\)](#)

Note: "Current" projects/investments are those scheduled and funded in the current biennium. "Planned/proposed" projects/investments are those for which funding has not yet been committed.

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# Section 6: Annual Technology Investment and Project Reviews

## Introduction

This section includes a review and update of each ongoing level 2 and 3 investment/project, and a post-implementation review of any level 2 or 3 investment/project completed in the past year; see the DIS Portfolio Management Standards for [criteria for level 2 and 3 projects](#). This section also includes the required annual portfolio, security and disaster recovery certification letters from the agency head.

## Level 2 and 3 Project Reviews

A project review of each continuing level 2 and 3 investment/project is performed as part of the annual update of the IT portfolio. The purpose of the review is to compare expectations for the investment/project as documented in the original investment analysis and project plan with actual project accomplishments, and to compare the assessment of project risk with the actual course and results of the project. The review also should reflect the current status of the project.

Last year at the time of the annual portfolio review, one project (NHD Data Migration) was classified as a Level 2 project. This project subsequently was reclassified as a Level 1 project based on an improved understanding of the project impact and risk. Therefore, although this project is ongoing, no annual project review report is provided here.

In the past year, one Level 2 project has been initiated. The annual project review report for this project is provided below.

- [Re-establish ICIS-NPDES data flow to EPA](#)

## Level 2 and 3 Project Post Implementation Reviews

The post-implementation review of level 2 or 3 projects that have been completed in the past year should assess the causes and impacts of any significant reductions in benefits, increases in one-time or continuing costs, problems with project management, or increases in project risk during the course of the project. It must document practices and procedures that led to project successes and make recommendations for applying them to similar future projects, and make recommendations for improving the planning, management, and quality control of future, similar projects. See the [DIS requirements for post implementation reviews](#) for more detail.

No Level 2 projects were completed in the past year.

## Certification

Links to Ecology's annual certification letters are provided below. Beginning in 2002, these letters certify compliance with the ISB's Portfolio Management, Security, and Disaster

Recovery and Business Resumption policies. Beginning in 2010, the annual certification is provided through a signed form.

- [September 21, 2011 Form signed by Ted Sturdevant, Ecology Director](#) (pdf)
- [August 27, 2010 Form signed by Ted Sturdevant, Ecology Director](#) (pdf)
- [August 31, 2009 Letter from Jay Manning, Ecology Director, to the Information Services Board \(ISB\)](#) (pdf)
- [August 29, 2008 Letter from Jay Manning, Ecology Director, to the Information Services Board \(ISB\)](#) (pdf)
- [August 31, 2007 Letter from Jay Manning, Ecology Director, to the Information Services Board \(ISB\)](#) (pdf)
- [August 31, 2006 Letter from Jay Manning, Ecology Director, to the Information Services Board \(ISB\)](#) (pdf)
- [August 31, 2005 Letter from Jay Manning, Ecology Director, to the Information Services Board \(ISB\)](#) (pdf)
- [August 31, 2004 Letter from Linda Hoffman, Ecology Director, to the Information Services Board \(ISB\)](#) (Microsoft Word doc)
- [August 29, 2003 Letter from Tom Fitzsimmons, Ecology Director, to the Information Services Board \(ISB\)](#) (Microsoft Word doc)
- [August 30, 2002 Letter from Tom Fitzsimmons, Ecology Director, to the Information Services Board \(ISB\)](#) (Microsoft Word doc)
- [October 1, 2001 Security Verification Letter from Ecology Director Fitzsimmons to DIS Deputy Director](#) (Microsoft Word doc) *(Note: This link is not currently available to the public.)*

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