



GUAM PUBLIC LIBRARY SYSTEM
Information Technology Assessment
December 2014

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Guam Public Library System

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Information Technology Assessment

I. Introduction

Guam is the westernmost territory of the United States and is known as the place "Where America's Day Begins". The total land area of Guam is approximately 215 sq. miles (roughly 546 sq. km), and it is located 3,7000 miles from the state of Hawaii, and 6000 miles to the west coast of the U.S. mainland. Such distance establishes Guam's uniqueness as a bridgehead to Oceania, Asia, and the Americas. The two official languages on Guam are English and Chamorro; however, only about 18% of the entire population on island can speak both languages. Guamanians of Chamorro decent comprise the majority of the population. The remaining minority group is composed of non-Chamorros that have entered Guam for various reasons from other parts of the world.

The ethnic categorization of 2010 indicates that approximately 37.3% of the civilian population on Guam are Chamorros or part Chamorros; 26.3% are Filipinos; 7.1% are Caucasian; 12% are other Micronesian and Pacific Islanders such as Marshallese, Yapese, Kosraeans, Pohnapeains, Chuukese, Palauans, etc. The remaining 17.3% population is comprised of Chinese, Koreans, Japanese, Vietnamese, Malaysians, Indonesians, Indians, Pakistanis, Africans, and many others. Culturally, Guam is Oceania, Asia, America, and the world at the same time.

The first libraries on Guam were small collections of religious books kept by Spanish priests. Shortly after the United States Government occupied Guam in 1899, a library for the U.S. military personnel and their dependents was established. Library services to local people in the year before WWII was limited to a small collection of books set up in 1909 for teachers and a small circulating library organized in 1924. It was not until after World War II that a public library was established in Guam. An initial collection of 13,000 books from deactivated Navy libraries and a donation of discarded books from the Los Angeles/Public Library were housed in two Quonset huts.

Today the Guam Public Library System (GPLS) is composed of a main library in the capital of Hagatna, five branch libraries and a bookmobile. The branch libraries are located in the villages of Dededo, Barrigada, Yona, Merizo and Agat. GPLS also provides services to the Department of Youth Affairs for troubled youths and the Department of Correction's library for prison inmates. In addition, the library serves other Guam village residents with participating municipalities.

Currently, the collection of the GPLS, including print and non-print materials, totals over 308,000 items. Story hour programs are offered for pre-school and school-aged children throughout the year on Saturday mornings. The Summer Reading Program for all ages is offered annually. From time to time, special programs such as Teen Read Week, Read Across America, and National Library Week activities are organized. During the school year, tours of the public libraries are arranged in cooperation with classroom teachers and other interested groups. GPLS also provides basic computer training for Guam's children and senior citizens. The mission of GPLS is to provide the island community with resources for intellectual and informational pursuits and to provide an open environment which will further those pursuits.

II. Mission Statement

The Guam Public Library System will provide free and open access to information and ideas fundamental to a democracy to every resident of Guam, and will protect intellectual freedom, promote literacy, encourage lifelong learning, and maintain cultural materials.

III. Technology Vision Statement

The people of Guam and the surrounding community will have convenient access to electronic information resources through proven technology and telecommunications. In the virtual and physical libraries, our role will be to provide value-added products and services which guide and direct customers to excellent sources of electronic information. Patrons will be assisted as needed by a sufficient number of knowledgeable, trained staff who can help them make the best use of both new and traditional information resources. Staff will be supported by up-to-date technology to ensure quality services that are efficient and cost-effective.

IV. Information Technology Assessment

1. Telecommunications Services

The Guam Public Library System (GPLS) provides access to multiple forms of information through its LAN (local area network) and its WAN (wide area network). The LAN uses TCP-IP protocol either on wired Ethernet or wireless 802.11g. GPLS receives its Internet and network services through the Department of Administration (DOA) Office of Technology, who manages the following systems:

- Microsoft Active Directory
- Microsoft Exchange - Email
- Horizon - Integrated Library System
- Alchemy - Document Management
- Power 7 - Finance software for timekeeping, budgeting and procurement
- SonicWall - Firewall and Content Management

GTA Teleguam provides Metro Ethernet Transport Services at 25 MBPS between the Hagatna branch and the DOA Office of Technology, and Managed Router Services. GTA Teleguam monitors network usage and acquires additional bandwidth and resources as required by growing demand. IT&E provides MiFi Wireless Internet Services at their branch libraries, which is provided free of charge. This service is severely inadequate. The service is unreliable with internet connections failing several times per day. GPLS uses a SonicWall Virtual Private Network connection to access to the Horizon ILS from the branch libraries. This causes delays in keeping their Horizon ILS updated with the latest information because of slow and unreliable internet access from the branch libraries.

GPLS currently has service for 14 Business telephone lines in Hatatna, and 1 Business telephone line at each of their branches, which is provided by Pacific Data Systems. These services include rental fees for their Grandstream Meridian phones.

GPLS currently uses Linksys Wireless Routers at all of their branch locations to allow internet access for their patrons who wish to connect to the internet using their personal laptops and tablets. These routers have been reported to be vulnerable, giving an attacker remote access to their router.

Objectives: GPLS desires reliable internet services and network connections between the main branch in Hagatna, DOA Office of Technology and the remote branches in Dededo, Barrigada, Yona, Merizo and Agat. Access provided to library patrons should be secure and in compliance with the Children Internet Protection Act (CIPA) at all branches. Network connections between the branches and DOA Office of Technology should ensure that the staff at all branches are able to keep the Integrated Library System up to date with real time data available at all times. *Target completion: March 2015.*

2. Personal Computers and Laptops

Approximately 56% of the existing workstations located throughout all of the branch libraries are obsolete. This poses significant security risks to these workstations and the library's network. While GPLS has endured working with outdated equipment, it is important to note that they have made some progress in updating their technology. They have purchased new Personal Computers and laptops for their administrative staff and their patrons.

Objectives: GPLS must provide their library staff and patrons with reliable network access to the Integrated Library System to help increase patronage and customer satisfaction. New Personal Computers (PCs) and laptops should be to be purchased for research and homework use by patrons. GPLS continues to conduct and develop technology education for the community, focused on information literacy, such as "Mousin' Around Computer Classes for Kidz" and "Man'amko Computer Training". *Target completion: September 2015.*

3. Integrated Library System (Horizon)

The GPLS Integrated Library System, Horizon, was last upgraded in 2008. This system allows the library staff to manage circulation, acquisitions, cataloging, serials and inventory processes, and provides search functions for materials available for checkout. GPLS currently provides public access to their Horizon Integrated Library System using the Horizon Information Portal (HIP) server. The Horizon and HIP applications reside on separate Windows 2003 servers.

GPLS currently has eBooks available from two vendors, Delaney and Gumdrops, however, they are not able to provide access to eBooks, because they do not currently have the required interface installed on their Integrated Library System. eResource Central is the interface needed to provide access to eBooks, but Delaney and Gumdrops are not currently integrated with eResource Central. The list of integrated vendors for eResource Central is updated regularly and continues to grow.

BLUEcloud PAC, which was released in October 2014 is being developed to replace the Horizon Information Portal (HIP). This software is also required in order to implement eResource Central, which will integrate with eBooks. BLUEcloud PAC is a hosted system which is now included with the Horizon Integrated Library Services software.

Objectives: GPLS must provide access to GPLS electronic collections (eBooks), and needs to streamline access to existing GPLS resources for both print and non-print collections. GPLS will need to work with the Horizon and eResource Central vendor, SirsiDynix to integrate existing eBooks vendors, Delaney and Gumdrops with their systems. *Target completion: March 2015.*

4. Document Management System (Alchemy)

GPLS currently has two Document Management Systems (Alchemy) in operation. One resides on a Windows Vista workstation, and has a DR-7080C scanner attached to it. Both the workstation and the scanner are obsolete. There is also a Document Management Server, which resides on a Windows 2003 Server installed at the DOA Office of Technology Data Center. The Windows Vista workstation is used to scan documents, and the Windows 2003 Server is used to maintain a database of scanned documents. The current Alchemy system provides the GPLS staff with the resources required to scan documents and then categorize them so that library staff are able to easily retrieve important documents including photographs at its main library branch located in Hagatna.

Objectives: GPLS must improve access to the GPLS Alchemy Document Management Applications and ensure that the systems operate efficiently on newly installed Windows 2008 Server and Windows 7 Client Workstation. *Target completion: January 2015.*

5. Email Services

GPLS currently has approximately 17 E-mail accounts on G-Mail, which is a hosted E-mail Service provided for free by Google. This free service does not include backup and archiving services. DOA Office of Technology has contracted with Data by Design to implement a Microsoft Exchange Server for the Government of Guam. GPLS has 6 Email accounts on the Microsoft Exchange Server, and will need to migrate their remaining G-Mail users.

Phase I of the Microsoft Exchange Migration project started in Fiscal Year 2014. The following departments have migrated to Microsoft Exchange:

- Department of Administration
- Department of Revenue and Taxation
- Department of Public Health and Social Services
- Guam Environmental Protection Agency
- Guam Behavioral Health and Wellness Center
- Guam Public Library Systems (Partial)

Phase II of the Microsoft Exchange implementation project will continue in Fiscal Year 2015. The following departments are scheduled to migrate to Microsoft Exchange:

- Guam Public Library Systems (Remaining Users)
- Department of Youth Affairs
- Department of Integrated Services for Individuals with Disabilities
- Department of Land Management

Objectives: GPLS will migrate all of their employees from G-Mail to Microsoft Exchange. *Target completion: March 2015.*

6. Website Access

The URL to access the GPLS Website is www.gpls.guam.gov, This website is managed by the DOA Office of Technology, and was built using WordPress. The GPLS Clerk Typist III has been trained to update the website and post required reports. A webpage which lists the programs available at the libraries with descriptions of each program is updated as programs are added. Reports posted include compliance reports, budgets, grants, citizen centric reports and freedom of information reports. There is also a link to the Office of Public Accountability website which provide access to GPLS Audits.

From the Services webpage, the public is able to access a catalog of items available at the Guam Public Library System, and the National Library Services. A description of library services, policies and guidelines is also provided, along with links to useful resources. A repository of GPLS Forms can also be found on the Services webpage.

Objectives:

GPLS must provide a user-friendly Website which provides access to electronic resources from work, home, or school. GPLS must monitor public access to the library's website and work to increase public access. Links to websites for library services, government services, consumer information, job training, and career guidance must to be updated regularly. *Completed.*

7. Staff Technology Skills and Professional Development Strategy

All of the staff at GPLS have knowledge of basic computer operations. They have email accounts, which they check daily and respond to as necessary. They are able to log on to their Active Directory account on any workstation at any of the branch libraries. They can access the internet to conduct research when needed. They can print documents from their local workstations, shared folders on a network drive or from the internet.

The Management, Administrative and Library Technician staff are proficient in Microsoft Word, Excel and Outlook. They are able to create, format, print and save Microsoft Word documents and Excel worksheets. They use Microsoft Outlook as their PC Email client while working at their desk, and they use the Outlook Web Application when they are away from their desk. Some of the LibrarianTechnicians are also proficient in Microsoft Powerpoint and Publisher.

All of the Library Technicians know the basic operations of their Horizon Integrated Library System. They know how to search for existing library items, add new items, and update bibliography information manually or with information downloaded from the Library of Congress website. They can also run statistical reports for circulation, acquisitions and collections. While the Library Technicians are able to perform basic library functions, they do not perform any systems administration functions.

Some of the Library Technicians know how to use the Alchemy Document Management System. They can create Alchemy databases, scan documents, add the document to the database and rebuild the database. While the Library Technicians are able to perform scanning and database updates, they do not perform any systems administration functions.

Library Technicians provide basic computer training to children and the elderly as part of the many programs available at GPLS. The Man’Amko Computer Training Class provides training to the elderly on how to use the Internet and Email, and also provides training on other applications such as Microsoft Word and Powerpoint. The Mousin’ Around Computer Class provides children between the ages of 6 and 12 with training on how to navigate the Internet, Cyberbullying, Computer Safety and an introduction to Microsoft Applications.

GPLS employs a Clerk Typist III, who also serves as a Computer Technician. She provisions all new computers with the software that library staff and patrons require, connects the computers to the LAN, sets up printing capabilities assigned printers, and sets up User Access. She is also maintains the GPLS Website by posting updated information as needed. Systems Administration functions for Horizon ILS and Alchemy DMS are performed by the DOA Office of Technology Systems Analyst assigned to GPLS. The current Systems Analyst has no formal training on these systems.

GPLS sees itself as an ideal educational platform. GPLS expects their employees to be technically proficient as they utilize technologically advanced systems, in order to better serve the growing needs of Guam’s multi-lingual communities. The table below outlines the Technology Skills for the GPLS Staff.

Staff Technology Skills Matrix

Position Title	Staff Count	Basic Computer Operation, Internet, E-Mail, Printing	Microsoft Word, Excel, Outlook	Horizon Integrated Library System	Alchemy Document Management	Upload bib info from Library of Congress Website to Horizon ILS	EBSCO Online Magazine	Basic Computer Training	Basic LAN Maintenance	Basic installation and maintenance of PCs, laptops, printers and scanners	Basic System Administration	Website Administration
President	1	X	X									
Administrative Services Officer	1	X	X									
Administrative Assistant	1	X	X									
Administrative Aide	1	X	X									
Clerk Typist III	1	X	X	X					X	X	X	X
Program Coordinator	1	X	X	X								
Library Technician Supervisor	1	X	X	X		X	X					
Library Technician I	7	X	X	X	X	X	X	X				
Library Technician II	3	X	X	X	X	X	X	X				
Bookmobile Driver	1	X										
Custodian	3	X										

Objectives: GPLS would like to provide continuing education for the staff on how to handle circulation, referencing, and processing of all new and donated books. GPLS would also like to conduct periodic in-house training on software applications such as Microsoft Word, Excel, Access and Powerpoint. GPLS administration expects the library technicians to be proficient with technology equipment to ensure the efficient and proper handling of desktops, laptops, printers, scanners and Multi-function Xerox machines stationed at all branches.

GPLS would like to schedule internet training workshops monthly for both staff and patrons to ensure enhancement of their skills and knowledge. The workshops for the patrons should include classes on how to write a resume and how to do a book report. GPLS Administrators would like to explore opportunities for library technicians to attend regional trainings and conferences held off-island. These opportunities will allow library technicians to share and network with other public librarians within the inter-continental region, expanding ideas that Guam may prosper from. *Target completion: September 2015.*

8. Technology Policies and Services provided to Patrons

GPLS requires Library Patrons to sign a Patron Internet Agreement in order to use Library Computers. This agreement acknowledges that the patron has read, understands and agrees with the GPLS Library Use Policy, the GPLS Internet Use Policy and the GPLS Printing/Copying Price List.

The GPLS Internet Use Policy is as follows:

- A GPLS Library card or picture ID is required in exchange for use of any workstation.
- GPLS assumes no liability for any loss or damage to the user data or for any damage or injury arising from invasion of privacy in the user's account, programs or files.
- Library patrons have the opportunity to ask for clarification from library personnel if they have any questions or comments.
- Library patrons will limit their computer use time to 30 minutes if another patron is waiting to use the Internet and to 60 minutes if no one is waiting.
- Library patrons will relinquish computer use for at least 1 hour after signing out.
- The Internet is unstructured and unregulated. The content on the Internet may not necessarily be verified as accurate, current, appropriate or legal and that users are solely and personally responsible for their use of this resource.
- Internet computers are in public areas in GPLS libraries. By agreeing to the GPLS Internet Use Guidelines at the beginning of each session, Library patrons accept responsibility and acknowledge that some sites may reasonably be deemed offensive to other library customers and images on the screen may be viewed by a wide audience. Not all content on the Internet is appropriate for viewing by all library customers. Library users may be asked to discontinue accessing sites or engaging in other Internet behavior that others may find inappropriate.
- A work protected by copyright law may not be copied without permission of the copyright owner unless the proposed use falls within the definition of "fair use". Library patrons are responsible for compliance with all state, national and international laws governing copyrighted materials.
- Prohibited behavior includes the use of library computers for unauthorized access, including hacking, spamming and other unlawful activities.

- Library patrons are not permitted to invade the privacy of other people or intrude upon their rights. Harassment of library staff or other individuals is prohibited.
- Other prohibited behaviors include, but are not limited to, damaging or disrupting computer resources and networks; changing the settings and configurations of public access computers; use of non-library software on library computers; use of library computers for chat, game playing and audio and video downloads.
- The nature of the Internet requires users to exercise critical thinking skills to determine if the content is truthful, relevant and appropriate. Parents and legal guardians may need to provide guidance for their own children including discussion of their family values.
- GPLS does not serve in loco parentis (in place of a parent). Library staff will not provide extensive supervision of children as they explore the Internet. The responsibility for what minors read or view on the Internet rests with their parents or legal guardians, who should instruct their children never to give out personal information (including name, address, password, telephone number and credit card information) online.
- The First Amendment to the U.S. Constitution does not protect all content. No GPLS public access computer may be used to view or display obscenity, child pornography or other illegal content. The legal status of any particular content can be determined only by a court of law with proper jurisdiction.
- GPLS provides filtered access to the Internet in accordance with the federal CIPA(Children’s Internet Protection Act) mandate. Adults, defined as being 17 years and older by federal law, may request that library staff disable the CIPA filter during their Internet session.
- Misuse of a public access computer will result in the loss of computer privileges, potential loss of library privileges and possible legal action.
- The availability of information does not constitute endorsement of the content by GPLS. Users who choose to use the Internet as an information resource do so at their own risk. Not all sources provide information that has been verified to be accurate, complete, current or legal. GPLS does not monitor, and has no control over the information accessed through the Internet and is not responsible for its content. The library system has no means or statutory authority to assure that only constitutionally protected material is available on the Internet. The authority to determine what is legal and what is illegal rests with others.
- Although a federally-mandated content filtering program has been implemented on GPLS Internet computers, no known filtering program is one hundred percent (100%) effective. Words, images or sounds that may be considered inappropriate or offensive by an individual may not be blocked. Conversely, the same filter may block other constitutionally-protected information that a library user may wish to access.
- Because customers are the decision-makers in using the Internet, by making individual choices, Library patrons are responsible for complying with all age and other restrictions governing access to specific sites as required by content providers. Some commercial sites on the Internet require a fee. These fees and compliance with the rules governing these sites are the sole responsibility of the library user, not GPLS.
- In no event shall GPLS be liable for lost assets or for any direct or indirect special, punitive, or consequential damages or any liability to any third party, even if the library is advised of the possibility of such damages, arising from use of its connection to the Internet.
- The use of a public access computer at any facility owned or operated by GPLS is

considered acceptance of its Internet use policies.

- Internet use on the PAC stations is not allowed.
- All patrons under the age of 10 must have their parents complete an authorization form to have access to library Internet stations.
- An ADA compliant workstation is provided for use by patrons with low vision and/or deafness or in need of wheelchair access.

Objectives: GPLS will review and update Technology Policies for Patrons. *Target completion: June 2015.*

9. Technology Policies for Staff

The DOA Office of Technology provides Information Technology support for GPLS. All procurement of computer equipment must meet the standards set by DOA Office of Technology. Privately purchased software may not be loaded on work-provided Personal Computers or laptops without permission from the Systems Administrator responsible for the GPLS. Unauthorized or unlicensed software or private/personal E-mail accounts may be disabled or uninstalled without notice. The GPLS Systems Administrator has the authority to conduct periodic audits of GPLS computer equipment to ensure compliance with the government's computer use policies.

The following uses of work-provided computers, digital equipment and Internet access are not permitted:

- To access, upload, download, or distribute pornographic, obscene, or sexually explicit material.
- To transmit obscene, abusive, sexually explicit, or threatening language.
- To violate any local or federal law.
- To vandalize, damage, or disable the property of another individual or organization.
- To access another individual's materials, information, or files without permission.
- To violate copyright or use in an impermissible way the intellectual property of another individual or organization.
- To promote, advertise or otherwise engage in a personal or private venture.

A. Tech Support

DOA Office of Technology provides a Systems Analyst to GPLS to manage their overall Information Technology projects and general support tasks. General support tasks are tracked on Numara FootPrints, a web-based help desk application. Requests are submitted via the help desk URL by GPLS staff, then assigned to appropriate DOA Office of Technology staff, and closed out when completed. The DOA Office of Technology Systems Analyst is responsible for coordinating system upgrades for the GPLS Horizon Integrated Library System (ILS) and Alchemy Document Management System (DMS), in addition to managing support requests.

Technical Support tasks for GPLS are performed by the GPLS Clerk Typist III, who performs these tasks as collateral duties in addition to her administrative duties. She provisions all new computers with the software that library staff and patrons require, connects the computers to the LAN, sets up printing capabilities assigned printers, and sets up User Access. All staff

computers have Microsoft Office applications and access to the Horizon Integrated Library System installed. All patron computers have Microsoft Office applications installed. The GPLS Clerk Typist III also manages the GPLS Website by posting updated information.

B. Computer Security

DOA Office of Technology manages an Active Directory System which maintains user access for all systems at GPLS. User IDs are assigned to each individual staff member. A shared User ID is provided to patrons for use on public computers. Active Directory provides network security by managing users, accounts, servers, group policies and services. Security policies are set up to minimize the chances of unauthorized access to GPLS computers. Active Directory also allows users to sign on to any computer on the network, and provides GPLS staff members with a single user name and password for multiple applications such as Numara FootPrints and Microsoft Exchange.

As part of the Government of Guam, all GPLS personal computers are required to have active and current anti-virus software installed. GPLS computers which are not current with their anti-virus software will not be allowed to access the Government of Guam Wide Area Network (GGWAN) until their updates are current. The loss of the GGWAN connection will result in a disruption of email, internet, and all other inter-agency data access to the AS400. DOA OOT monitors traffic within the government network and will notify GPLS of any abnormal activity.

Anti-virus and Anti-Spyware software is installed on all GPLS computers. Active scans are scheduled daily. Virus and Spyware definitions are updated periodically.

C. Backups

Automated backups for GPLS Horizon, HIP and Alchemy servers are performed in the evening by DOA Office of Technology using Symantic Backup Exec 2012. Full System Backups excluding system state are run three times a week, and Full System backups including system state are run every month. Backup Error Messages are sent to the Systems Analyst assigned to GPLS. Backup tapes are currently stored at DOA Office of Technology. Barcode labels are placed on backup tapes to identify where backups are located. Backup jobs record the barcode label of the tape that contains the backup. This provides the information necessary to restore data from a specific server for a specific date.

Objectives: GPLS will review and update Technology Policies for Staff. **Target completion: June 2015.**

V. Equipment Assessment

GPLS has a total of 67 desktop and 54 laptops distributed throughout all of the library branches. 65 of the computers are provided for patron use, and 56 are for staff use. The staff computers are either assigned to individual staff members or installed in specific areas of the library. Patron computers are installed at all of the branches. There are 18 desktop and 21 laptop computers located at the main Hagatna library, 8 desktops installed at the Yona library, 6 desktops installed at the Dededo library, 5 desktops installed at the Agat library, 4 desktops installed at the Merizo library, and 3 desktops installed at the Barrigada library.

There are a total of 5 desktops and 6 laptops that are used for circulation in all of the branches. These computers are used for checking out books and other library materials. The Hagatna library has 2 desktops installed at their reference desk, which are used for cataloging, acquisitions and interlibrary loan. There are also five desktops installed in their Processing division, 3 desktops installed for Federal Documents, 1 desktop installed in the Maintenance Office and 1 desktop is used as a workstation for the Alchemy System. The remaining computers are assigned to individual staff members. Of these computers, there are fourteen laptops assigned to staff members which are used for remote access to the Horizon Integrated Library System.

GPLS desktop and laptop computers use 3 different operating systems. There are a total of 47 desktop and laptop computers that use Microsoft Windows XP Professional, which reached end of support on April 8, 2014. There are currently 21 desktops using Windows Vista, which is nearly at end of support. GPLS has only 53 computers which use Microsoft Windows 7, which will reach end of support on January 14, 2020. Microsoft will not provide automatic fixes, updates or online technical assistance once end of support has been reached.

Listed below are the locations and descriptions of the desktops and laptops installed at all of the branch libraries:

Laptops/Desktops with Windows XP (Support ended on April 8, 2014)

Location	Description	Operating System	Staff	Patron	Total
Agat	Desktop, Dell Optiplex 755	Windows XP Professional		3	3
Barrigada	Desktop, Dell Optiplex 760	Windows XP Professional		1	1
Dededo	Desktop, Dell Optiplex 755	Windows XP Professional		3	3
Hagatna	Desktop, Dell Optiplex 330	Windows XP Professional		6	6
Hagatna	Desktop, Dell Optiplex 755	Windows XP Professional	7	1	7
Hagatna	Laptop, Dell Latitude D820	Windows XP Professional	17		17
Hagatna	Laptop, Dell Latitude E6500	Windows XP Professional		1	1
Merizo	Desktop, Dell Optiplex 755	Windows XP Professional		2	2
Merizo	Laptop, Dell Latitude D820	Windows XP Professional	1		1
Yona	Desktop, Dell Optiplex 330	Windows XP Professional		3	3
Yona	Desktop, Dell Optiplex 755	Windows XP Professional		3	3
			25	22	47

Laptops /Desktops with Windows Vista (Support ends April 11, 2017)

Location	Description	Operating System	Staff	Patron	Total
Agat	Desktop, Dell Optiplex 760	Windows Vista™ Business		2	2
Barrigada	Desktop, Dell Optiplex 755	Windows Vista™ Business		1	1
Barrigada	Desktop, Dell Optiplex 780	Windows Vista™ Business	1	1	2
Dededo	Desktop, Dell Optiplex 760	Windows Vista™ Business		2	2
Hagatna	Desktop, Dell Optiplex 760	Windows Vista™ Business	1	7	8
Hagatna	Desktop, Dell Optiplex 780	Windows Vista™ Business		2	2
Merizo	Desktop, Dell Optiplex 760	Windows Vista™ Business		1	1
Merizo	Desktop, Dell Optiplex 780 Small FF	Windows Vista™ Business		1	1
Yona	Desktop, Dell Optiplex 760	Windows Vista™ Business		1	1
Yona	Desktop, Dell Optiplex 780	Windows Vista™ Business		1	1
			2	19	21

Laptops/Desktops with Windows 7 Professional (Support ends January 14, 2020)

Location	Description	Operating System	Staff	Patron	Total
Agat	Laptop, Lenovo ThinkPad Edge E535	Windows 7 Professional	1		1
Barrigada	Laptop, Lenovo ThinkPad Edge E535	Windows 7 Professional	1		1
Dededo	Desktop, Dell Optiplex 755	Windows 7 Professional		1	1
Dededo	Laptop, Lenovo ThinkPad Edge E535	Windows 7 Professional	1		1
Hagatna	Desktop Dell Optiplex 3020 Small FF	Windows 7 Professional	14		14
Hagatna	Desktop, Dell Optiplex 780 Small FF	Windows 7 Professional	3		3
Hagatna	Laptop, Lenovo ThinkPad Edge E535	Windows 7 Professional	10	20	30
Merizo	Laptop, Lenovo ThinkPad Edge E535	Windows 7 Professional	1		1
Yona	Laptop, Lenovo ThinkPad Edge E535	Windows 7 Professional	1		1
			29	24	53

GPLS has a total of twenty one printers. Listed below are the locations and descriptions of the printers installed at all of the branches:

Printers/Scanners

Location	Description	Count	Staff Use	Patron Use
Agat	Canon ImageClass D1320	1	✓	✓
Barrigada	Canon ImageClass D1320	1	✓	✓
Barrigada	Ricoh Aficio SP 3500s	1	✓	✓
Dededo	Canon ImageClass D1320	1	✓	✓
Hagatna	Canon Document Scanner DR-7080C	1	✓	
Hagatna	Hewlett-Packard LaserJet 2300dn	4	✓	✓
Hagatna	Hewlett-Packard LaserJet 4100dtn	3	✓	
Hagatna	Ricoh Aficio SP 3500s	4	✓	
Hagatna	Xerox WorkCentre 4250	1	✓	
Hagatna	Xerox WorkCentre 7242	1	✓	✓
Hagatna	Xerox WorkCentre 7435	1	✓	
Merizo	Canon ImageClass D1320	1	✓	✓
Yona	Canon ImageClass D1320	1	✓	✓

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GPLS currently has 3 Microsoft Windows 2003 servers which are installed at the DOA Office of Technology Data Center. These servers are used for the Horizon Integrated Library System, the Horizon Information Portal and the Alchemy Document Management System. These servers were migrated from physical servers to virtual servers using VMware vSphere 5.1.

Listed below are the current specifications for the GPLS Servers:

Servers with Windows Server 2003 (Support ends July 14, 2015)

Description	Processor	Memory	Disk
Horizon Information Portal	Intel Xeon CPU E5-2660 2.20 GHz	3 GB	135 GB
Horizon Integrated Library System	Intel Xeon CPU E5-2660 2.20 GHz	1 GB	203 GB
Alchemy Document Management System	Intel Xeon CPU E5-2660 2.20 GHz	1 GB	349 GB

GPLS has a total of 14 telephone lines, 14 Grandstream Meridian phones, a fax line and a TTY telephone which is used by patrons with hearing or speech difficulties. The Hagatna Library also has a communications rack with an Uninterruptible Power Supply, a Cisco Router which is used to connect the DOA Office of Technology Data Center, a Linksys Wireless Router which is available for library patrons to connect their laptops to the internet, and 3 3-Com switches which are used for their LAN and WAN connections. The remote locations each have 1 telephone line, and a communications rack with an Uninterruptible Power Supply, a Linksys Router and a 3-Com switch.

A list of Telecommunications equipment is provided below:

Telecommunications Equipment

Location	Description	Count
Hagatna	Phone Line	14
Hagatna	Grandstream Meridian Phone	14
Hagatna	Fax Machine	1
Hagatna	TTY Text Phone	1
Hagatna	Cisco Router	1
Hagatna	3-Com Switch	3
Hagatna	Uninterruptible Power Supply	1
Hagatna	Linksys Wireless Router	1
Dededo	Telephone Line	1
Dededo	3-Com Switch	1
Dededo	Uninterruptible Power Supply	1
Dededo	Linksys Wireless Router	1
Barrigada	Telephone Line	1
Barrigada	3-Com Switch	1
Barrigada	Uninterruptible Power Supply	1
Barrigada	Linksys Wireless Router	1
Agat	Telephone Line	1
Agat	3-Com Switch	1
Agat	Uninterruptible Power Supply	1
Agat	Linksys Wireless Router	1
Merizo	Telephone Line	1
Merizo	3-Com Switch	1
Merizo	Uninterruptible Power Supply	1
Merizo	Linksys Wireless Router	1
Yona	Telephone Line	1
Yona	3-Com Switch	1
Yona	Uninterruptible Power Supply	1
Yona	Linksys Wireless Router	1

VI. Recommendations

Telecommunications Services: In order to support literacy and lifelong learning with 21st Century skills for library patrons, and to provide sufficient access for processing of library materials by library staff, GPLS will need to upgrade their telecommunication resources at the main library in Hagatna and all of their remote locations. Their existing equipment is aging and will soon be obsolete.

GPLS will need to install Asynchronous Digital Subscriber Line (ADSL) at their five remote branches located in Dededo, Barrigada, Yona, Merizo and Agat. Recommended speeds for this ADSL Service is at least 5.0MB for each branch. This will ensure secure and reliable internet access for their patrons, and adequate network connections between all library branches and the DOA Office of Technology Data Center which houses their mission critical systems.

The Linksys Wireless routers should be replaced by Wireless Internet Gateways, which can integrate with the SonicWALL firewall installed at the DOA Office of Technology Data Center. This will provide a secure wireless solution which is as safe as their wired network. The same set of security policies should be applied over both wired and wireless networks. The Wireless Internet Gateways should be configured to impose time and bandwidth usage limits for library patrons who access the wireless network. They should also be configured with Wireless Guest Services to provide Internet-only wireless access for library patrons.

GPLS should apply for E-Rate discounts available thru Universal Service Administrative Company (USAC) under the Schools and Libraries Program. The Schools and Libraries Program provides discounts on eligible telecommunications, Internet access, equipment, products and services for eligible schools and libraries. USAC discounts for GPLS could apply to the following products and services:

- Metro Ethernet Transport Service
- Managed Router Services
- POTS Business Lines (subject to 20% phase down of E-rate support starting 2015)
- Wireless Telephone Service (subject to 20% phase down of E-Rate support starting 2015)
- Switches
- Routers
- Racks
- Uninterruptible Power Supply (UPS)/Battery Backup
- Wireless Access Points

Personal Computers and Laptops: In order for GPLS to meet the growing needs of their patrons and continue to promote literacy in their branch communities, GPLS will have to replace most of their personal computers and laptops. Nearly 2/3 of the computers used for their patrons are obsolete. They have inadequate resources to meet the demands of the average computer user, and most of these computers have operating systems which are no longer supported by Microsoft.

GPLS computers should be replaced immediately. Going forward, a three year replacement cycle for all library computers should be implemented to ensure that all computers remain updated. This will keep GPLS current with technology, ensure security and limit vulnerabilities.

Integrated Library Systems (Horizon): In order for GPLS to be able to provide electronic books (eBooks) to their patrons, they must upgrade their Integrated Library System (Horizon). Since Windows 2003 will reach end of life on July 14, 2015, two New Windows 2008 servers need to be provisioned for this upgrade.

The Horizon Database Server should have Microsoft SQL 2008 installed, and then the newest version of the Horizon Integrated Library System and eResource Central application. All of the data from the old Windows 2003 Server will need to be migrated to the new Windows 2008 Server. The Horizon Information Portal (HIP) will need to be installed on the second Windows 2008 Server. BLUEcloud PAC, which is a hosted application will also need to be implemented. This application is required in order to implement eResource Central, and will eventually replace the Horizon Information Portal application.

GPLS will need to work with the Horizon and eResource Central vendor, SirsiDynix to integrate existing eBooks vendors, Delaney and Gumdrops with their systems. Going forward, GPLS should ensure that they order eBooks only from vendors that are already integrated with eResource Central.

Document Management System (Alchemy): In order for GPLS to efficiently maintain a repository of important Government and historical documents, their Document Management System (Alchemy) will need to be upgraded. The Windows 2003 Server should be replaced with a Windows 2008 Server, and the Windows Vista workstation should be replaced by a Windows 7 workstation. Tasks required to accomplish this include:

- Install new Windows 2008 Server with Microsoft SQL 2008, and then install the newest version of the Alchemy applications. All data from the old Windows 2003 Server will need to be migrated to the new Windows 2008 Server.
- Install new Windows 7 Client Workstation, and then install the newest version of the Alchemy applications. All data from the Windows VISTA Client Workstation will need to be migrated to the new Windows 7 Client Workstation.
- Purchase and install new document scanner, such as the Image Formula Canon DR-F120 Office Document Scanner.
- Provide necessary technology training to library staff related to the upgraded Alchemy applications on both the server and client workstation.

E-Mail Services: In order for GPLS to comply with the Government of Guam E-mail policy, which is being implemented by DOA Office of Technology, all E-mail accounts for GPLS will need to be managed on a Microsoft Exchange Mail Server located at the DOA Office of Technology Data Center. This will enable local management of all E-mail Services and provide the ability to backup and archive all E-Mail accounts.

Website Access: In order for GPLS to continue to provide a user-friendly GPLS Website, current events must be posted regularly. A link of Library Services should be provided on the initial home page. Links to websites for library services, government services, consumer information, job training, and career guidance should be updated regularly. Reports posted such as Budgets, Compliance Reports and Citizen Centric Reports should be posted regularly. Statistical reports of user access should be monitored regularly to measure public access.

Staff technology skills and Professional Development: In order to ensure that GPLS staff remains current with their technology skills, technology training should be made available to them based on their title. Professional development should be an on-going process for GPLS staff to enhance their skills and increase their knowledge. As systems are upgraded or new systems are implemented, all affected GPLS staff should be trained on new processes.

All administrative staff should be trained in Microsoft Windows 8 and Microsoft Office Suite products such as Word and Excel. All GLPS Library Technicians should be trained on Horizon Essentials, Circulation Basics and Cataloguing Basics. They should also be trained on the basic functions for the Alchemy Document Management System.

The GPLS Technical Support staff, which includes the GPLS Clerk Typist and the DOA Office of Technology Systems Analyst, should be trained on Horizon Day End Admin Tasks, Administration Basics, Administration Security and Horizon Information Portal (HIP Admin). They should also be trained on System Administration functions for the Alchemy Document Management System.

Technology Policies and Services provided to patrons: In order for GPLS to ensure that their Technology Policies and Services adapt with changing technologies, Technology Policies should be reviewed annually and updated as needed.

Internet use policies should be updated to include the following:

- *I will report any malfunctions in hardware or software immediately to GPLS staff.*
- *GPLS equipment may not be unplugged, moved, removed or modified in any way.*
- *I am aware that by using wireless access, there is the possibility of radio signals being intercepted. Information sent from or to your laptop can be captured by anyone else with a wireless device and the appropriate software, within 300 feet.*
- *GPLS assumes no liability for the possible interception of personal information being transmitted over its network.*
- *GPLS assumes no liability for lost data due to network failure or lost wireless signal*
- *GPLS assumes no liability for any damage to computer media, computer equipment, lost data due to computer equipment failure, or stolen computer equipment.*
- *GPLS staff does not provide technical support for library patron's personal computer equipment. No guarantee can be provided that you will be able to make a wireless connection.*
- Other prohibited behaviors include, but are not limited to, damaging or disrupting computer resources and networks; changing the settings and configurations of public access computers; use of non-library software on library computers; use of library computers for chat, game playing; audio and video downloads; *FTP; telnet; and streaming content.*

Technology Policies for Staff: In order for GPLS to remain current with changing technology, they must replace their obsolete hardware and software and upgrade their enterprise systems. The DOA Office of Technology provides guidance for the procurement of new computer equipment, based on established standards. These standards need to be updated to provide recommendations for newer technologies.

Tech Support: In order to ensure adequate operation of all GPLS computers and peripherals, a rotation schedule for computer maintenance should be developed. ScanDisk, Updates for Windows, Microsoft Office and web browsers should be performed as soon as they are made available. Screens, CD-Rom drives and printers should be cleaned, and network cables should be checked for crimps, breaks and wear and tear every 90 days. Defrag and Disk Cleanups should be performed on all computers monthly that do not have disk-protection installed on them every 30 days.

Security: In order to ensure adequate security for the GPLS network, Virus, Malware and Spyware definitions should be updated and full anti-virus, anti-malware and anti-spyware system scans should be performed weekly on all computers. Patron computers should be setup with disk-protection. This will ensure that the computer will revert back to the way the computer was configured at a particular point in time. If patrons save work or download from the internet, it will get wiped away when the computer restarts.

Passwords on staff computers should be changed every 90 days, and passwords on patron computers should be changed every 30 days. GPLS should also create multiple Active Directory accounts for Patrons, and passwords should be changed every 30 days.

GPLS should install Wireless Internet Gateways at all of the branch libraries. This should be setup with Wireless intrusion detection and prevention to scan the wireless network for unauthorized access points. The managing firewall can then automatically take countermeasures to prevent connections to these devices. Wireless Guest Services should also be configured. This can be setup to provide internet-only wireless access to library patrons, and require them to securely authenticate before access is granted.

Backups: In order to provide adequate disaster recovery procedures for the Horizon and Alchemy systems, Backups policies should be modified. Database backups should be scheduled daily on both the Horizon and Alchemy system servers. Full System backups without system state should continue to run three times a week, and Full System backups with system state should be scheduled monthly. Full System backups with system state should also be performed prior to any scheduled system upgrade.