

**DNR Information Technology Infrastructure Upgrades
Phase 2 of 2**

**FY2010 Request: \$215,000
Reference No: 45270**

AP/AL: Appropriation

Project Type: Information Technology / Systems / Communication

Category: Natural Resources

Location: Statewide

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House District: Statewide (HD 1-40)

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Estimated Project Dates: 07/01/2009 - 06/30/2010

Brief Summary and Statement of Need:

This project includes a disaster recovery plan for DNR business systems and databases, as well as various IT upgrades designed to improve productivity. It also provides wireless connectivity for DNR employees in Anchorage, Juneau, Fairbanks and Palmer offices.

Funding:	<u>FY2010</u>	<u>FY2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>	<u>Total</u>
Gen Fund	\$215,000						\$215,000
Total:	\$215,000	\$0	\$0	\$0	\$0	\$0	\$215,000

<input type="checkbox"/> State Match Required	<input type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input checked="" type="checkbox"/> Phased - underway	<input type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

Operating & Maintenance Costs:

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	24,000	0
One-Time Startup:	0	
Totals:	24,000	0

Additional Information / Prior Funding History:

SLA08/CH29 \$276,000 Phase I, Working with the Department of Administration, vendors, etc. in developing purchase and deployment plans.

Project Description/Justification:

The primary deliverables include:

- Deployment of new servers, network storage and backup systems in Anchorage, Fairbanks and Juneau.
- Develop and deploy DNR disaster recovery plan for business systems and data.
- Wireless networks in Fairbanks, Anchorage, Palmer (Forestry only) and Juneau.

Systems will be deployed in accordance with DNR and State standards. This is Phase 2 funding of the project, Phase 1 funding of \$276.0 was approved in FY09. There are four parts to this project, listed by highest priority first:

Priority 1 - Server and Storage for Fairbanks:

A new server, network data storage and backup systems are required for DNR's 3700 Airport Way office in Fairbanks. The Division of Forestry constantly has high demands for network storage. In the past they have configured multiple servers and disk arrays to house all their data. The Division of

Mining, Land and Water Management would like to move their mining data off of various computers to network storage. It is recommended that a storage device with at least 10 terabytes (10,000 gigabytes) of available capacity be purchased. This device must have the capability to expand storage in the future. The Fairbanks site must have the ability to replicate data to Anchorage or Juneau storage devices to provide DNR with disaster recovery capacity and compression algorithms must be used to conserve bandwidth. An upgraded Fairbanks backup system may include a tape system, depending upon the final selected architecture.

Required battery backup and cooling systems for this data center are expensed as part of the Fairbanks building upgrade CIP from FY08. A new server is required for the office as the existing server is over 7 years old and needs to be replaced with a newer, faster and more efficient server.

Priority 2 - Storage for Juneau:

Data storage needs are growing in Juneau. The Division of Forestry staff has a need to store imagery on a central location and the current network storage is limiting their ability to share this data. An expanded and reliable network storage and backup system is needed in the Juneau office. Currently data is stored on a direct attached disk array, being backed up to a single tape drive using Solaris (UNIX) native backup commands. It is recommended that a storage device with approximately 5 terabytes (5,000 gigabytes) of available capacity be purchased. This device must have the capability to expand storage to an estimated 15 TB in the future. The Juneau site must have the ability to replicate data to Fairbanks or Anchorage devices to provide DNR with disaster recovery capability compression algorithms must be used to conserve bandwidth. Advanced backup technology, will be implemented as part of the upgrade. Training has also been identified for the Juneau Technician. An uninterrupted power supply (UPS) – i.e., a battery backup, is also required.

Priority 3 – DNR Data Center Storage:

The DNR data center located in the Atwood building requires more disk storage space. The extra capacity will provide storage for DNR's content management system, virtual servers, web based data, imagery and employees' data. Data storage will be required to pursue DNR's disaster recovery plan of replicating data between DNR's major file servers between the NAS devices located in Anchorage, Fairbanks (see Priority 1), and Juneau (see Priority 2). Having a quick and efficient disaster recovery capability for DNR's major file servers at these key locations, and will increase productivity in Juneau and Fairbanks by reducing the delay in accessing data that is presently only stored in Anchorage (business data, mapping, documents, etc.). The architecture must provide a fault tolerance capacity with no single point of failure.

Priority 4 - DNR Wireless Plan:

Secure wireless connections for laptops are the accepted norm for the public and private sectors. While traveling DNR employees can connect to privately provided (hotels, motels, airports, etc.) or other public agency wireless networks. These employees have the same expectations for wireless connections while in DNR offices, DNR has no wireless network other than one wireless access point in the Juneau office and three on the 7th floor of the Atwood Building. About 20% of DNR employees, a high percentage of whom are managers, use laptops and desire a wireless connection. Wireless networks in conference rooms allow the immediate taking of electronic notes without the additional

task of transcribing handwritten notes at a later time. Internet research and ad hoc network or Internet based presentations are more readily available with wireless. Having a wireless network available at DNR's major offices will allow traveling employees instant access to the network without waiting for IT staff to provide cabling or wondering if a data jack port is active or not. Employee productivity is raised by increased mobility of staff while they retain network connectivity. Four DNR offices have been identified for a DNR enterprise wireless installation and are listed below by priority.

Priority 4.1

- The Atwood Building in Anchorage, all floors with the exception of 8 and 11 (Division of Oil & Gas, special security requirements). Estimated cost is \$30,000. The necessary State standard wireless equipment will be purchased and additional cabling installed at the optimum locations to provide the best wireless coverage for each floor. CISCO Wireless LAN Controllers (WLC) may be needed for authentication to the network. Whether DNR has to purchase its own or use DOA's will have to be determined. Training for four IT staff have been identified for support and administration of the wireless equipment for this and the other major DNR offices.

Priority 4.2

- The Willoughby Building in Juneau, all floors with the priority being floors 5 and 4. The 3rd floor has only the Recorder's Office, which may be able to use the 4th floor wireless. Estimated cost is \$9,000. The necessary State standard wireless equipment will be purchased and additional cabling installed at the optimum locations to provide the best wireless coverage for each floor. CISCO Wireless LAN Controllers (WLC) may be needed for authentication to the network. Whether DNR has to purchase its own or use DOA's will have to be determined. Training for the local Juneau technician is not included as the equipment can be administered by Anchorage staff.

Priority 4.3

- The 3700 Airport Way compound in Fairbanks. This includes the main building, Forestry's warehouse, Forestry's Area Office and Technician Building. Estimated Cost is \$16,000. The necessary State standard wireless equipment will be purchased and additional cabling installed at the optimum locations to provide the best wireless coverage for each building. CISCO Wireless LAN Controllers (WLC) may be needed for authentication to the network. Whether DNR has to purchase its own or use DOA's will have to be determined. Training for the local Fairbanks technician is not included as the equipment can be administered by the Anchorage staff.

Priority 4.4

- The Division of Forestry Palmer Offices. This is the main building for Forestry's wildland fire suppression operations. Estimated Cost is \$10,000. The necessary State standard wireless equipment will be purchased and additional cabling installed at the optimum locations to provide the best wireless coverage for each building. CISCO Wireless LAN Controllers (WLC) may be needed for authentication to the network. Whether DNR has to purchase its own or use DOA's will have to be determined. The wireless equipment will be administered by Anchorage staff.

Why is this Project Needed Now?

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Maintaining a current IT infrastructure is vital to provide services and information to the public sector, other agencies and internally to DNR employees. Current systems are at capacity and data is at risk of being lost.

Storage in the Juneau and Fairbanks office lacks needed capacity. Employees store business data on their work computer or on local external drives; backups are inconsistent. This creates problems in the event of hard drive failures on the local computer or external drives. Sharing files becomes more complicated as data may be duplicated on several computers or copied to CDs or DVDs. Both locations have fully amortized UNIX servers (the Fairbanks server is 10 years old and the Juneau server is 5 years old.) Both need to be replaced with new Windows servers in anticipation of migrating to the Enterprise Active Directory.

The ability to back up and restore data is directly linked to the amount of network storage available. The rapid growth in web based applications and "going digital" in all aspects of DNR's work environment has pushed the current network storage and backup systems to their limit. New backup systems are required to keep up with these ever increasing demands. Without these new systems, critical data may not be able to be backed up as regularly as needed; backup schedules are compromised in an attempt to accommodate the more efficient use of the overtaxed equipment and the reduced time frames available for backing up data.

Wireless connections are the normal expectations for employees with laptops and DNR lacks this technology. A wireless connection increase employee efficiency, productivity and saves valuable time for both the employee and IT support staff.

Specific Spending Detail for both Phase 1 and Phase 2 of project:

LINE ITEM	DOLLAR AMOUNT	DESCRIPTION
Personal Services	\$ 17,000	Implementation will use both existing staff and contractors.
Travel	\$ 12,000	Trips to DNR's Juneau and Fairbanks Offices
Contractual Services	\$ 24,000	Planning and Training
Commodities	\$ 13,000	Data storage tapes
Hardware and Software	\$ 425,000	Wireless equipment, disk storage, servers, tape drives, tape libraries, software, cabling
Total	\$491,000	