New Mexico
Environment Department

FY02 Information Technology Plan

Submitted by:

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Part 1: Executive Summary

Plan Purpose

The FY02 Information Technology (IT) Plan describes how information technology will be positioned and used to support agency strategies, goals and objectives. The plan describes what investments need to be made to a) sustain the current IT infrastructure (includes: staff, processes, training, tools, hardware and software), b) support new technology research & development, c) enhance current applications, and d) implement new applications.

Agency Description

The New Mexico Environment (NMED) works to protect air, surface water and groundwater quality through a number of permitting and monitoring programs. We are also responsible for ensuring workplace safety and we protect the public's health by ensuring community drinking water systems deliver safe drinking water, that food-handling practices in restaurants are safe and disease free, that public swimming pools are disease free and that private septic systems are installed to meet minimum operating standards. In addition, we fund the construction of community drinking water and wastewater management systems through a number of grant and loan programs. Additionally, we educate businesses and residents through a number of operator certification programs and a statewide recycling program. We are committed to improving the environmental quality of the State through environmental justice and international border related programs and sponsor the Green Zia Environmental Excellence program, a voluntary program designed to encourage businesses to practice environmental excellence throughout their activities.

ITS Bureau Description

The Information Technology Services (ITS) Bureau is the technology support organization for the Agency. The ITS Bureau is a team of ten professionals organized into six sections: Administration, Project Management, Help Desk, Database Administration, GIS & Web Support and Systems Management. An Agency Chief Information Officer (CIO) reports to the Office of the Cabinet Secretary and oversees the Agency's IT strategies and initiatives. The ITS Bureau supports the agency by providing business application development and support services, wide and local area data networking, web applications, office productivity tools and support and other services.

FY00 IT Accomplishments

The Agency completed 9 of 10 (or 90%) of its FY00 IT implementation goals. In addition, significant progress has already been made towards achieving FY01 IT implementation goals. One FY01 project has already been completed and 10 of 21 projects (or 47%) have already started. The Agency's major IT accomplishments since September 1999 include:

FY00 Strategy 1 - Purchase & Develop Integrated Applications

- Completed RFP for and Purchase of an Integrated Environmental Management System
- Implemented a shared database, One Stop, for regulated facility and site information; six programs (air, underground storage tanks, hazardous waste, ground water, food, drinking water) are now using the shared database

FY00 Strategy 2 - Improve I.T. Infrastructure (Process, Staff, Service Levels)

- Completed the Y2K project; no interruptions to Agency operations were experienced
- Completed redesign of ITS problem management process and implemented a help desk problem management application
- Completed ITS staffing assessment and started implementing recommendations to close significant gaps
- Established standard customer service and problem solving competencies to manage ITS staff performance
- Created an Agency Strategic IT Plan which established IT direction, policy, goals, strategies and objectives for the entire Agency (see Appendix H for the Strategic IT Plan)

FY00 Strategy 3 - Improve Thin-Client Technology Performance

- Upgraded hardware and software on largest NT thin-client application server

FY00 Strategy 4 - Provide Services through the Internet and Electronic Commerce

- Purchased an Integrated Environmental Management System with web applications, including: air general permit applications, regulated facility compliance reporting, permit status tracking; credit card payments; regulated entity master file inquiry; and UST registrations

Current IT Issues

The Agency is currently facing several critical IT issues; these issues are described below:

- Current IT funding levels are inadequate to support agency operational & strategic requirements
- Current IT staffing levels are inadequate to meet service level requirements
- The current PC support environment is not adequate
- Collaboration with system users and programs needs to be improved
- The current application development & support environment needs improvement
- System reliability & performance needs improvement
- IT processes need improvement

FY02 IT Goals & Strategies

The New Mexico Environment Department has established a set of FY02 IT goals, strategies and objectives for the Agency that respond to new customer requirements, external influences and internal performance issues.

Strategic Goal #1 - Acquire and Maintain an Adequate Level of IT Funding to Meet the Operational and Strategic IT Requirements of the Agency

Strategic Goal #2 - Involve Customers/Users in Appropriate IT Processes to Ensure that Decisions are Well Understood and Supported

Strategic Goal #3 - Improve System Performance and Reliability so as to Optimize Employee Work Productivity

Strategic Goal #4 - Assist the Agency Implement Applications that Enhance Services and Information Sharing with the Regulated Community and Public

Strategic Goal #5 – Reduce IT Problem Response and Resolution Time and Costs

FY02 IT Funding

NMED cannot achieve critical FY02 goals and objectives without appropriate funding of information technology. The current FY01 budget appropriation and FY02 budget request are summarized below:

IT Investment Category	FY00 Actual	FY01 Request	FY01 Budget	FY02 Request
Base	$1,089.2	$1,821.7	$1,167.6	$1,376.5
New Program Initiatives	$0.0	$0.0	$0.0	$0.0
Expansion of Base Budget	$0.0	$0.0	$0.0	$773.8
Special Appropriation	(2) $1,172.7	(1) $2,940.5	(1) $540.0	(1) $2,382.3
Totals	$2,261.9	$4,762.2	$1,707.6	$4,532.6

1) C-2, 2) Y2K *Note: Dollars are shown in thousands.*

The FY02 IT Plan includes three requests for information technology special appropriations that will enable NMED to implement its IT strategies and achieve its IT goals. These requests in priority order are:

Project Name	FY01 Request	FY01 Budget	FY02 Request	FY03 Estimate
C2-Integrated Database for Environmental Assurance (IDEA)	$1,193.0	$540.0	$1,620.9	$575.0
C2-Implement Agency Web Service Delivery Portal	$1,069.0	$0.0	$235.0	$85.0
C2- Web-Based Agency Geographical Information System (GIS)	$0.0	$0.0	$526.4	$48.9
Totals	$2,262.0	$540.0	$2,382.3	$708.9

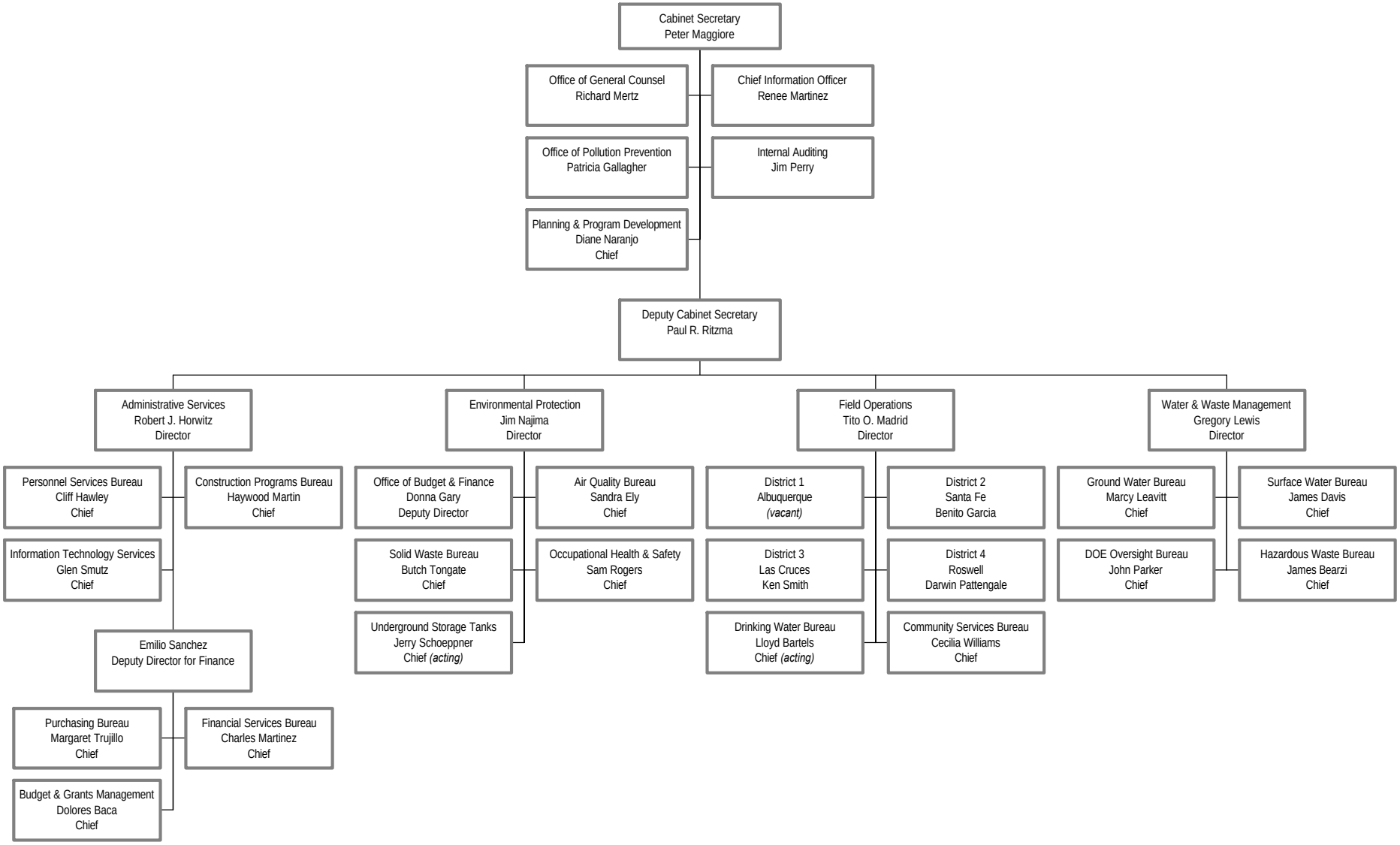
The FY02 IT Base Budget request includes a request to expand the base budget for the ITS bureau by $773,800 in order to establish a support structure for several new information systems and services that have been implemented for the Agency, its programs, employees and stakeholders. Should the expansion not be accomplished, the department will lack support for the following critical systems and services:

- Personal computers which program staff use to enter and analyze environmental and financial data into program databases
- Department e-mail system used for internal communications and to communicate with the regulated community and other state agencies
- Department web-sites used to exchange information with the public and regulated community
- Department intranet used to access and publish department policies, plans and projects
- Department geographic information system used to communicate with the public and regulated community and other state agencies
- User help desk used to report and resolve problems and to submit service requests
- Thin Client and NT Server Support used to access office productivity tools such as word processing, spreadsheet and e-mail applications

Agency Contacts for IT Plan:

Robert Horwitz, ASD Director and Renée Martínez, Agency CIO, are responsible for the contents of this plan. Robert can be reached by phone at 827-2773 or by electronic mail at *bob_horwitz@nmenv.state.nm.us*. Renée Martínez can be reached by phone at 827-0319 or by electronic mail at *renee_martinez.its@nmenv.state.nm.us*. The primary contact for this IT Plan is Renée Martínez.

Part 2: Agency Overview


Cabinet Secretary
Peter Maggiore
Office of General Counsel
Richard Mertz
Chief Information Officer
Renee Martinez
Office of Pollution Prevention
Patricia Gallagher
Internal Auditing
Jim Perry
Planning & Program Development
Diane Naranjo
Chief
Deputy Cabinet Secretary
Paul R. Ritzma
Administrative Services
Robert J. Horwitz
Director
Environmental Protection
Jim Najima
Director
Field Operations
Tito O. Madrid
Director
Water & Waste Management
Gregory Lewis
Director
Personnel Services Bureau
Cliff Hawley
Chief
Construction Programs Bureau
Haywood Martin
Chief
Information Technology Services
Glen Smutz
Chief
Emilio Sanchez
Deputy Director for Finance
Purchasing Bureau
Margaret Trujillo
Chief
Financial Services Bureau
Charles Martinez
Chief
Budget & Grants Management
Dolores Baca
Chief
Office of Budget & Finance
Donna Gary
Deputy Director
Air Quality Bureau
Sandra Ely
Chief
Solid Waste Bureau
Butch Tongate
Chief
Occupational Health & Safety
Sam Rogers
Chief
Underground Storage Tanks
Jerry Schoeppner
Chief (acting)
District 1
Albuquerque
(vacant)
District 2
Santa Fe
Benito Garcia
District 3
Las Cruces
Ken Smith
District 4
Roswell
Darwin Pattengale
Drinking Water Bureau
Lloyd Bartels
Chief (acting)
Community Services Bureau
Cecilia Williams
Chief
Ground Water Bureau
Marcy Leavitt
Chief
Surface Water Bureau
James Davis
Chief
DOE Oversight Bureau
John Parker
Chief
Hazardous Waste Bureau
James Bearzi
Chief

A. Statement of Agency Mission

Provide for the highest quality of life in New Mexico by promoting a safe, healthy and productive Environment

B. Statement of Agency Goals

To make our mission a reality, the Agency needs long-range goals to help communicate and share best practices with our governing agencies, regulated communities, the public, and ourselves. Therefore, the Agency has adopted the following goals:

1. Develop the statutory and regulatory framework by adopting proactive, preventive approaches that improve environmental management and protect public health and economic well-being

2. Improve the organizational functioning, productivity and proficiency by providing an atmosphere that promotes employee enthusiasm and motivation

3. Enhance the way we collect, use, share, and distribute information by shifting measurements of effectiveness from actions to results whenever possible, implementing data and report standards, automating workflows, implementing internet and electronic commerce applications, and giving decision makers easy access to timely and accurate environmental performance information

4. Improve the quality of service to the public through education and participation by governing entities, tribes, businesses, organizations, and citizens in our decision making process

Agency Values

Our values are the foundation for improving overall Agency performance and capabilities. After the citizens of New Mexico, the Agency:

Values Our Employees - We acknowledge our employees as the Agency's most valuable asset. Each employee brings a commitment to public service and expertise in his or her profession. We respect our employees and we encourage collaborative working, creative thinking, and learning from experiences. We solicit input from our employees and consider this information in our actions. We strive to provide the tools and training necessary to maximize the contribution of all employees and to maintain a productive work environment. We promote a healthy and safe work environment. We recognize that a healthy personal life contributes to a productive professional life. We rely on our employees to build community partnerships appropriate to our mission.

Exercises Sound Fiscal Stewardship - We recognize that the public pays our way and that managing public funds is a trust. In return for this trust, we owe the taxpayers the highest quality of service that we can deliver at the lowest possible price. We are committed to continually refining management approaches and systems to achieve cost-effective, efficient, sustainable outcomes. We work to set clear objectives, to evaluate our progress, and hold ourselves accountable for achieving our objectives. We use continuous quality improvement techniques to implement our plans and policies and to ensure that we are achieving the highest good with the funds entrusted to our care. We plan, implement, and check for problems and opportunities for improvement as well as incorporate needed changes as we can, knowing that both adherence to sound fiscal management practices as

well as flexibility are needed to accommodate the ever-changing issues and needs of the people and resources of New Mexico.

Utilizes Sound Environmental Stewardship - We focus on our children's children as the reasons to exist and act. We recognize that environmental progress for New Mexico depends on individual, business, organization, community, tribal, and government responsibility, commitment, and stewardship. We consider the needs of local ecosystems, and the social and economic needs of the people living in them, in all our decisions in order to assure the highest possible quality of life in our state. We are focusing our efforts on keeping pollution from being created in the first place and we are managing all remaining wastes in ways that reduce potential harm to the environment. We promote pollution prevention and waste minimization approaches to reduce or eliminate pollution in conjunction with fair and consistent administration and enforcement of environmental, health, and safety regulations to assure proper waste management. In order to achieve our environmental goals: we strive to impose a waste management hierarchy; namely, pollution prevention through source reduction first, followed by reuse and recycling, then environmentally safe treatment and disposal. We promote voluntary programs that motivate and reward New Mexico businesses, from the largest facility to the smallest downtown business, to put into practice environmental management systems that incorporate pollution prevention into their core business practices. We encourage the redevelopment of contaminated sites by providing a streamlined, non-punitive remediation process. We understand that economic growth, environmental protection, and social equity are linked. We strive to develop integrated policies to achieve our goals. We facilitate dialogue among varied interests to arrive at workable solutions while protecting the state interest.

Conducts Ourselves Professionally - We foster a spirit of professionalism by demonstrating ethical, creative, and logical judgment in our decision making process. We portray an attitude that reflects positively on the Agency through discovering our customer and community needs and by working to meet those needs. We respect the different values held by the public and always strive to increase our understanding of those values. We adhere to the technical and ethical standards of our chosen profession.

C. Agency Description

The agency is a cabinet level executive organization under the authority of the Governor. The Cabinet Secretary, appointed by the Governor and confirmed by the Senate, is the agency's senior manager. The Cabinet Secretary appoints a senior management staff of a Deputy Secretary, a General Counsel, four Division Directors and a Chief Information Officer, all of whom serve at the pleasure of the Cabinet Secretary. The agency is made up of four divisions: Administrative Services, Environmental Protection, Water and Waste Management, and Field Operations. The Office of the Secretary is a fifth organizational component although it is not referred to as a "division".

The primary interest we serve is the protection of the environment of the State of New Mexico. To serve this interest, our customers are the owners and managers of the industries and industrial and private activities we regulate. Stakeholders include the various interest, community and advocacy groups who rely on us for information and protection as well as the Legislature and other regulatory bodies. Ultimately, each taxpayer and

visitor to New Mexico, as well as the residents and visitors of neighboring states and northern Mexico, benefits in some way from the efforts of the Environment Agency and is a customer.

Our economic market is worldwide although our focus is New Mexico. By fairly, competently and thoughtfully administering the many environmental, health and workplace protection laws and regulations for which we are responsible, we are sending a message about the viability of New Mexico to businesses around the world as well as visitors and potential residents. Our direct impact is on the population of the state, less direct is our impact on others.

Key customer requirements (focusing on the owners and managers of the industries and industrial and private activities we regulate), include clear and concise regulations governing regulated activities, permits delivered on time that specify clearly the requirements that must be met with sound rationale, effective communication throughout the permit application process as well as during the life of the regulated activity and consistent and accurate information both within programs and across the agency.

The Environment Agency operates with a budget of about $40 million and a work force of 612 employees. The Agency operates out of 25 offices located in 23 towns and municipalities throughout the state. Main offices are headquartered in Santa Fe, Albuquerque, Roswell, and Las Cruces.

Part 3: Description of IT Plan Implementation for FY00

A. Progress Against FY00 and FY01 IT Goals

The two tables below summarize the progress the Agency has made against FY00 and FY01 IT Goals.

FY00 IT Goal Description	Progress Report
Complete Agency Y2K project	Completed; no business interruptions experienced
Upgrade Agency financial system to release 10.7 to ensure Y2K compliance	Completed
Upgrade routers and edge hubs to level 3 switched hubs to support 100MB	Completed
Upgrade Santa Fe interoffice LAN to 100MB on a fiber optics backbone	Completed
Replace 56KB frame relay circuits in most field offices with higher bandwidth alternative (e.g. ISP, T1)	In process; T1 installed to Las Vegas field office in FY00
Convert GIS software and data from DG Unix platform to platform supported by ESRI	Completed; converted to Sun Solaris
Replace character-based terminals with PCs or thin-client devices	Completed
Upgrade Oracle RDBMS and development tools	Completed
Continue to purchase desktop hardware and software in compliance with state standards	Completed; all new purchases comply with standards
Replace the dedicated SNA link to ISD mainframes with SNA running over Internet TCP/IP connection	Completed

FY01 IT Goal Description	Progress Report
Augment IT staff to meet Agency service levels	In process; a staffing assessment completed in FY00 showing need for 12 additional staff to support current systems; FY00 funding was not secured; IDEA project funding in FY01 will allow for recruitment of three temporary staff
Implement system management tools to improve system availability and reliability	Not started; planned for FY01
Develop a 2-3 year Strategic IT Plan that aligns with the Agency Strategic Plan	Completed in FY00
Implement a Department disaster recovery plan	In process; Y2K recovery plan completed in FY00; a feasibility study in a progress to evaluate the costs/benefits of a shared disaster recovery "hot site" with the Dept. of Public Safety
Complete the One Stop Reporting Grant Project	In process (80% complete); implementation of a shared agency database for regulated facility and site information was completed in FY00; a pilot web application is under consideration for FY01
Select & implement an integrated agency application suite	In process (10% complete); AMS Tempo system purchased in FY00; release 1 implementation planned for FY01
Enhance Oracle applications with web and electronic commerce interfaces	In process (50% compete); all program-specific Oracle applications were web-enabled in FY00; funding was not secured to add E-commerce functionality in FY01
Develop & implement NMED electronic commerce strategy	Not started; funding was not secured with FY01 budget;

FY01 IT Goal Description	Progress Report
	some e-commerce functionality was acquired with the AMS Tempo software package
Provide secured access to NMED's web-enabled applications and e-mail facilities through the NMED firewall	Planned for FY01
Install a second internet access pathway, including a firewall, to reduce the impact of failed equipment and network segments	Cancelled
Expand Geographical Information System (GIS) access and coverage	Planned for FY01; GIS software upgrades planned for FY01; enhanced agency GIS planned for FY02
Resolve thin-client technology performance problems	In process; an operating system upgrade to Windows 4.0 was completed for the largest NT application server
Implement data warehousing projects involving ISD databases	In process; to be accomplished in FY01 by implementing an automated timekeeping system and a budget preparation system
Evaluate business requirements at field offices and develop and implement an IT plan to address their top priorities	In process; on-site technical support scheduled for all sites on a quarterly basis
Improve the user trouble reporting and tracking process	In process; problem management process was redesigned and interim help desk system in place in FY00; implementation of a packaged help desk system is planned in FY01
Review and update all IT related policies and procedures	Planned for FY01
Implement an IT security policy and monitor compliance	Planned for FY01
Continue to replace Data General UNIX servers with Sun Solaris servers	In process; two servers converted in FY00; funding was not secured in FY01 to complete
Employ new tools to simplify the development of user interfaces to the Oracle databases	Planned for FY01
Implement a PC purchasing and retirement policy that supports Department technology standards	Planned for FY01
Install category 5 cable in Runnels and Marquez site to fully meet building codes	Planned for FY01 as part of IDEA project
Upgrade computer room equipment	Planned for FY01 as part of IDEA project
Select & implement an integrated e-mail & scheduling application	Cancelled; outsourcing of e-mail and scheduling applications planned for FY02

Our FY00 IT implementation closely followed our planned strategy for enhancing network and database services, and modernizing computer equipment and software. FY00 IT expenditures exceeded the budget appropriated due to the hiring of an Agency Chief Information Officer (CIO), a new senior management position. Actual expenditures in FY00 were $1,089,200 compared with a budget of $1,032,800. Year 2000 project expenditures were $1,172,700 compared with a budget of $ 1,200,000.

Part 4: Description of IT Environment and Infrastructure

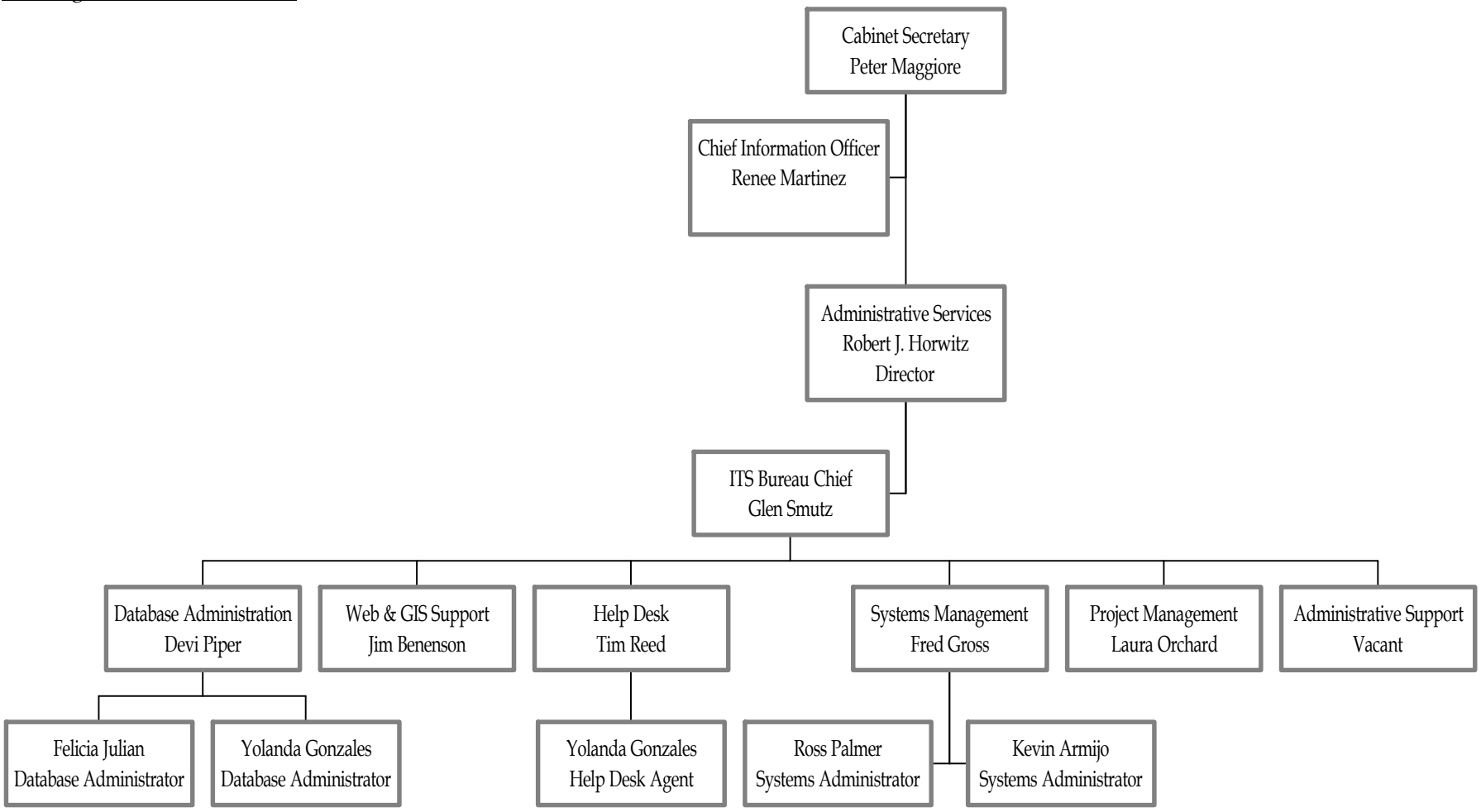
A. Current IT Environment

The Information Technology Services (ITS) Bureau is the technology support organization for the Agency. The ITS Bureau is a team of ten professionals organized into six sections: Administration, Project Management, Help Desk, Database Administration, GIS & Web Support and Systems Management. An Agency Chief Information Officer (CIO) reports to the Office of the Cabinet Secretary and oversees the Agency's IT strategies and initiatives. The ITS Bureau supports the agency by providing business application development and support services, wide and local area data networking, web applications, office productivity tools and support and other services.

ITS Mission Statement

The mission/purpose of the Information Technology Services (ITS) Bureau is to provide and support automated information systems that allow reliable data and information to be created, managed and shared for the New Mexico Environment Department so that programs effectively achieve their goals

ITS Organizational Structure



ITS Staffing Ratios:

ITS Service Area	# FTEs	# Users	User / IT Staff Ratio	Benchmark Ratio
Application Support				
Application Development & Database Administration	2.5	300	120 : 1.0	
Geographic Information System Support	0.3	15	50 : 1.0	15 : 1.0
Internet & Intranet Design & Support	0.7	550	785 : 1.0	500 : 1.0
E-Mail System Support	0.2	550	2750 : 1.0	1000-1500 : 1.0
Systems & Communications				
NT Server Administration	0.25	3 servers	30 : 1.0 servers/staff	10 : 1.0 servers/staff
Unix Server Administration	1.5	14 servers	9 : 1.0 servers/staff	5-10 : 1.0 servers/staff
PC & Printer Support	0.5	250	500: 1.0	50-75 : 1.0
Data Network	1.0	550	550: 1.0	250 : 1.0
Help Desk	0.75	550	733 : 1.0	250 : 1.0
TOTALS	7.7			

Currently, the ITS Bureau is not staffed to support program specific application development and maintenance efforts. The Agency retains the services of consultants to assist with these activities. Also, there are three (3) information system positions that report directly to Agency programs (Drinking Water, Hazardous Waste, and Underground Storage Tanks) used to support program specific applications, web sites and interfaces to US EPA systems.

B. Current IT Issues

The Agency is facing several critical IT issues. The following issues were identified during the strategic IT planning process (please see Appendix H for the Strategic IT Plan):

- Current IT funding levels are inadequate to support agency operational & strategic requirements
- Current IT staffing levels are inadequate to meet service level requirements
- The current PC support environment is not adequate
- Collaboration with system users and programs needs to be improved
- The current application development & support environment needs improvement
- System reliability & performance needs improvement
- IT processes need improvement

1. *IT Funding*– The operating budget for the ITS Bureau is funded entirely with state general funds. Annual increases to the state general fund are not sufficient to support the recurring costs of information technology and services. Current Agency IT funding methods create obstacles to implementing shared systems and enforcing technology standards. Individual programs develop federal grant agreements that include IT investments with little or no guidance from the Agency CIO and ITS Bureau. A more coordinated IT planning and funding process is needed.

2. *IT Staffing*– The ratio of IT staff to employees is low compared with other state agencies and industry benchmarks. Appendix G summarizes a staffing assessment that was conducted by the Agency CIO and includes comparisons against industry benchmarks and other state agencies. Over the last six years, staffing has not changed with the exception of one additional position created in FY01. During this same period, the following ITS services were added to the Agency's ITS service portfolio. These new services represent a 60% increase in services offered:

- Geographic Information System (GIS) Support
- Internet Development & Support (approx. 550 users)
- Intranet Development & Support (approx. 550 users)
- E-Mail System Development & Support (approx. 550 users)
- User Help Desk (approx. 550 users)
- Wide Area Network Design & Support (approx. 550 users)

ITS Staffing Trends

Fiscal Year	# IT Staff	Fiscal Year	# IT Staff
1994	9	1998	9
1995	9	1999	8
1996	9	2000	8
1997	9	2001	10

Each new service requires an ITS support structure that includes staff, expertise, training, tools, equipment upgrade and maintenance. By not adding staff to support the new services, the ITS bureau has been put into the difficult and frustrating situation of not being able to adequately support services that are provided to a broad user base. For example, approximately 550, or 90%, of the Agency's 610 employees use the e-mail system on a daily basis. As a result, service performance has been severely compromised across old and new services as ITS staff is stretched too thin to cover multiple services and technologies. The support areas most severely understaffed are e-mail, data network, PC support, GIS and help desk. Some combination of staff augmentation, outsourcing, improved tools, and improved processes is needed to address the problem.

3. *PC Support* – Over the past six years, the installed PC base at NMED has grown from about 20 units to approximately 450. Essentially all of these PCs are networked. Over this same period, not a single staff person has been hired for PC support duties in ITS. At least three bureaus within the Agency have designated program staff to support bureau PCs on a part-time basis. This approach does not provide for a common PC knowledge or support base and PC service levels vary widely throughout the Agency. A centrally managed PC support function needs to be considered to improve service levels and manage costs across the Agency. A pilot project with two bureaus was completed in July 2000 to outsource PC support. The pilot was very successful and IT management has recommended and Agency management has approved a plan to outsource PC support for the entire Agency. The outsourcing strategy will avoid the need to add 9 staff, eight PC technicians and 1 supervisor, to adequately support PC hardware and software.

4. *Collaboration with System Users and Programs* – Program management and staff across the Agency have expressed a desire to collaborate with the ITS bureau on decisions regarding IT efforts that impact them. System users should be involved throughout the IT project process and should be asked to take on IT co-project leadership responsibilities to ensure that technical solutions satisfy program and user requirements.

5. *Application Development & Support Environment* – The Agency has standardized on Oracle application development tools and technologies for large multi-user business applications. The Oracle relational database engine performs well and provides required functions and features. The Agency does not have application developers on staff. All Oracle application development and maintenance work is currently outsourced at extremely high rates ($100+/hour). The quality of products delivered by contractors has been mixed. A recent assessment of Agency business applications was conducted as part of the strategic IT planning process. Application health profiles were submitted from the Surface Water Quality, Ground Water Quality, Hazardous Materials, Air Quality, DOE Oversight and Underground Storage Tank Bureaus. Across the Agency there are 30+ business applications used by individual bureaus and programs. Approximately 10 of these applications have been developed using Oracle application and database technologies and run on Unix servers. The other 15+ applications have been developed using Microsoft Access and the remaining 5+ applications were developing using other PC database tools (e.g. Microsoft Fox Pro). These applications are accessed from either personal computers or X-terminals. The common issues that surfaced from the application health profiles and related assessment are:

- Dissatisfaction with ad-hoc reporting and data analysis capabilities (Oracle Discoverer licenses are costly and many bureaus have not received adequate training on this tool)

- Dependence on contractors to develop/support Oracle business applications is costly due to high contractor fees and frequent turnover of contractors
- Program staff responsible for application support have left the Agency without adequate knowledge transfer to other staff
- Some bureaus have IT staff to support business applications, others do not and the ITS bureau is not staffed to provide application support for bureau/program specific applications
- The standards for application development, support documentation are not adequate

6. *System Reliability and Performance* – A few critical systems are not performing well; including the Agency e-mail system and a shared NT application server. The Agency e-mail system has experienced monthly outages and frequent problems that have eroded user confidence on its reliability. The Agency depends on the e-mail system for internal communications and to communicate with the regulated community and other state agencies. The NT application server provides access to office productivity software (e.g. MS Office, FTP, Adobe Acrobat, Netscape Communicator, Netscape E-Mail) , Oracle application development tools and environmental program database applications using a thin-client architecture. Users without traditional IBM PCs can use less expensive X-terminal devices (thin clients) without hard drives to access and use these applications. Application software resides and runs on the NT application server. The thin-client architecture has allowed bureaus with limited funds to use these applications without investing in PCs. Unfortunately, many programs have acquired IBM desktop computers instead of using X-terminals due to the current performance issues. In the next year, improved server performance in terms of reliability, availability, scalability and performance must be accomplished to justify future investment and support for this architecture.

7. *IT Processes* – The ITS Bureau has not documented or evaluated its core processes (e.g. problem management, change management, project planning and management, service request management) over the past several years. As a consequence, the process and related accountabilities are unclear to IT staff and to customers who use the process to receive services.

C. FY02 IT Goals & Strategies

The New Mexico Environment Department has established a set of FY02 IT goals, strategies and objectives for the Agency that respond to current IT issues, new customer requirements, external influences and internal improvement opportunities. The strategic goals are broad statements of what the ITS Bureau needs to accomplish. One or more strategies have been defined to achieve each goal.

Strategic Goal #1 - Acquire and Maintain an Adequate Level of IT Funding to Meet the Operational and Strategic IT Requirements of the Agency

Strategies to Achieve Goal:

1. Participate in Appropriate State and EPA IT Committees to Influence Decisions in Support of Agency IT Requirements
2. Adopt New IT Funding Methods to Enhance the Agency's Ability to Improve Service Levels and Implement IT Strategies

Strategic Goal #2 - Involve Customers/Users in Appropriate IT Processes to Ensure that Decisions are Well Understood and Supported

Strategies to Achieve Goal:

1. Implement Service Level Agreements (SLA) that Clearly Specify the Service & Support Expectations between the ITS Bureau and System Users
2. Implement a Standard IT Project Methodology to Improve Project Results
3. Establish and Support a Customer/User Steering Committee Structure to Guide IT Resource Allocation Decisions

Strategic Goal #3 - Improve System Performance and Reliability so as to Optimize Employee Work Productivity

Strategies to Achieve Goal:

1. Conduct a Comprehensive Systems Performance Review and Address All Significant Performance Issues
2. Develop a Agency Desktop Computing Strategy
3. Improve the Current PC Computing Environment

Strategic Goal #4 - Assist the Agency Implement Applications that Enhance Services and Information Sharing with the Regulated Community and Public

Strategies to Achieve Goal:

1. Implement the Integrated Database for Environmental Assurance (IDEA)
2. Deliver Services and Provide Access to Information via the Internet
3. Improve Agency GIS Capabilities
4. Improve and Standardize the Application Development (AD) & Support Environment
5. Upgrade and Enhance Agency Financial System to Satisfy Program Requirements

Strategic Goal #5 - Reduce Problem Response and Resolution Time and Costs

Strategies to Achieve Goal:

1. Implement Recommendations from CIO Staffing Assessment
2. Improve Help Desk Services by Investing in Tools, Training and Process Improvement
3. Develop Computer Literacy Program to Improve User IT Competencies

4. Implement Systems Management Tools to Improve the Prevention, Diagnosis and Resolution of Problems
5. Implement a Targeted Training Program to Address Gaps in IT Skills
6. Develop a Disaster Recovery Capability

Each strategic goal and related set of strategies addresses one or more of the current IT issues as illustrated in the following diagram.

IT Issue □ IT Strategic Goal □	Funding	Staffing	PC Support	Collaboration	Application Development	System Performance	Processes
Acquire and Maintain an Adequate Level of IT Funding	X	X	X		X	X	
Involve Customers/Users in IT Processes	X	X		X	X	X	X
Improve System Performance and Reliability			X	X	X	X	
Implement Applications that Enhance Services and Information Sharing with the Regulated Community and Public					X		
Reduce Problem Response and Resolution Time and Costs	X	X	X			X	X

D. FY02 IT Implementation Goals

A. FY02 IT implementation objectives have been identified to implement each IT strategy discussed in the previous section. These objectives are described and categorized by the Agency and IT strategic goals each supports in the following table.

Agency Goal	IT Goal	FY02 IT OBJECTIVES
All	1	S1, O1: Continue Membership on the State of NM Broadband Management Advisory Committee (BMAC)
3,4	1	S1, O1: Continue Membership on the State of NM GIS Advisory Committee (GISAC)
3,4	1	S1, O1: Continue Membership on the State of NM Web Management Committee
All	1	S1, O2: Continue Membership on the State-EPA Data Management Work Group
All	1	S2, O1: Continue to Research Alternate Funding Methods including Federal Grants
2,3,4	2	S1, O4: Continue to Create & Approve Service Level Agreements for Systems
2,3,4	2	S2, O4: Communicate Costs/Benefits of New IT Project Management Methodology
2,3,4	3	S2, O2: Implement Recommended Desktop Computing Strategies

Agency Goal	IT Goal	FY02 IT OBJECTIVES
2,3,4	4	S1, O3: Complete IDEA System Release 2
2,3,4	4	S2, O2: Conduct an E-Environmental Reporting Pilot Project
2,3,4	4	G4, S2, O3: Complete an E-Service Pilot Project
2,3,4	4	S3, O2: Complete Web-Based Agency GIS Design
2,3,4	4	S3, O3: Complete Web-based Agency GIS Implementation
2,3,4	4	S4, O1: Assess Opportunities for AD Resource Sharing and Make Recommendations
2,3,4	4	S4, O2: Develop and Implement AD Standards including Methodology, Tools and Documentation
2,3,4	4	S5, O1, Install Oracle Financial System Release 11i
2,3,4	5	S1, O2: Outsource Selected IT Services
2,4	5	S4, O2: Purchase and Install System Management Tools
2,4	5	S6, O3: Implement a Complete Disaster Recovery Plan

E. Infrastructure Status and Goals

Our IT infrastructure consists of communications hardware and software, in-house and purchased applications, database software and office automation software. The infrastructure is client-server based on UNIX and NT operating systems, TCP/IP communications protocol, and primarily frame relay service.

The following is a description and status of IT infrastructure and directions that we will continue to advance.

Network and Computing Architecture - NMED operates an extensive statewide computer network connecting local area networks in district and field offices to our central headquarters based in Santa Fe. Our communications protocol is TCP/IP with frame relay using T1 or 56 KB circuits linking most of our field offices. Database, Internet, and office automation services are provided through dedicated servers implemented in a client-server model. Thin-client technology has also been designed into our network architecture to provide users with a less expensive workstation option. Our standard server operating system platforms are UNIX and NT (with MetaFrame enhancement software). Our PC workstations run a mixture of Windows 3.1x, Windows95, Windows98, Windows 2000 and WindowsNT Workstation. Our client-server model consists of approximately 650 computer workstations and nineteen dedicated application and support servers.

In June 2000, NMED upgraded our Santa Fe LAN backbone to 100MB, upgraded the building wiring systems to provide 10/100MB to the desktop and replaced most of the routers and edge hubs to support the wiring systems. A new firewall was installed in December 1999 to support access to web-enabled Oracle applications from the outside as part of the One Stop Project. Additional work is needed to complete the web-enabled access to the Oracle applications.

Servers - The Agency is replacing current Data General UNIX servers with Sun Solaris servers. Third party vendors develop and port many more applications to Sun Solaris than to Data General UNIX. Two of the NT servers with WinFrame were upgraded with MS Terminal Server software, NT4.0 and MetaFrame.

Workstations - Many of our 600 plus PC workstations are Pentium-based systems; there are still a number of 486 models in use. A portion of our workstation portfolio is comprised of X-terminals using thin-client architecture. A number of character-based workstations were replaced with new PCs or X-terminals during FY00. NMED does not have a replacement schedule for outdated workstations. New workstations will meet or exceed the state configuration standards at the time of procurement.

E-Mail - NMED has been using a POP3 mail system for several years. The IMAP4 standards include a variety of options that benefits our diverse user base. An examination was made in FY00 to consider using an IMAP4 e-mail product on a Sun server. Current plans are to outsource E-mail services in FY02 if funding can be secured.

Applications - NMED's computing network provides shared, automated business applications including financial, environmental and scientific applications; word processing and spreadsheet applications; and Web/Internet and POP-3 e-mail services. These automated applications improve employee productivity. We are currently about 95% compliant with state standards in our use of office automation products. Modern office automation products are served via three NT-MetaFrame servers.

Database - The NMED centralized database is based on Oracle's relational database management system (RDBMS) and development tools. Computer Aided Systems Engineering (CASE) is widely used as our design and development methodology. Our central database resides on a single UNIX server. Another UNIX server provides the platform for the Oracle financial system. This permits each mission-critical application to be updated independently and simplifies disaster recovery processes.

Geographic Information Systems (GIS) - NMED manages a large number of GIS coverages on a dedicated server. The GIS server was replaced to support Y2K compliant products. Program databases are designed to link with the GIS software. Maps depicting critical locational data are commonly generated for reporting and decision-making purposes. Our current GIS is based on the industry- standard ESRI ArcInfo and ArcView software. The Agency has acquired the ArcIMS and ArcSDE products; product installation is planned for the fall of CY00.

Web - NMED maintains its own web site and home page. Publications include environmental regulations and public-interest projects and statistics. The Agency plans to further develop its intranet to improve internal communications and offer on-line applications such as personnel action form processing.

IDEA Project - In 1997, The Agency's Air Quality Bureau initiated a search for a software application to replace their primary information and reporting system. As program staff began to research the software market and other state environmental agency solutions, they became aware of "integrated" solutions that provide a common set of automated environmental management tools to serve multiple environmental programs. In 1998, the Agency established a team, the IDEA team, to issue a Request for Proposals (RFP) for an integrated environmental management information system. In June 2000, a contract was negotiated with American Management System (AMS) Inc. to purchase and install their TEMPO™ (Tools for Environmental Management and Protection Organizations) software solution for environmental management programs.

Other state agencies that are using the TEMPO™ product are New Jersey, Louisiana and Mississippi. The TEMPO™ product and approach has evolved over the past seven years; the current product is a result of substantial investment by other organizations and represents thousands of hours of intellectual capital invested by environmental regulatory specialists and information technology specialists. System implementation started in August 2000. There are three primary drivers for the Agency to invest in an integrated solution:

- Increased demand for and benefit from cross-media and integrated approaches to environmental management
- Pressures from the regulated community to standardize the environmental reporting process and to reduce the burden associated with reporting
- A legal and policy commitment to provide timely and reliable information to the public

In preparation for the system, the Agency has invested significant staff resources to map current processes (permitting, compliance and enforcement, environmental measurements, environmental corrective action, collections, disbursements, and environmental reporting) and identify process improvement opportunities.

Many of the process improvements will be implemented concurrent with the system implementation in order to realize the benefits of automating effective processes.

The purchased system includes a common relational database and a set of "core capabilities" that are shared across programs. These core capabilities include: an electronic file room, regulated entity identification, work activity tracking, permit/license/registration development, field inspections, enforcement actions, billing & receivables. Specialized "plug-in" applications will be used to meet unique requirements for individual environmental programs. The capabilities that respond to the needs of the regulated community include:

- Electronic submittal of compliance reports and permit documents
- Electronic storage, retrieval and version management for regulatory documents
- Work flow management of regulatory tasks, activities and associated deadlines
- Web access to permit and compliance status information

Inter-Agency Data Exchange - NMED is involved with data exchange practices with various state and non-state agencies. Examples include data warehouse transfers from the state's mainframe system (at GSD/ISD) to our database server. These data transfers include:

- Warrant transactions
- Payroll transactions
- Telecommunication billing transactions

In addition, we connect to the State Library, State Personnel Office, and use the Internet to access other web sites and exchange e-mail. Furthermore, our home page provides regulatory and other environmental information both inside and outside the Department.

We are also involved in a data exchange program with the Environmental Protection Agency (EPA) to pass financial and environmental data between NMED and EPA via electronic transfer or on-line entry. Data exchange programs include:

- Construction Programs Bureau - Construction Grants and State Revolving Fund Modules
- Drinking Water Bureau - Safe Drinking Water Information System (SDWIS)
- Surface Water Bureau – Water quality monitoring data (STORET) and Clean Water Act grant tracking and reporting (GRTS)
- Field Operations - Storm Water Notice of Intent Processing Center
- Air Quality Bureau - Air Emissions Data to the Aerometric Information Retrieval System (AIRS)
- Hazardous Waste Bureau – Hazardous waste facility and compliance data (RCRIS)
- Financial Service Bureau - Partnership 2000-Integrated Grants Management System

Disaster Recovery - NMED does not have a complete and tested disaster recovery plan. Some elements of such a plan are in place. For example, all user data and system data is backed up on to tape every 24 hours and removed to a remote site. Additionally, all critical systems are on vendor maintenance agreements affording a rapid response for any needed repairs. All major systems are continuously monitored with "ping scripts" which detect system hangs, crashes and other failures as they begin or the moment they occur. IT staff respond to a problems quickly and often prevent larger problems from occurring. During FY00, the ITS bureau successfully established a sophisticated firewall system (i.e. similar to those in use at the national labs) that gives users greater protection from intrusion, sabotage and viruses.

A study was completed to determine the feasibility of implementing a shared disaster recovery hot site with another state agency, Department of Public. Study results indicate benefits would not outweigh costs until both the Department of Environment and Public Safety replace more of their legacy hardware, Data General and DEC (Digital Equipment Corporation) respectively, with Sun Microsystem hardware. The Emergency Management Center is available as a facility to house the equipment. Recent statements by the ITMO indicate plans to establish a statewide approach to disaster recovery. NMED supports this effort and looks forward to participating in its implementation.

The Agency has established a FY01 IT objective to work with our department's business units to update a business continuity plan. This effort will refine a preliminary system recovery plan, with system sequencing and timelines, prepared as part of the shared hot site feasibility study. The completion of the business continuity plan will refine the information system disaster recovery plan. Also in FY01, all Oracle applications will be configured for automatic data recovery from back-up media; this will reduce our recovery cycle time is the event of a failure. FY02 funding for a computer room upgrade has been requested as part of the C-2 request for an Integrated Database for Environmental Assurance (IDEA). The upgrade will address our greatest vulnerability, an antiquated data center cooling system.

F. Network Description

The NMED computer network as of August 2000 is designed as a client-server computing environment; it connects approximately 650 computer workstations and nineteen dedicated servers. Our main network hub is located in the Harold Runnels Building in Santa Fe. Two other offices in Santa Fe are linked via LSS providing a fiber network bandwidth (100MB). Most NMED offices outside of Santa Fe use frame relay service with 56 KB or T1 circuits. Two remote offices (Carlsbad and Hobbs) are serviced via dial-up modems. Internet service is

provided through a 100MB connection between the Harold Runnels building and Information Systems Division (ISD) located in the Simms Building. Service to ISD's mainframe is handled through the Internet connection. Our modem dial-up service has been updated with a new RAS (Remote Access Service) unit that provides both analog and ISDN service with greater reliability and security. The RAS is currently in user-acceptance testing.

Circuit Number	Location: From/To	Type	Speed
59DHDJ501033	Galisteo Building, Santa Fe	Frame Relay	T1
59DHDA147318	Santa Fe to Las Cruces	Frame Relay	T1
59DHDA147319	Santa Fe to Clovis	Frame Relay	T1
59DHDA147316	Santa Fe to Albuquerque	Frame Relay	T1
59DHDA147317	Santa Fe to Farmington	Frame Relay	T1
59DHDA147321	Santa Fe to Roswell	Frame Relay	T1
59DWDA148826	Santa Fe to Las Vegas	Frame Relay	T1
59DHDJ501031	Harold Runnels Building	Frame Relay	T1
59DHDA147320	Harold Runnels Building	Frame Relay	T1
59QGDA500560	District 2 Office, Santa Fe	Frame Relay	T1
59DWSJ501044	Santa Fe to Espanola	Frame Relay	56KB
59DWDJ501048	Santa Fe to Ruidoso	Frame Relay	56KB
59DWDJ501034	Santa Fe to Albuquerque	Frame Relay	56KB
59DWDJ501046	Santa Fe to Raton	Frame Relay	56KB
59DWDJ5021047	Santa Fe to Taos	Frame Relay	56KB
59DWDA501086	Santa Fe to Silver City	Frame Relay	56KB
59DWDA501088	Santa Fe to Grants	Frame Relay	56KB
59DWDJ501035	Santa Fe to Los Lunas	Frame Relay	56KB
59DHDA148809	Santa Fe to Rio Rancho	Frame Relay	56KB
59EDA504347	Santa Fe to Tucumcari	Frame Relay	56KB
50QEDA504348	Santa Fe to Gallup	Frame Relay	56KB
50QEDA504349	Santa Fe to Alamogordo	Frame Relay	56KB
50QEDA504350	Santa Fe to Socorro	Frame Relay	56KB

Also, see Appendix A for a current network diagram.

Frame Relay Service - Circuit Costs

Frame relay service costs for the Agency's 56 KB circuits averages $337 per month and totals $93,240 per year for 23 circuits. T1 circuits run approximately $428 per month and totals to $51,324 per year for 10 circuits. In addition to frame relay service, we maintain 3 nodes of LAN Switched Service (LSS) between our 3 Santa Fe offices. LSS circuit costs run approximately $7,400 per month which totals to $88,000 per year for 3 nodes. Our annual circuit costs including 3 tail circuits totals to about $233,364. The Agency plans on adding a fourth LSS node in FY00 when two NMED bureaus move to a new office site. This change will add approximately $2,500 per month or $30,000 per year to our network totals.

G. IT Hardware, Desktop Software and Infrastructure Inventories

See Appendices B, C and D.

H. Applications Inventory

See Appendix E.

Part 5: Discussion of Agency Relationship with State IT Strategic Plan

All C-2 projects submitted with the FY02 Agency Budget and IT Plan support and advance the strategies outlined in the State IT Strategic Plan.

Integrated Database for Environmental Assurance (IDEA) – This project directly supports the *Service Delivery* strategy defined in the State IT Strategic Plan. By implementing an integrated environmental management system, the Agency standardizes how services and information are delivered to all customers. From the perspective of a single business operator who is required to obtain and comply with multiple environmental (air, water, hazardous waste) permits, having a standard and consistent way to submit permits, fees and reports makes it easier to do business in the State of New Mexico. The Service Delivery strategy includes a specific action (#3) under objective 2 to "implement technology that supports data sharing and elimination of redundancy." The integrated database for environmental assurance accomplishes this throughout the entire Agency.

Agency Web Service Portal – This project supports the *Service Delivery* strategy defined in the State IT Strategic Plan. By implementing a web service portal, the Agency is well positioned for integration into a future state web portal and sub-portals that cluster like services (e.g. all business permits, registrations and certifications) across state agencies. The project also supports the *Public Access and Participation of Citizens* strategy and its objectives. The goal of this strategy is to "Use IT to enable the participation of citizens in state government by making the access processes simple, easy to use, affordable, and widely available." The agency web service portal will provide the public with access to cross-media environmental information and analysis so that they can inform themselves about environmental issues and outcomes. Access to the portal on the Internet will be simple, easy to use, affordable and widely available.

Web-Based Agency Geographical Information System (GIS) – This project directly supports the *Public Access and Participation of Citizens* strategy and its objectives. Members of the regulated community and the public will be able to access the new Agency GIS from the agency's web site. They will have access to timely environmental information using a simple and easy to use geographical user interface. For example, GIS maps will be accessible that relate environmental data and statistics to geology, demographics and cadastre.

With regard to intra-agency and inter-agency IT resource sharing, a goal that is strongly stated within the State IT Strategic Plan, all three C-2 projects serve to implement agency-wide business applications that effectively

streamline and automate common processes (e.g. permit development and maintenance) needed by multiple programs (e.g. air quality, ground water quality). There is a high degree of commonality of process and function across bureaus and programs; most all have permitting, enforcement and compliance processes. The new systems will provide common and shared applications that will replace multiple program-specific applications.

By investing in agency-wide systems, NMED is maximizing the benefits of shared data, hardware and software within the Agency. The costs of maintaining many different hardware, software and database technologies that are typical when an organization adopts a "best of breed" application approach are avoided by investing in integrated solutions.

Part 6: Base Budget and Program Change Cost Information

FORM C-1
INFORMATION TECHNOLOGY OPERATING BUDGET
REQUEST SUMMARY AND DETAIL

Revenue Type (dollars in thousands)

Agency Total	FY00 Actual	FY01 OpBud	FY02 Base Rqst	FY02 Pg Ch Rqst	FY03 Estimate	FY04 Estimate
General Fund	$292.6	$502.2	$369.7	$631.8 (N) $78.8	$1,001.5	$1,001.5
Oth. St. Funds	$0.0	$418.9	$577.6	$0.0	$577.6	$577.6
I.S./I.A. Trans.	$457.0	$0.0	$0.0	$0.0	$0.0	$0.0
Federal Funds	$339.6	$246.5	$429.2	$142.0	$571.2	$571.2
TOTAL	1,089.2	$1167.6	$1,376.5	$773.8 (N) $78.8	$2,150.3	$2,150.3

Expenditure Categories (dollars in thousands)
Notes: (1) estimates will be developed through agency IT strategic planning process, to start 9/99

Agency Total	FY00 Actual	FY01 OpBud	FY02 Base Rqst	FY02 Pg Ch Rqst	FY03 Estimate	FY04 Estimate
000 Per. Svs.	$403.7	$441.2	$441.2	$170.0	$611.2	$611.2
010 Emp. Ben.	$116.3	$136.5	$136.5	$47.6	$184.1	$184.1
020 I/S Travel	$1.9	$6.2	$6.1	$3.2	$9.3	$9.3
030 Main./Rep.	$435.2	$240.5	$524.8	$9.1	$533.9	$533.9
040 Sup./Mat.	$7.0	$7.3	$9.7	$2.4 (N) $5.6	$12.1	$12.1
050 Cont. Svs.	$43.0	$41.0	$45.0	$520.0 (N) $5.0	$565.0	$565.0
060 Op. Costs	$48.8	$58.7	$135.7	$11.7 (N) $1.0	$147.4	$147.4
070 Oth. Costs	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
080 Cap. Out.	$32.5	$235.0	$71.0	$2.4 (N) $67.2	$73.4	$73.4
095 O/S Travel	$0.8	$1.0	$6.3	$7.3	$13.6	$13.6
150 Oth. Fin.	$0.0	$0.2	$0.2	$0.1	$0.3	$0.3
TOTAL	$1,089.2	$1,167.6	$1,376.5	$773.8 (N) $78.8	(1) $2,150.3	(1) $2,150.3

(N) Non-recurring costs, (1) This figure reflects the FY02 Base Request plus the FY02 Expansion of Base Budget

Part 6: Base or Program Change Project Detail Table

There are no infrastructure (base) projects with resource costs estimated to exceed $100,000. Please refer to Appendix F and Appendix G for documentation related to Department's FY02 Expansion of Base Budget Request for IT.

Part 7: Special Appropriation Project Documentation

The FY02 IT Plan includes three requests for information technology special appropriations that will enable NMED to implement its IT strategies and achieve its IT goals. The C-1 and C-2 documents for these projects are contained in this section.

Agency Name: New Mexico Environment Department Agency Code: 667

FORM C-2
INFORMATION TECHNOLOGY
SPECIAL APPROPRIATION REQUEST

Information System Name & Acronym: Integrated Database for Environmental Assurance (IDEA)

Project Type: ___ Infrastructure Expansion/Upgrade ___Software Development
_ X _Software Purchase ___Software Upgrade

System or Project Cost (dollars in thousands)

	FY99 & Prior	FY00 Actual	FY01 OpBud	FY01 Request	FY02 Request	FY03 Estimate	FY04 & Subseq.
General Fund			$150.0	$1,193.0	$895.9	$575.0	$0.0
Oth. State Funds			$390.0		$0.0		
I.S./I.A. Trans.							
Federal Funds					$725.0		
TOTAL			$540.0	$1,193.0	$1,620.9	$575.0	$0.0

Expenditure Categories (dollars in thousands)

	FY99 & Prior	FY00 Actual	FY01 OpBud	FY01 Request	FY02 Request	FY03 Estimate	FY04 & Subseq.
000 Per. Svs.		$140.0	$75.0	$140.0	$135.0	$0.0	$0.0
010 Emp. Ben.		$28.0	$15.0	$28.0	$27.0	$0.0	$41.2
020 I/S Travel			$0.0	$0.0	$0.0	$5.0	$5.0
030 Maint./Rep.		$0.0	$0.0	$0.0	$50.0	$100.0	$0.0
040 Sup./Mat.			$0.0	$0.0	$0.0	$0.0	$0.0
050 Cont. Svs.		$270.0	$195.0	$270.0	$803.9	$60.0	$0.0
060 Op. Costs			$0.0	$0.0	$0.0	$0.0	$0.0
070 Oth. Costs			$0.0	$0.0	$0.0	$0.0	$0.0
080 Cap. Out.		$750.0	$245.0	$750.0	$590.0	$410.0	$0.0
095 O/S Travel		$5.0	$10.0	$5.0	$15.0	$0.0	$0.0
150 Oth. Fin.			$0.0	$0.0	$0.0	$0.0	$0.0
TOTAL		$1,193.0	$540.0	$1,193.0	$1,620.9	$575.0	$0.0

System Development (check when actually or expected to be completed):

	FY98 & Prior	FY00	FY01	FY02	FY03	FY04 & Subseq.
Needs Assess.		X				
Formal Design		X	X			
Software Develop't.			X	X	X	
Hardware Acquisition			X	X	X	
FTE Hired, Trained			X	X	X	
Fully Oper-ational				X	X	
Mainte-nance				X	X	

System Life Expectancy (Dates in Fiscal Years): 7-10

Project Summary (attach Detailed Project Description as outlined in IT Plan Guide): The purpose of the project is to customize and implement a purchased integrated environmental management information system to serve as an Agency wide software application for regulatory data management. The system will be installed in phases, with one to three bureaus converting at a time, and will eventually accommodate all core processes (permitting, compliance, enforcement, measurements, collections, disbursements, and environmental reporting) for all environmental programs (e.g., air, water, waste, field operations).

Certification: I hereby certify that the amounts and information provided are the best estimates and that no willful misrepresentation is hereby made.

Chief Information Officer (please print)	Chief Information Officer (signature)	Date

827-0319	renee_martinez.its@nmenv.state.nm.us	827-2836
Phone No.	E-Mail Address:	Fax N

A. Project Description:

The purpose of the project is to customize and implement a purchased integrated environmental management information system to serve as an Agency wide software application for regulatory data management. The system will be installed in phases, with one to three bureaus converting at a time, and will eventually accommodate all core processes (permitting, compliance, enforcement, measurements, collections, disbursements, and environmental reporting) for all environmental programs (e.g., air, water, waste, field operations).

There are three primary drivers for the Agency to invest in an integrated solution:

- Increased demand for and benefit from cross-media (e.g. air, water, waste) and integrated approaches to environmental management
- Pressures from the regulated community to standardize and automate the environmental reporting process and to reduce the burden associated with reporting
- A legal and policy commitment to provide timely and reliable information to the public

By implementing an integrated environmental management system, the Agency standardizes how services and information are delivered to internal and external customers. From the perspective of a single business operator who is required to obtain and comply with multiple environmental (air, water, hazardous waste) permits, having a standard and consistent way to submit permits, fees and information makes it easier to do business in the state of New Mexico. Today, each media (air, water, hazardous waste, etc.) program within the Agency has a different approach to issuing and monitoring permits.

The major benefits the Agency anticipates from the system and project include:

- Agency reduces permit decision cycle times
- Agency core processes are streamlined and services are improved
- Agency has a holistic view of all regulated entities
- Agency can more effectively coordinate activities and share equipment across programs
- Regulated community and public will have easy access to timely, accurate and easy-to-understand environmental information
- Duplicate entry of redundant regulated facility information across programs is eliminated
- Agency has easy access to current data for analysis and decision making and makes better decisions
- Agency has the ability to track activity-based and environmental outcome-based performance measures
- Agency standardizes workflow, data, and reporting

In preparation for the system, the Agency has invested significant staff resources to map current processes (permitting, compliance, enforcement, measurements, collections, disbursements, and environmental reporting) and identify process improvement opportunities. Many of the process improvements will be implemented concurrent with the system implementation in order to realize the benefits of automating effective processes. The process maps developed from this effort were shared with Ross & Associates, who are actively involved with the US EPA and several state environmental protection agencies to assist with the implementation of integrated environmental systems. Ross & Associates stated that New Mexico had accomplished an activity that is critical to the success of an environmental agency integration project and that many states were struggling with these process integration activities in the middle of their systems implementation projects.

The major requirements for the integrated system are 1) a centralized database, 2) a standard web interface to Agency information and services for suppliers, customers and stakeholders, 3) functionality available to improve Agency/bureau/program operations, 4) functionality available to allow regulated customers to electronically

submit compliance information to the Agency and to allow the Agency to electronically submit information to the US EPA.

In 1998, the Agency established a team, the IDEA team, to issue a Request for Proposals (RFP) for an integrated environmental management information system. In June 2000, the RFP process was successfully completed and a contract was executed with American Management System (AMS) Inc. to purchase and install their TEMPO™ (Tools for Environmental Management and Protection Organizations) software solution for environmental management programs. This packaged system satisfies all mandatory and approximately eighty percent (80%) of Agency desirable functional requirements. AMS is a financially stable information technology company with 30 years of experience implementing large and complex systems in the public sector.

Other state agencies that are using the TEMPO™ product are New Jersey, Louisiana and Mississippi. The TEMPO™ product and approach has evolved over the past seven years; the current product is a result of substantial investment by other organizations and represents thousands of hours of intellectual capital invested by environmental regulatory specialists and information technology specialists. System implementation started in August 2000.

The project implementation costs are estimated at $2,576,000. The recurring annual costs to maintain the system are estimated at $384,000. Costs of $511,000 have been added to the request to cover the infrastructure improvements that are necessary to ensure that this Agency-wide system is highly reliable and responsive. These infrastructure improvements were submitted as separate C-2 requests in FY01 and were not approved. Given the scope of this system, the impact of a system outage will be substantial to the Agency services and therefore it is absolutely critical to improve the agencies computing infrastructure to support this new system. The specific infrastructure improvements are: modernizing computer room equipment, improving wide area network performance to field offices and implementing PC and server management tools to prevent system outages.

The Agency received $540,000 in FY01 C-2 special appropriations for this project. This amount is $653,000 short of the Agency's request for FY01 funding. In order to start implementation of the system in FY01, the Agency negotiated the contract with AMS such that the $500,000 software license fee is not due for payment until July 2001. Should the Agency not receive additional project funding in FY02, the project will terminate and investments made to date will be effectively stranded.

B. **Business Justification:**

1. *Project Relationship to Agency Goals*

Goal #1: Improve the quality of service to the public through education and participation by governing entities, tribes, businesses, organizations, and citizens in our decision making process

A significant benefit of automating the Agency's core processes will be the storage of important environmental data in a central database and providing access to Agency information via an Agency web portal. In this manner, more information will be made available to the citizens of the state. This will result in improved environmental awareness throughout the state.

Goal #2: Enhance the way we collect, use, share, and distribute information by shifting measurements of effectiveness from actions to results whenever possible, implementing data and report standards, automating workflows, implementing internet and electronic commerce applications, and giving decision makers easy access to timely and accurate environmental performance information

The implementation of an integrated environmental management system will lead the Agency to improve response time, standardize outputs and manage activities and projects more efficiently within each of the affected programs. Workflow management is an important feature of the desired application and its use will allow us to improve our efficiencies and our service to stakeholders. As an example, the business of permitting will be automated significantly using this integrated system. As a result, permits will be more standardized and consistent, and staff will be relieved of many routine operations. Staff can focus energy and expertise on higher-level work and analyses. The integrated application will automate normal processes and flag exceptions. With the staff productivity increase anticipated through the use of the integrated application, the Agency can focus on the exceptions, or highest risk environmental problems. The use of this integrated system will also allow for more timely and consistent reporting to state and federal agencies as required by statutory mandates.

Goal #3: Develop the statutory and regulatory framework by adopting proactive, preventive approaches that improve environmental management and protect public health and economic well-being

The process improvement activities already completed as part of this project have identified opportunities to change regulatory and statutory requirements to the benefit of the Agency, the regulated community and stakeholders.

Goal #4: Improve organizational performance by providing an atmosphere that promotes employee enthusiasm and motivation

The integrated system with provide program staff with an effective automated tool for managing daily work activities, documents, and projects both within a specific program and across programs to realize significant work and cost efficiencies. On a recent employee satisfaction survey, the lack of automated tools to perform job duties surfaced as a major cause of employee dissatisfaction.

2. *Project Relationship to State IT Strategic Plan*

The project is directly aligned with the *Service Delivery* strategy defined in the State IT Strategic Plan. By implementing an integrated environmental management system, the Agency standardizes how services and

information are delivered to internal and external customers. From the perspective of a single business operator who is required to obtain and comply with multiple environmental (air, water, hazardous waste) permits, having a standard and consistent way to submit permits, fees and reports makes it easier to do business in the State of New Mexico. The *Service Delivery* strategy includes a specific action (#3) under objective 2 to "implement technology that supports data sharing and elimination of redundancy." The integrated database for environmental assurance accomplishes this throughout the entire Agency.

Project Relationship to Agency IT Goals

The project has been identified as a major objective within the Agency's Strategic IT Plan. The following is an excerpt from this plan:

IT Strategic Goal 4 - Assist the Department Implement Applications that Enhance Services and Information Sharing with the Regulated Community and Public

Strategies to Achieve Goal 4:
Strategy 1: Implement the Integrated Database for Environmental Assurance (IDEA)
Strategy 2: Deliver Services and Provide Access to Information via the Internet
Strategy 3: Improve Department GIS Capabilities

Rational for Project Approach

There are some aspects of the agency's approach to this project and system that are important to clearly state and understand.

- Integrated environmental management system vs. multiple independent media-specific applications

The rationale for this approach is that the agency strongly believes that sharing of data, business functionality and technology infrastructure will lead to improved efficiencies and information to guide decisions. This project has identified a centralized database as a key requirement due to the need and value of sharing data across bureaus and programs. There is also a high degree of commonality of process and function across bureaus and programs; most all have permitting, enforcement and compliance processes. Due to these requirements, an enterprise information system approach is best suited to the Agency.

- Purchase and customize a commercial product vs. in-house development

The systems implementation approach chosen for this project is to select and implement a commercial product versus design and build a system in-house. This approach will allow NMED and the project to save significant time and money in realizing the benefits of such a system. The RFP process identified six viable commercial products. The product selected has been successfully implemented in three states.

- Implement system functionality in phases vs. big bang

The agency will implement system functionality in phases with one to three bureaus converting at a time. The agency has chosen an incremental approach to system implementation in order to realize benefits in a shorter time frame, to reduce the resource impact on the agency and to sustain momentum over the entire course of the project. The functionality that is common to all programs will be implemented in phase 1. Functionality that is unique to a bureau or program will be implemented as program specific applications which "plug-in" to the shared database and common core functions where appropriate. The approach to implement common functions in phase 1 gives the agency the opportunity to include programs that do not require any customizations to the product in phase 1. For example, the Solid Waste Bureau may elect to be included in phase 1 as the common functionality satisfies 100% or more of their needs.

The project team estimates that it will take 9-12 months to deploy the first version of the system into production. The project team hopes to deploy subsequent versions of the system with additional functionality in three-six month increments.

3. *Summary Cost-Benefit Analysis*

Cost Item	Cost Estimate		Benefit Item	Benefit Value
Software Licenses	$825,000		Reduce permit development time between 25% to 100% depending on the permit (1)	$1,000,000
Software Maintenance	$48,750		Improve agency performance in meeting regulatory mandates by 15-30%	
Hardware Purchases	$420,000		Improve agency staff productivity by 10%	$1,154,400
Hardware Maintenance	$58,250		Provide timely and accurate agency information to legislators	
Vendor Implementation Services	$873,000		Make the permit and compliance process understandable, consistent and standardized	
I.T. Staff (3 FTEs)	$273,000		Improve agency decisions by providing easy access to current data for analysis	
Professional Service Contracts	$185,900		Easy and accurate tracking of permit, compliance and enforcement activities	
Total One-Time Costs	$2,576,000		**Total One-Time Benefits**	
Total Annual Costs	$384,000		**Total Annual Benefits**	$2,154,400

(1) The New Jersey Department of Environmental Protection states that with the use of the same product, they have reduced permit development time for Air Quality General permits from weeks to hours.

The Agency received $540,000 in FY01 C-2 special appropriations for this project. This amount is $653,000 short of the Agency's request for FY01 funding. In order to start implementation of the system in FY01, the Agency negotiated the contract with AMS such that the $500,000 software license fee is not due for payment until July 2001. Should the Agency not receive additional project funding in FY02, the project will terminate and investments made to date will be effectively stranded. The US EPA will be asked to contribute to the funding for the project through federal grants.

Assumptions and Constraints

Costs are based on the RFP cost proposal submitted by the selected vendor as a best and final offer.
The benefit from increased staff productivity is based on salary and benefits ($18.50) savings related to an estimated 62,400 work hours saved a year. The benefit from reduced permit development time is the economic benefit related to attracting new and retaining existing clean business investments in the state.

Benefit Measurement Approach

Once the system is in production for a reasonable amount of time, a before-and-after comparison of specific program performance measures will be made.

Alternatives Considered

A. Custom Development

This alternative was not selected because the estimated costs estimated were too high ($5,000,000 one-time costs and $200,000 recurring) and timeframe to implement (3-5 years) too long.

B. Integrate Data by Extracting Data from Existing Databases into a Data Warehouse
This alternative was not selected because it did not adequately address the following desired benefits:

- Reduce permit decision cycle times
- Streamline core processes are improve services
- Coordinate activities and share equipment across programs
- Eliminates duplicate entry of redundant regulated facility information across programs
- Standardize workflow, data, and reporting

C. Do Nothing
This alternative was not selected because it failed to address the significant efficiency and service delivery challenges facing the Agency.

Methodology Used to Evaluate Alternatives to Project
Agency benefits, implementation timeframe and on-going support cost were the critical measurements used to compare project alternatives. The Agency anticipates that implementing a commercial product will take less time and be less costly to support. The AMS TEMPO™ system purchased represents a tremendous leap in functionality compared with existing program applications.

4. Customer Benefits

Customer / Stakeholder	*Customer Benefits*
Business Operators	• Permit Decision Cycle Time is Reduced • Permit Process is Understandable, Consistent and Standardized
Executive & Legislative Leaders	• Access to Timely and Accurate Agency Performance Metrics
Citizens	• Timely and Consistent Tracking of Permit Compliance & Conditions • Consistent Enforcement of Environmental Requirements

The NMED environmental programs have three broad categories of customers; the regulated community, citizens and other interested parties and executive and legislative leaders. The use of this integrated application will yield benefits to all three classes of customers. The regulated community will benefit from faster permit application turnaround and a more consistent and standardized product. Citizens at large would gain because the Agency will be able to track permit compliance and conditions more consistently. This will result in improved compliance and enforcement of environmental requirements. The third class of customer will benefit from improved Agency management capabilities. Performance metrics will be significantly easier to track via the automated application. As a result, the state's leaders will have better information on which to base decisions.

5. Inter-Agency Benefits and Infrastructure Sharing
The project will identify any and all opportunities to use and share existing infrastructure components available within state government and will evaluate the components against project requirements. Exceptions to using existing infrastructure will only be made when significant project requirements cannot be satisfied.

The integrated Agency application will automate the exchange of information between the Agency and other state and federal agencies including but not limited to the following:

- US Environmental Protection Agency (US EPA)
- Department of Energy (DOE)
- Bureau of Land Management (BLM)
- Department of the Interior (DOI)
- Department of Health (DOH)
- Economic Development Agency

- Department of Finance & Administration (DFA)
- Legislative Finance Committee (LFC)

By investing in an integrated environmental management system, NMED is maximizing the benefits of shared data, hardware and software within the Agency. The Agency will be able to respond quickly and accurately to requests from senior management and external parties for combined or comparative information across programs because data definitions will be standard. The costs of maintaining many different hardware, software and database technologies that are typical when an organization adopts a "best of breed" application approach are avoided by investing in an integrated solution.

C. Schedule

Major Project Milestone	Planned Start Date	Planned Complete Date	Major Deliverable	Status
Plan Project • Define Project • Make Project Plan • Obtain Project Approval	7/1999	10/1999	Project Plan & Project Work Plan	Complete
Activate Project • Publicize Project • Equip Project • Train Project Team	7/1999	9/1999	Project Communication Plan	Complete
Package Strategy • Determine Direction • Assess Business and Technical Risk • Identify Qualified Vendors • Determine Evaluation Approach	8/1999	10/1999	Request for Proposal	Complete
Package Evaluation • Define Detailed Requirements • Determine Finalists • Analyze Package Fit • Assess Package Performance • Assess Vendor Performance • Determine Total Life Cycle Costs • Acquire Package	10/1999	6/2000	Contracts for Products and Services	Complete
Package Implementation	Please refer to Appendix I	Please refer to Appendix I	Please refer to Section L	In Process

D. Technical Overview

1. Project Requirements & Complexity

Project Scope & Size -

The scope of the project is broad as it serves all Agency programs. Common functionality (e.g. work activity tracking and scheduling) that is needed by more than one program (e.g. air quality, ground water quality) will be programmed as common and shared applications. The use of a phased implementation approach reduces the scope and complexity of the project.

Project Requirements –
Please refer to Section M for a detailed description of project and system requirements.

User Requirements -

A collaborative process was followed on this project to identify and verify system requirements. Representatives from each Agency division and bureau participated in two system requirements definition sessions to provide input. The first session provided a high-level description of the new system and a model for defining system requirements. The second session gave the participants an opportunity to define more detailed system requirements. The requirements gathered through these sessions were then converted into the RFP. User participation throughout this project will be critical. Senior management will set expectations for user participation and support of project decisions.

2. *Functional Description of Major Deliverables*
Please refer to Appendix I for a detailed description of major project deliverables.

3. *HW/SW/Network Resources*
Please refer to Section M, Systems Architecture and Performance Metrics sections, for a detailed description of technical requirements. The AMS TEMPO™ software package met all mandatory and 90% of the desired technical specifications in the Request for Proposal.

4. *Data & Data Relationships*
The Agency has many data sharing relationships and requirements with other state and federal agencies. These include EPA, EMNRD/MMD, NMDOH/SLD, DOE, BLM, DOI, and DOD. NMED will own the data maintained in the integrated application, however, the system will allow for external access to a selected subset of pertinent data.

5. *Project Development Approach & Methodology*
A project of this importance, size, complexity and cost requires a proven and structured methodology to guide it. To serve this purpose, the James Martin Package Selection and Implementation methodology has been selected for this project. This methodology has been used across industries and technologies to successfully deliver many large package application projects. The work breakdown structure that guides this methodology is provided in Section N.

At this time, project leadership does not see a need to customize this methodology in any significant way. The methodology is very comprehensive, is tailor-made for this type of systems project and has a good track record on large projects.

6. Risk Assessment & Management
A structured risk management methodology will be followed during the course of this project. Project risks will be identified up front and mitigation strategies and actions will be identified, implemented and evaluated for each major risk. The major project risks that have been identified thus far are:

Managing Vendor Performance to Meet NMED Expectations
Mitigation Strategies: The contract has been written with the following conditions:
- Detailed workplans will be constructed for each phase of the project
- Work on each phase shall begin only after written approval by NMED of a work plan
- All required changes to NMED computing infrastructure shall be identified prior to approval of a workplan for Phase III-Implementation

- All vendor deliverables will be approved by NMED prior to payment for such deliverables

Controlling Project Scope, Cost and Timeframe
Mitigation Strategies: The project will document system requirements in detail and use the document to guide the implementation of the system. The project steering committee will approve the system requirements and support a change management process to evaluate and justify any system scope changes prior to approval.

Obtaining Buy-In from all Agency Bureaus and Programs to Use the System
Mitigation Strategies: The project steering committee will include all division managers. The division managers will provide oversight to the project and be responsible for staff involvement on the project.

E. Project Management

Two full-time project managers will be assigned day-to-day project responsibilities. One will be responsible for the functional definition, design and implementation of the system and the other for the technical definition, design and implementation of the system. At least one of the project managers will have experience managing large M.I.S. projects. Formal project management techniques will be used on the project including:

Activity & Task Planning & Tracking
A detailed project workplan will be developed to include all the technical and functional tasks necessary to accomplish project objectives. The workplan will be updated at least bi-weekly to reflect progress against tasks and milestones.

Project Methodology
A formal methodology will be used on the project to specify roles and responsibilities, activities and tasks, deliverables, techniques, and quality assurance checkpoints.

Project Status Reporting
A project status report will be produced monthly for the project team, steering committee and other audiences to report project performance against milestones, budget and objectives.

Project Sponsorship
A project steering committee has been established and in place since December. The cabinet secretary and all agency division directors are on the committee. The agency's ITMO liaison is a member of the steering committee and the vendor's project director and manager will become members starting in July 2000. The committee will be responsible:

- To ensure that the project approach and schedule is appropriate to meet business objectives
- To ensure that the project has the appropriate visibility within the organization
- To own the leadership accountability for the project
- To ensure that the necessary resources are made available to the project
- To ensure that appropriate progress is being made on the project to meet goals and objectives
- To make decisions that can not be made at the project team level, such as allocating resources and prioritizing project activities against other NMED projects & activities
- To represent a part of the organization that has a stake in the success of the project
- To communicate project status and decisions to appropriate NMED audiences
- To address issues and problems that are escalated from the project team
- To escalate project issues to senior NMED management when necessary

F. Project Staffing

Project Team Role	Staffing Assignment	Experience / Knowledge Qualifications
Functional Project Champion	Anna Richards	Ten years experience with project management and eight years experience with environmental program management
Technical Project Champion	Renee Martinez	Ten years experience with IT project management and fifteen years experience with IT systems development
Functional Project Manager	TBD after functional assessment	Five years experience with environmental program management
Technical Project Manager	Laura Orchard	Five years experience with IT project management
Business & System Analysts (5-7)	Program Staff and New Position	Three years experience with environmental management processes and data
Database Administrator (1	Devi Piper (DBA III)	Three year experience with NMED applications and databases
Web Architect	New Position	Five years experience developing Web and Electronic Commerce applications
ITS Server / Network Administrator	Fred Gross (Technology Master III) and New Position	Fifteen years experience with hardware design and implementation for server-based applications

Current NMED I.T.S. staffing is not adequate to support the implementation and on-going maintenance of this major system. At least three additional positions will need to be added to the staff.

G. Change Control and Problem Resolution

A formal process for managing issues and changes will be followed on the project.

Issue Management

Project issues will be documented and addressed in a timely manner so as not to impede project progress. A standard issue management process will be used; each issue will be assigned to an individual with a resolution date specified. The project team will review progress against open issues regularly and escalate appropriate items to the project steering committee.

Change Management

All changes from the original requirement document will be documented and managed closely. The requestor of a change will describe it, evaluate costs and benefits, and offer at least two implementation alternatives including a 'do nothing' alternative. Each change will be evaluated prior to approval.

H. Disaster Recovery & Loss/Damage Controls

A system disaster recovery plan will be developed during the design stage of the project. The plan will take into account the nature of the system and data, and most importantly, the impact of system outages to NMED operations and customers. At a minimum, system data will be backed up daily and stored off-site. Manual

procedures will be developed so that during a systems outage customer transactions can be documented on paper and entered into the system once available.

I. System Security

The following user security requirements have been specified:

- User id and password required to access the system
- System access is restricted to screens & functions appropriate to user profile
- User is automatically prompted to specify a new password at least every 30 days
- User is automatically logged off when session has been inactive

J. Testing, Validation, and User Acceptance

A structured testing methodology will be used to ensure that the system meets all critical functional and technical requirements. The following testing activities will be completed during the lifecycle of the project

Activity: Test Package Release
Task(s): Develop Test Plan; Establish Test Environment; Prepare Unit, System, Integration and Performance Test Cases; Perform Unit, System, Integration and Performance Tests; Perform User Acceptance Testing. The performance test includes a stress test that simulates production-like user and transaction loads.
Purpose: To test the 'vanilla version' (release) of the application package to ensure it meets critical functional and technical requirements. This is done prior to customizing the software.

Activity: Test Deployment Package
Tasks(s): Develop Test Plan; Establish Test Environment; Prepare Unit, System, Integration and Performance Test Cases; Perform Unit, System, Integration and Performance Tests; Perform User Acceptance Testing. The performance test includes a stress test that simulates production-like user and transaction loads.
Purpose: To test the customized version of the application package prior to implementation to ensure it meets critical functional and technical requirements.

K. Training
A train the trainer approach will most likely be adopted by this project for system users. A core set of NMED project staff will be trained on the product by the vendor. The staff will in turn train all NMED employees who will use the system. A job specific training curriculum will be developed that directs system training to the role and responsibilities of different jobs. On-going training for new employees, employees who have changed jobs within the Agency and training that addresses system enhancements will be carried out by program staff who have a designated part-time responsibility for system training. The vendor will be required to provide technical training to ITS entire staff responsible for supporting the system. The vendor will work with NMED staff to customize user and technical training manuals to reflect any customizations made to the product.

Section M

MANDATORY SPECIFICATIONS

Product Functions:
1) **One Stop / Department-Wide Integration** describes a common set of shared database tables to store information on the people, businesses and places that NMED regulates and interacts with. These NMED interests are further defined as either Locations or Legal Entities. Legal Entities may or may not be associated with one or more Locations. Locations may or may not be associated with one or more Legal Entities. The product must have the ability to retain and make available historical information for Legal Entities and Locations. The product must also log the edit history for a given record. The product must incorporate data management features that eliminate or greatly reduce the creation of duplicate records. Please specify how the proposed product will meet these requirements. Since this is a crucial feature for NMED, please be explicit in your product's ability to meet these requirements.
2) **Legal Entity** The product must allow for the creation, editing and deletion of a single set of records for Legal Entities. Legal entity records shall include names, addresses, phone numbers and other contact information. Legal entities shall be retained for all NMED programs and the product must allow for relationships among entities and NMED programs. Attributes about these relationships must allow for the specific affiliation of legal entities with NMED program interests. There must be a single identifier for each legal entity that allows department wide querying of all Locations related to the legal entity. Examples of Legal Entities are corporation, municipality, concerned citizens, and agencies.
3) **Location** The product must allow for the creation editing and deletion of a single set of records for Locations including geographic coordinates for a variety of coordinate systems, physical address, method of geographic data collection, and all attributes common to EPA's facility identification system. Examples of Locations are facility, sampling points, outfalls, and air emissions stack. Location information must be stored in a format that accommodates multiple levels of detail as is needed to describe the location of a facility as well as the locations of specific emission or discharge points within that facility. This locational information must be compatible with ESRI's ArcSDE GIS database interface.
4) **Standard language library** describes a set of tables that contain consistent, repeatedly used language for use in permits, form letters and other generated documents. The Standard Language Library shall include: Federal and State Regulations, procedures, protocols, policies, legally required boilerplate language, numeric and narrative environmental standards and phrases commonly used in correspondence. The standard language library must allow retrieval of standard language and placement into letters or reports, and may store numerical standards that are used for comparison with submitted monitoring data. Explain how the proposed product does or does not use a standard language library that supports these documents and data types.
5) **Agency Glossary** describes an on-line directory of information about agency programs, bureaus, divisions and offices that can be used as a reference to system users.
6) **Data input standards** describes data integrity and validation logic or methods that are enforced by the system.
7) **Meta Data standards** describes the documentation of data including sources of data, collection methods, validation methods and degree of accuracy.
8) **Tracking** describes the status tracking of work activities within and between NMED and the regulated community. The product must have the ability to track the status of permit applications, corrective actions, review of draft documents (internally), deliverable due dates and other business processes that must be tracked. Please specify how the proposed product does or does not support the tracking of these processes.

MANDATORY SPECIFICATIONS

9)	**Managing Environmental Measurement Data** describes analytical data and other measurements collected by or submitted to NMED. The product must be able to keep track of dates that monitoring data and reports are due, store the environmental measurement data, and make the data available to staff for manipulation, review and reporting to internal and external agencies. Please specify how the proposed product does or does not support these needs.
10)	**Reporting** describes the output of data from NMED for internal or external uses. The product must allow for the export of data into a variety of formats including spreadsheets and documents, and must allow for canned reports as well as ad hoc reporting. Please specify how the proposed product does or does not support these reporting needs.
11)	**Mailing list** describes the creation, management and maintenance of address information for correspondence. Please specify how the proposed product can be used to select the needed addresses and to merge the document with the addresses of the selected recipients
12)	**Linking** describes the interconnectivity established with other software products and systems. The product must be able to retrieve data in a variety of formats that are compatible with other software and systems. Please specify how the proposed product does or does not support the following interface requirements.
13)	**Accounting** describes the financial accounting activities performed within the environmental programs' distinct from current Administrative Service functions.
14)	**Managing Work Flow** describes the automation of traditional work management tasks. The product must allow for the tracking, flagging an action, coordination of reviews, auto notification of staff, and staff scheduling features. Describe how.
15)	**Help** describes the automated system for assisting users ability to work with the product. The product must contain context-sensitive links to enable an unassisted end user to resolve problems and use advanced features of the product. Describe how the help functions are incorporated into the product and how the help system can be maintained and additional information can be included into help by NMED staff.
16)	**Storing Word Processed Documents** describes the management of word processing documents. The product must be able to organize, secure and relate documents to a program interest. Describe how your product accomplishes this requirement.
17)	**Loading** describes the automated transfer of electronic data into the database. The product must allow for the parsing and transfer of data from various electronic formats into the database. Describe how your product accomplishes this.
Systems Architecture, Technology and Performance Metrics: Please note whether these functionalities are inherent in your current "core" product.	
18)	The product utilizes Oracle release 8I as its primary relational database management system.
19)	The product has database logging and restart capabilities
20)	Product licensing allows for customization of software by NMED technical staff or contractors. Describe the tools available to NMED to customize the software.
21)	The product architecture is client-server or browser-server with server operating system options that is either NT or Sun Solaris.
22)	The product or client operating system options include Microsoft Windows 9X and NT 3.51+.
23)	The product has automated log off capabilities for workstations to improve security and to minimize inactive sessions.
24)	The product uses a Graphical User Interface, windows or browser-based. Describe the user interface including what software and standards are employed.
25)	The product supports IP addressing for the network.
26)	The product makes effective use of bandwidth to remote field offices. Describe the products remote connectivity capabilities including any performance limitations.
27)	The product includes systems management tools to allow NMED technical staff to perform problem isolation and initial diagnostics via comprehensive error messages and training.
28)	The product uses an open architecture. Describe the architecture and the open computing standards employed.

MANDATORY SPECIFICATIONS

29) The product provides for system redundancy, describe the architecture and capabilities.
30) The product supports up to 200 concurrent users on one database.
31) The product supports laser, dot matrix and ink jet printers in an on-line networked environment.
32) The product supports printer spooling capabilities for on-line users, it frees up workstations for other functions during the printing of reports.
33) The product provides a separate reporting database from which reports are run so that production system performance is not compromised.
34) Describe any product functions that require users to be offline in order for the function to run?
System Performance Metrics:
35) The Offeror assures a maximum 2-second field-to-field response time delay for 95% of transactions at maximum load on the system. Describe how other data network activity may impact product performance.
36) The Offeror assures a maximum 2-second screen to screen-delay for 95% of transactions at maximum load on the system. Describe how other data network activity may impact product performance.
37) Please specify the transactions that will not meet the response time requirements in 1 and 2 above.
38) The product produces on-demand as well as batch generation of all invoices, certificates, and form letters.
39) The Offeror can assure 10 hour/day x 5-day/week system up time.
40) Describe the system uptimes and batch cycles.
41) The product includes alternative navigational shortcuts to functions in order to minimize keystrokes. Describe this feature in detail.
Administration and Management
42) During implementation, the Offeror shall place a full-time project manager on the project that has implemented the proposed system for at least one other customer.
43) Prior to the initiation of each phase, the Offeror shall devise a detailed work plan that schedules and governs all resources and deliverables as defined within that phase, for approval by NMED.
44) Work on each phase shall begin only after written approval of NMED.
45) No project deliverable will be deemed complete unless written NMED management or their designee renders acceptance.
46) The Offeror shall place technical staff on the project who have a minimum of 3 years experience with the system technical environment, including: operating systems, database engine, hardware and programming language.
47) The Offeror shall provide customer with monthly project status reports to include: milestones met, milestones not met, open issues, recommended actions to resolve open issues.
48) The Offeror shall agree to a milestones met payment schedule based upon the deliverables of each phase in the project.
49) The Offeror shall produce all reports in a manner such that any Offeror could begin the subsequent phases with no further information.
50) The Offeror shall submit all project deliverables in both electronic and printed textual form using software products acceptable to NMED and they will become the sole property of NMED.
51) The Offeror shall provide customer with adequate staff resources to meet the project schedule regardless of the number of current or new system implementation projects that the Offeror is involved with, and there shall be continuity of staff based on approved work plans for each phase of the project.

MANDATORY SPECIFICATIONS

52) The Offeror shall provide customer with a contractual warranty period on system performance.

DESIRABLE SPECIFICATIONS

Business Processes

Specifications: For the following business processes, NMED will evaluate responses based upon two aspects of the existing product: 1.) the status of each environmental program included in the product and 2.) the degree of development for each as related to mandatory functions. For each of the following business processes, please specify the level of development of your product for the each environmental program (as given on the Program Glossary attached as the last page of the matrix) by placing the abbreviation for the program in the columns to the right (general release, beta release, in development, and not available.

53) **Compliance/Enforcement** describes the activities conducted by the NMED to ensure that a facility is operating in a manner consistent with regulations, permits, and other requirements. The product should manage Compliance and Enforcement status for a facility that includes the creation, tracking, storage and flagging of environmental compliance issues. Please specify how the proposed product does or does not support the management of the following compliance and enforcement activities.

54) **Permits and Applications describe** the activities of reviewing and approving a variety of submittals (applications, requests for certifications, remediation plans…) by NMED. The product should assist in the generation of permit approvals, tracking of various application types throughout the review process and status of approved permits (compliance and expiration dates), and storage of specific data contained in the applications and approvals of the applications. The product should also be capable of retaining standard formats for permits and certificates for all NMED programs. Please specify how the proposed product does or does not support the following permitting activities.

55) **Corrective Action** describes business activities related to the cleanup of environmental contamination or correcting violations of environmental permits. The product should allow for management of activities related to corrective action.

56) **Personnel** describes the collection, maintenance and reporting of information on NMED's employees. Please specify how the proposed product does or does not support the following requirements. Explain how your product could include a Department "Yellow Pages" including name, duties, work location, phone, email, mailing address for all employees. Explain the maintenance requirements for the listing.

57) **Assets Inventory** describes the collection, maintenance and reporting of information on NMED's capital equipment. Please specify how your product does or does not meet the following asset management requirements: descriptive data including, value, location, maintenance records; schedules including depreciation, maintenance and use and other tracking functions

58) **Web/Database Interface** describes the web enabled electronic commerce and electronic business needs of NMED. NMED desires a product that allows the general and regulated public to access various information stored in the Database. In addition, the product should allow for the regulated public to submit applications and deliverables through an NMED website. Describe how your product enables dynamic queries of the database by the public from the Internet.

Examples:

59) A specific regulated facility changes ownership numerous times. How does the product track ownership and operational changes with regard to records in the Legal Entity changes, permits required and compliance status?

60) A single individual is both the owner of a regulated facility and the mayor of a municipality. The regulated facility has an Air Quality permit and an Underground storage tank. The municipality has a groundwater discharge permit and a NPDES permit. Describe how the product tracks multiple addresses for this individual, affiliations with NMED and her compliance history.

61) The Governor recommends that an individual is to get the Green Zia Award for environmental excellence. How does your product assist NMED in making our recommendation to the Governor?

DESIRABLE SPECIFICATIONS

Business Processes

62)	A national laboratory is divided into technical areas with individual point locations that are of interest to specific NMED programs. Describe how the locational records are associated so that staff from each of the programs is able to query only those locations that it is interested in while a Division Director or the Cabinet Secretary can simultaneously review the activities of a number of NMED programs.
63)	Describe the automatic letter or notice generation features of your product.
64)	NMED receives a submittal (permit application, monitoring report). Describe how it uses the standard language library for comparison against all requirements of a permit, monitoring event, registration, etc
65)	Explain how your system will produce a permit once a comparison check has been completed against an application and all requirements have been met.
66)	An NMED attorney needs to generate an administrative order for multi-media violations. Explain how your product assists in this effort.
67)	Site-specific requirements may dictate unique requirements for two nearly identical air permit applications. Explain how the product allows for some modification of standard language to address this need.
68)	An employee was just hired by the department to work on ground water discharge permits. How could your product assist the employee in learning applicable regulations and becoming a productive permit writer?
69)	Describe the complaint logging features of your product for both permitted and non-permitted facilities as well as events with no identified NMED Location ID (See #1 - One Stop).
70)	Explain how your product allows for the creation, editing and deletion of information recorded by NMED inspectors at a facility (field trip inspection reports).
71)	The department receives a complaint from a citizen that a facility is diverting water away from their wastewater holding impoundment and sending it to a ditch. The staff member that is most familiar with the site will be out of the office for 2 weeks, but an inspection must be conducted. The site files are very voluminous and it will be impossible to read through all of them. How can your product help prepare the inspector for the inspection?
72)	Explain how your product tracks the corrective actions that are taken to correct violations.
73)	Explain in what ways your product links environmental programs with agency legal services.
74)	Explain how your product could be used to retrieve a history of compliance by location as well as by violator.
75)	Explain how your product identifies and flags violations based on inspection data, file review, or deliverables that have not been received by NMED.
76)	If a site is required to submit deliverables as required by permit or as part of an approved work plan under a corrective action, how are the dates and requirements tracked with your system? How is staff informed that a deliverable is due? Past due?
77)	Explain the capacity of your product to include the calculations making up a Relative Site Prioritization System.
78)	Explain how your product could be used to extract, format and export data for regular, electronically submitted, activity reports.
79)	Explain how your product could generate a current site summary, on demand.
80)	Explain how your product would link a site record to work plan approvals, state contracts, and project budgets.
81)	Explain how your product can be used to synchronize / coordinate corrective action activities among bureaus. Explain how, for example, your product could be used to coordinate sampling and inspection trips by two different bureaus to a remote area of the state.

DESIRABLE SPECIFICATIONS

Business Processes

	Tracking Examples:
82)	Explain how your product could be used to alert a project manager that a monitoring report was due that week from a regulated facility.
83)	Management is filling a position and there are many applicants from within the department. How can your product be used to determine the volume of work each applicant has produced over a given time period?
84)	A permitting section has established a goal of decreasing the amount of time for processing an application. How can your product be used to monitor and report the time for permit processing from receipt of application to approval?
85)	An application has been received by a program and must be processed under a given regulatory time frame. The actual of processing fluctuates if the application is not administratively or technically complete. How does your product assist the reviewer in ensuring that the application is processed in the regulatory time frame and how can the product adjust to changes in due dates as they arise?
86)	Explain how your product would help a manager of a bureau track progress on an action plan being implemented by staff. Explain also how the staff might use your tool to coordinate their work on the action plan.
87)	Explain how your product could be used to coordinate and compile the review by five different bureaus of a proposed construction project.
88)	Explain how your product could handle a public information request that may include information with data collected by multiple bureaus.
89)	Explain how your product would be used to track the review and approval of a letter from one program, through a bureau chief, division director, legal review, and to secretary's approval.
	Environmental Measurement Data Examples:
90)	Describe the capabilities of your product to manage historical discharges from permitted facilities, including manage emissions inventories for permitted air quality facilities.
91)	Describe the methods for data input for analytical results and other environmental measurements (depth to groundwater…) that are submitted by an operator as required under a permit. Please provide a response for hard copy submittals and electronic submittals.
92)	Explain how your product would allow staff to find all monitoring wells in a given area, and associated sampling data.
93)	Explain how your product could enable an operator to request an application and then submit its completed application for a permit electronically.
94)	Explain how your product allows for analytical laboratories to electronically transfer results of sample analyses. Explain how these results could be electronically submitted on behalf of a regulated entity to meet compliance monitoring submittal deadline.
95)	Explain how your product could be used to generate department-wide environmental measures of program effectiveness that cut across specific programs, including Superfund, NPDES, LUST, and RCRA.
96)	Metadata and documentation-Explain how your product keeps track of the sources, dates, QA/QC details, and other data about environmental measurement data.
97)	A monitoring report is received electronically and is loaded into the database. Some of the data are above environmental standards. Explain how your product assists the project manager.
	Reporting Examples:
98)	Describe the recommended methods of ad hoc reporting for use with your product, specifying which are included in your product and which require additional software.

DESIRABLE SPECIFICATIONS

Business Processes

99) Describe the procedure for staff to create a new, standardized report within your product, and the procedure for creating an ad hoc report.

100) Describe the batch export capabilities of your product to external databases such as EPA databases and to external analytical software products including ArcView, Excel, EPA regulatory models such as CTSCREEN, ISCST3, UAM, fate and transport models, and groundwater models such as MODFLOW, EQUIS, ROCKS. Describe whether any of these exports are accomplished through reporting routines already created and integrated into your product.

Permits and Notice of Intent Examples:

101) Does your product differentiate between new, renewal, and modification applications? If yes, how are these permit applications treated differently?

102) Is your product capable of receiving applications through a Web site or by other electronic methods such as disks, e-mail? Describe how your product allows for electronic submittal of applications for Air quality, UST certification, ground water discharge permits, and any other permit applications that have been included in your product. Describe the authentication protocols incorporated in these electronic submittal procedures.

103) How does your product accommodate the registration of entities such as septic tanks or underground storage tanks that must be registered with an environmental department? Please explain your product's capability to managing registrations and associated fees.

104) Event tracking and reminders. Explain how your product would track the status and progress of a permit application as required by a given regulatory time frame or as specified in a letter from the department.

105) A program receives an application and the review of the application requires a minimum of 4 steps for processing. This includes: deeming the application administratively complete, publishing a public notice, deeming the application technically complete, going to public hearing or not, and issuing the permit. How does your product assist an application reviewer with the processing of this application?

106) Explain how your product could receive a spill report and generate ticklers to appropriate department staff for response.

107) Explain how your product uses a standard language library in generating a permit.

Interface Examples:

108) Describe the capabilities of your product to connect to geographic analytical tools built by ESRI, Inc. Must customization be performed on your product to connect to ArcSDE by ESRI. If customization is needed, please describe.

109) Explain how site-specific tracking of expenditures could be linked to other site regulatory records in your product.

110) Explain how your product enables electronic transfers of payments from the regulated community and the public.

111) Describe all links your product contains to the following federal agency databases. Environmental Protection Agency, Department of Energy, Bureau of Land Management, Department of Interior – US Geological Survey, Department of Defense

112) Explain how your product enhances the administration of a certification program including managing data about applicant's education and experience, examination history, training, continuing education hours, complaints, and enforcement. The department currently has the following certification programs: Waste Water Treatment Plant Operators, Tank Installer, Certified Scientists for Corrective Action at LUST sites, certified laboratories, visible emissions inspectors.

113) Explain how your product could be used to determine if any NMED certified individual matched the state Human Services Department's monthly computer listing of "deadbeat" parents and therefore should have their certification revoked

DESIRABLE SPECIFICATIONS

Business Processes

114) Describe how your product allows for limited access by qualified individuals to restricted information, for example, a regulated party who wishes to check the status of a payment or application.

115) A permit is associated with three fee types: an application fee, a permit fee and an annual fee. How would your product track these fees from invoicing through receipt?

116) A program has defined penalties for violations. Describe how your product calculates penalties for multiple violations and how does it address interest and waivers.

117) Describe how your product could be used to manage four-year state professional services contracts, including tracking approved work plans, encumbrances, payments/vouchers, interest, and amendments by fiscal year.

118) Describe how your product is used to manage the work plan and fiscal components of federal grants

119) Describe your product's ability to manage a fund including estimating accounts receivable, tracking expenditures, deposits, batch invoicing, encumbrances/obligations and producing a monthly financial activity report.

120) Describe the budgeting capabilities of your product.

121) Have you successfully linked your product with an agency's Administrative Services electronic data management system? Please describe the nature, extent and applications of any links.

Architecture, Technology and Performance Examples:

122) Describe the products automated interface development and maintenance tools. Describe the tools available to NMED to develop and monitor product interfaces.

123) Describe the products open architecture. Describe the architecture and the open computing standards employed.

124) Describe how the product uses object-oriented technologies. Describe the object technologies and standards, which are employed.

125) Describe the products use of web technologies. Describe the web technologies and standards employed.

126) Describe the whether following product functions are web enabled:

- Outbound reports to regulated entities, Federal agencies and the public
- Inbound compliance reports from regulated entities to NMED
- Permit applications
- Payment of fees and fines to NMED

Describe other product functions that are web enabled.

127) Describe whether the product has the capability to warehouse historical information for retrieval and analysis. Describe the data warehousing capabilities.

128) Describe whether the product has the following security capabilities:

- Auto log off once session has been inactive for 15 minutes
- Prompts user for password change every 30 days
- Create and audit trail showing user is and date for deleted/changed information

129) Describe in detail how the Offeror makes available a data warehouse that manages data extracted from the product and financial and personnel systems.

DESIRABLE SPECIFICATIONS

Methodology - Phased Approach

Phase I – Technical Assessment and Gap Analysis

130) The performance of a technical assessment

131) For those organizations with similar size and characteristics, explain how long the technical assessment phase took.

132) Describe the components of your technical assessment report.

133) Who in your organization performs the technical assessment phase and how many others are involved in the process?

134) What expectations do you have of NMED in terms of resources and involvement in the technical assessment?

135) Do the results of the technical assessment report drive the subsequent phases of project activity for you? Describe how they are used.

136) What, if any, are the pitfalls you have encountered in addressing the technical assessment phase in the past, and how would you proactively address them in the future?

137) The performance of a gap analyses

138) If so, briefly describe the process.

139) Will NMED be included in the performance of the gap analysis process?

140) What are the components of your gap analysis report?

141) Does your process allow for discrepancy resolution with the Agency in terms of the findings in the technical assessment and the gap analysis reports?

142) Will the Offeror perform a work plan for Phase II of this project?

143) Do the results of the gap analysis drive the subsequent phases of project activity for you?

144) What, if any, have been the pitfalls you have encountered in the performance of the gap analysis and how would you address those issues in the future?

Phase II – Detailed Design, Test Plan, Training Plan and Data Conversion/Migration Plan Preparation

145) The development of a detailed design document (DDD).

146) If so, briefly describe the process and the participants.

147) What were some of the pitfalls you experienced during the development of the DDD and how would you suggest avoiding those problems in the future?

148) Does your detailed design document for customization include the following components? Please describe other components as well.

- Entity Relationship Diagram (ERD) – Logical design
- Data flow diagram
- Schema - Physical database design
- Data migration from existing NMED systems
- Screen shots of proposed customized application
- Data Dictionary and file structures

DESIRABLE SPECIFICATIONS

Methodology - Phased Approach

- Key internal and external interfaces
- Edits and controls
- System processing requirements
- Housekeeping routines
- Security features and functions
- Help – Context specific features
- Recommendations and additions to NMED architecture
- Additional performance metrics

149) Are customer staffing recommendations made in the DDD to address internal support and operational needs?

150) Who from your organization is involved in the development of the DDD? Describe their job duties and relevant experience.

151) Who from the Agency would you expect to be involved in the development of the DDD?

152) What is the presentation/acceptance/finalization process you have utilized for the finalization of the DDD?

153) Is your company willing to approve and sign a fixed cost and time work plan for the remaining phases of the project after the development and approval of the DDD?

154) In your past experience with organizations with similar size and complexity to NMED, how long was spent on the development of the DDD? And did you feel that length of time was appropriate?

155) Have you produced the following documents for prior customers – testing plans with acceptance test scripts, test data preparation plan, and data conversion and migration plan?

156) Who is involved in the development of the testing plans?

157) Will the Offeror prepare a plan for training NMED system operation and maintenance personnel?

158) Will the Offeror provide NMED with a training plan template including a project timeline?

159) Will the Offeror develop all training materials for a training course?

160) Can the Offeror assure that they will use the most reliable data source as determined in consultation with qualified NMED staff?

Phase III – Development, Testing, Documentation and Installation

161) Will the Offeror perform software development?

162) What are the processes by which Offeror determines defects and bugs in the product?

163) Will the Offeror use development techniques generally accepted within the industry and practiced by Oracle developers?

164) Will the Offeror adhere to NMED database standards?

165) Will the Offeror provide technical guidance to NMED in preparing the test environment?

166) Will the Offeror work with NMED to establish a testing environment?

167) Will the Offeror train NMED on using the testing environment?

168) Will Offeror conduct an orientation to the system prior to test?

DESIRABLE SPECIFICATIONS

Methodology - Phased Approach

169) Will the Offeror be available to provide support throughout the testing process?

170) Will the Offeror fix all defects that NMED or the Offeror identifies that are the result of improper execution of the detailed design document?

171) Will the Offeror provide NMED with an implementation plan "template," including a project timeline?

172) Will the Offeror work with NMED to install the system in the production environment?

173) Will the Offeror perform the data conversion? Describe the roles of NMED In this process.

174) Will the Offeror perform the data migration to the new system? Describe the role of the client in this process.

175) Will the Offeror produce a detailed recommendation for a generic desktop system configuration?

176) Will the Offeror prepare a system-testing plan, with valid test data, to prove the system prior to going into production?

177) Will the Offeror generate test data to be used in system testing?

178) Will the Offeror prepare a system rollout plan and schedule?

179) Will the Offeror prepare an Implementation/ Conversion/Cut-over plan that includes testing of all appropriate interfaces with existing NMED applications, with a minimum of interruption to production?

180) Will the Offeror recommend staffing levels for ongoing management, operation and technical support of the system?

181) Will the Offeror develop procedures for operation and prepare a system operation manual for the system?

182) Has the Offeror produced the following documentation for other clients:

- Development documentation,
- Testing documentation,
- Installation documentation,
- Acceptance testing documentation?

183) Name a previous client who has received the above documentation.

184) In your past experience with organizations with similar size and complexity to NMED, how long did it take to perform this phase of the project. Include all assumptions.

Phase IV – Training

185) Will the Offeror provide training materials produced in Phase II?

186) Will the Offeror provide staffing requirements related to management, operation, and support for software training?

187) Will the Offeror provide functional and technical system training at the customer's work site(s) at a train-the-trainer format?

188) Will the Offeror develop a Help Desk Web page for NMED?

189) What, if any, have been the pitfalls encountered in the Training process, and how would you address issues in the future?

190) What is your timeline estimate for this phase, based upon size and scope of deliverables described?

Phase V – Technical Support and Maintenance

191) Do you have programs in place to provide <u>on site</u> system support, maintenance support, and end-user support? Please describe.

DESIRABLE SPECIFICATIONS

Methodology - Phased Approach

192) Will the Offeror make available to the customer a system support service (7am-6pm MST) to be used to track and resolve system problems?

193) Will the Offeror provide NMED with notices of new releases and upgrades to the product?

194) Are your customer service representatives that provide remote system support assigned to specific clients to provide consistency and understanding of the customer's business and architecture?

195) What have been the pitfalls you have encountered in this phase, and how will you address them in this project?

Phase VI – Future Enhancements

196) Will the Offeror provide customer with upgrades of the system to include patches and system enhancements as part of a licensing/support agreement?

197) Will the Offeror implement on-going NMED enhancements to the system?

198) Will the Offeror include customer in any system user group that has input into decisions regarding what changes and enhancements are made to the system for future releases?

199) Will the Offeror update the application software in order to keep pace with future releases of the operating system, the database version and other third party products? If so, how?

200) What have been the pitfalls of this phase for you and how will you address those issues in this project?

Company General

201) What was the year that the base product being proposed was introduced into market (general release) and subsequent years that major enhancement releases were introduced?

202) Describe the process your company follows to determine what enhancements will be added to the product?

203) Do you provide source code?

204) If so, how is the fee determined?

205) Are there any customers who have terminated services for this proposed product in the past three years?

206) What is the number of customers that have this release implemented?

207) What is the largest number of concurrent users that are supported on this system while achieving the performance metrics?

208) If your company purchased this product from a third party, please give us the particulars of that purchase (year, name of product, name of company, architecture at the time of the purchase).

209) What percentage of revenues is allocated to R&D for the entire company?

210) What total dollar value was/is budgeted for R&D for the entire company for the past fiscal year, current fiscal year and next fiscal year?

211) What percentage of your R&D budget is allocated to the product you are proposing?

212) What total dollar value was/is budgeted for R&D for the product your are proposing for the past fiscal year, current fiscal year and next fiscal year?

213) How many development people are assigned to the proposed product?

214) How many sales people are assigned to the proposed product?

215) How many support people are assigned to the proposed product?

DESIRABLE SPECIFICATIONS

Methodology - Phased Approach

216) How many customers are you currently supporting (installed and in production) on the proposed product?
217) Describe how the product technology and/or your product development environment assist you deliver product enhancements?
218) Describe the quality control techniques you use during the product development process and your track record for delivering product enhancements that have few if any bugs?
219) What is your company's target market for this product you are proposing? (Size, type of customer, and geographic area)
220) Provide the names and release dates of all environmental management applications that your company supports and the number of customers supported for each.
Other Costs
221) Will further investment be required of NMED if the Offeror converts the application software to a different platform and/or architecture?
222) Are your software license fees one-time or recurring?
223) If software licenses fees are not a one-time fee, are recurring fees charged annually or annually for a period of time? (e.g. annual fee over five years)
224) Are customers charged for enhancement releases?

Section N

James Martin Package Selection & implementation Blueprint
Work Break-Down Structure

Name	Inputs	Outputs
Plan Project	**Project Idea**	**Project Plan**
Define Project	**Project Idea**	**Project Definition**
Determine Project Objectives	Project Idea	Project Objectives
Define Project Scope	Project Idea	Project Scope
List Project Products	Project Objectives	Project Products List
Determine Project Constraints	Project Idea	Project Constraints
Select Project Approach	Project Constraints	Project Approach
Determine Project Standards	Project Approach	Project Standards
Assess Project Risks	Project Approach	Project Risk Assessment
Make Project Plan	**Project Definition**	**Project Plan**
Define Work Breakdown Structure	Project Approach	Project WBS
Determine Activity Dependencies	Project WBS	Project Network {PERT
Define Project Milestones	Project Network {PERT	Project Milestones
Determine Project Organization	Project Standards	Project Organization
Estimate Effort	Estimation Algorithms	Project Effort Estimation
Allocate Resources	Project Effort Estimation	Project Resource
Schedule Activities	Project Constraints	Project Schedule
Develop Budget	Project Constraints	Project Budget
Assess Project Risks	Project Budget	Project Risk Management
Obtain Project Approval	**Project Definition**	**Project Plan - Approved**
Assemble Project Plan	Project Budget	Project Plan - Proposed
Present Project Plan	Project Plan - Proposed	Project Plan - Reviewed
Agree to Project Plan	Project Plan - Reviewed	Project Plan - Approved
Milestone PMP1	Project Plan - Approved	Project Plan - Approved
Activate Project	**Project Plan**	**Project Resources**
Publicize Project		**Project Image**
Milestone PMAO		
Inform Stakeholders	Project Plan - Approved	Informed Stakeholders
Brief Participants	Project Plan - Approved	Prepared Project
Manage Expectation	Project Plan - Approved	Realistic Expectations
Equip Project	**Project Plan - Approved**	**Project Development**
Acquire Facilities	Project Plan - Approved	Project Facilities
Install Equipment	Project Facilities	Installed Equipment
Check Equipment and Facilities	Installed Equipment	Checked Equipment
Train Project Team	**Project Development**	**Trained Project Team**
Identify Needed Skills	Project Plan - Approved	Training Requirements
Identify Training	Project Plan - Approved	Training Opportunities
Schedule Training	Training Opportunities	Scheduled Training
Obtain Training	Scheduled Training	Trained Project Team
Milestone PMA1	Checked Equipment	Project Resources
Control Project	**Project Plan -**	**Project Results**
Assign Project Tasks		**Project Task**
Milestone PMCO		
Resolve Resource Conflicts		Project Resources

Name	Inputs	Outputs
Coordinate Shared Objects	Shared Objects	Required Coordination
Monitor Open Issues	Project Open Issues List	Project Open Issues List
Obtain Resources	Acknowledgments	Project Resources
Assign Resources to Activities	Project Corrective Actions	Project Task Assignments
Motivate Project Participants	**Project Progress**	**Motivated Participants**
Promote Individual Development	Project Resources	Individual Performance
Create Incentives for Teamwork	Project Resources	Team Performance
Monitor Performance	Individual Performance	Feedback
Acknowledge Performance	Feedback	Acknowledgements
Track Project Progress	**Project Plan - Approved**	**Project Progress**
Assess Project State	Products Contribution	Project State
Diagnose Situation	Milestone Results	Project Open Issues List
Determine Corrective Actions	Project Open Issues List	Project Corrective Actions
Report Project Status to Sponsor	Project Corrective Actions	Project Progress
Revise Project Plan	**Project Corrective**	**Project Plan - Approved**
Evaluate Alternatives	Project Corrective Actions	Alternative Actions
Assess Project Risks	Alternative Actions	Project Risk Assessment
Prepare Plan Revisions	Alternative Actions	Recommended Actions
Obtain Approval for Revisions	Project Plan - Approved	Project Plan - Approved
Milestone PMC1	Acknowledgments	Project Results
Package Strategy		**Package Scope**
Determine Direction	**Best Practices**	**Package Scope**
Project Start		
Determine Business Rationale	Miscellaneous Business	Business Objectives
Determine Business Scope	Business Objectives	Business Scope
Research Best Practices	Business Scope	Best Practices
Determine System Scope	Business Objectives	System Scope
Define Technical Environment and Standards	Statement of Principles	Implementation
Prepare Package Scope Statement	Best Practices	Package Scope Statement
Assess Business and Technical Risk	**Business Criticality**	**Risk Assessment**
Determine Criticality to Business Process	Miscellaneous Business	Business Criticality
Determine Organizational Impact	Job Descriptions	Organizational Impact
Determine Complexity	Business Systems	Complexity Assessment
Quantify Overall Risk	Business Criticality	Risk Assessment
Identify Qualified Vendors	**Candidate Vendor**	**Qualified Vendor**
Determine Knockout Criteria	Miscellaneous Business	Knockout Criteria
Identify Candidate Vendors	Market Literature	Candidate Vendor
Prepare and Distribute RFI	Candidate Vendor	Request For Information
Gather Vendor Information	Candidate Vendor	Package Profile
Eliminate Unqualified Vendors	Knockout Criteria	Qualified Vendor Directory
Determine Evaluation Approach	**Package Evaluation**	**Project Plan - Updated**
Define Evaluation Process	Package Scope Statement	Package Evaluation
Determine Evaluation Team Changes	Package Evaluation	Package Evaluation Team
Update Project Plan	Package Evaluation	Project Plan - Updated

Name	Inputs	Outputs
Completed Package Strategy		
Package Evaluation		**Signed Vendor Contract**
Define Detailed Requirements	**Detailed Package**	**Detailed Package**
Evaluation Start		
Define Business Requirements	Miscellaneous Business	Business Requirements
Define Technical Requirements	Miscellaneous System	Technical Requirements
Define Vendor Requirements	Package Scope Statement	Vendor Requirements
Prioritize Requirements	Business Requirements	Detailed Package
Prepare Vendor Ground Rules	Detailed Package	Evaluation Process Ground
Determine Evaluation Method	Detailed Package	Evaluation Spreadsheet
Prepare and Distribute RFP	Detailed Package	Request for Proposal -
Determine Finalists	**Completed Evaluation**	**Finalist Vendor Directory**
Gather Package Information	Detailed Package	Package Profile
Rate Application Packages	Detailed Package	Completed Evaluation
Select Finalists	Completed Evaluation	Finalist Vendor Directory
Completed Short List		
Analyze Package Fit	**Business Impact**	**Business Impact**
Analyze Package Capability	Completed Evaluation	Package Specifications
Analyze Business and Package Difference	Detailed Package	Change Requirements
Detail Business Impact	Change Requirements	Business Impact
Detail Technical Impact	Business Systems	Technical Impact
Determine Key Performance Factors	Business Impact	Package Performance
Conduct Evaluation Survey	Package Performance	Performance Factor
Assess Package Performance	**Application Package**	**Performance Factor**
Develop Evaluation Test Plan	Detailed Package	Evaluation Test Plan
Establish Evaluation Test Environment	Application Package	Evaluation Test Plan
Prepare Evaluation Tests	Detailed Package	Evaluation Test Suites
Conduct Evaluation Tests	Evaluation Test	Evaluation Test Results
Assess Evaluation Test Results	Evaluation Test Results	Performance Factor
Assess Vendor Performance	**Finalist Vendor Directory**	**Finalist Vendor Directory**
Define Vendor Benchmarks	Industry Literature	Vendor Benchmarks
Assess Package Future	Finalist Vendor Directory	Finalist Vendor Directory
Assess Vendor Services	Finalist Vendor Directory	Finalist Vendor Directory
Investigate Third Party Services	Vendor Information	Third Part Vendor Profile
Determine Total Life Cycle Costs	**Burden Rates**	**Build or Buy Decision**
Develop Package Implementation Strategy	Business Impact	Package Implementation
Quantify Package Implementation Costs	Burden Rates	Package Cost
Quantify Package Upgrade Costs	Burden Rates	Package Cost
Quantify Package Operation Costs	Burden Rates	Package Cost
Develop Custom Implementation Strategy	Business Systems	Custom Application
Quantify Custom Implementation Costs	Burden Rates	Custom Application Cost
Quantify Custom Operation Costs	Burden Rates	Custom Application Cost
Make Build or Buy Decision	Custom Application Cost	Build or Buy Decision
Acquire Package	**Application Package**	**Package Finalist Award**
Select Package	Build or Buy Decision	Package Finalist Award
Prepare Negotiation Strategy	Detailed Package	Vendor Negotiation

Name	Inputs	Outputs
Negotiate Contract with Vendor	Vendor Negotiation	Signed Vendor Contract
Order Products	Package Implementation	Application Package
Acquired Package		
Package Enablement		
Conduct Trial Run	**Application Package**	**Ratified Vendor Contract**
Start Enablement		
Determine Trial Run Scope	Application Package	Trial Run Plan
Establish Trial Run Environment	Application Package	Trial Run Environment
Establish Trial Run Standards	Application Package	Trial Run Standards
Install Application Package	Application Package	Installed Application
Explore Application Package	Installed Application	Trial Run Results
Assess Trial Run Results	Trial Run Plan	Trial Run Assessment
Ratify Vendor Contract	Signed Vendor Contract	Ratified Vendor Contract
Establish Implementation Plan	**Application Package**	**Package Implementation**
Validate Package Requirements	Application Package	Validated Package
Develop System Architecture	Application Package	System Architecture
Specify System Changes	Business Impact	System Change
Specify Package Changes	Application Package	Package Change
Specify New Development	Business Impact	New Development
Specify Technology Changes	New Development	Technology Change
Determine Release Strategy	New Development	Package Release Strategy
Determine Development Projects	New Development	Development Projects
Develop Interfaces	**Application Package**	**Conversion Routines**
Identify Interface Elements	Application Package	Interface Elements List
Detail Interface Requirements	Application Package	Interface Requirements
Specify Ongoing Interfaces	Application Package	Interface Specifications
Construct Ongoing Interfaces	Application Package	Interfaces
Specify Conversion Routines	Application Package	Conversion Specifications
Construct Conversion Routines	Application Package	Conversion Routines
Customize Package	**Application Package**	**Customized Package**
Determine Package Standards	Application Package	Application Standards
Define Security and Authorization	Application Package	Application Security
Schedule Site Preparation	Application Package	Product Orders
Determine Customization Approach	Application Package	Package Customization
Incorporate Custom Features	Application Package	Customized Package
Update Enterprise Configuration Design	Application Package	Enterprise Configuration
Prepare for Cultural Changes	**Application Package**	**Policy Changes**
Develop User Procedures	Application Package	User Procedures
Resolve Organizational Issues	Application Package	Policy Changes
Develop Training Plan	Application Package	Training Curriculum
Develop Training Materials	Application Package	Training Plan
Develop Operations	**Application Package**	**Systems Operations**
Define Security Procedures	Application Package	Security Procedures
Define Operating Procedures	Application Package	Operating Procedures
Define Support Procedures	Miscellaneous System	Support Procedures
Define Change Procedures	Application Package	Change Procedures
Define Operating Schedule	Change Procedures	System Operations
Test Package Release	**Conversion Routines**	**Accepted System**
Develop Test Plan	Conversion Routines	Test Plan

Name	Inputs	Outputs
Establish Test Environment	Conversion Routines	Test Environment
Prepare Test Suites	Conversion Routines	Test Suites
Perform System Testing	Conversion Routines	Tested System
Perform Acceptance Testing	Test Environment	Accepted System
Build Deployment Package	**Accepted System**	**Deployment Package**
Assemble Installation Package	Accepted System	Installation Package
Test Installation Packages	Conversion Routines	Tested Installation
Develop Deployment Procedures	Tested Installation	Deployment Procedures
Test Deployment Package	Deployment Procedures	Deployment Package
Complete Enablement		
Deployment	**Accepted System**	**Production System**
Perform Conversions	**Converted Data**	**Converted Data**
Milestone DEPO		
Suspend Transaction Processing	Deployment Procedures	Suspended Operations
Archive Existing System Components	Existing Systems and Data	Existing Systems Backup
Execute Conversion Routines	Existing Systems and Data	Converted Data
Confirm Conversion Accuracy	Converted Data	Converted Data
Conduct User Training	**Trained Users**	**Trained Users**
Schedule Training Sessions	Training Curriculum	Training Schedule
Conduct Training	Training Material	Trained Users
Develop Permanent Training	Trained Users	Training Plan
Install Production System	**Accepted System**	**Production System**
Configure System Environment	Accepted System	Configured System
Activate Help Support	Configured System	Activated Help Support
Deploy Databases	Accepted System	Databases
Deploy System to Beta Sites	Accepted System	Production System
Beta Test System	Beta Test Plan	Test Results
Fix Problems	Databases	Databases
Tune Infrastructure	Configured System	Tuned System
Deploy System to Users	Databases	Production System
Set Maintenance Procedures	Production System	Operations Manual
Milestone DEP1		
End Project	**Project Resources**	**Project Resource**
Prepare Completion Report	**Project Results**	**Project Completion**
Milestone PMEO		
Summarize Project Results	Project Results	Project Results
Identify Lessons Learned	Project Results	Lessons Learned
Collect Project Metrics	Project Results	Project Metrics
Turn Over Results	**Project Results**	**Project Results**
Archive Project Products	Project Products	Project Products
Identify Reusable Objects	Project Products	Project Products
Accept Project Results	Project Products	Project Products
Release Project Resources	**Project Completion**	**Project Resource**
Review Resource Performance	Lessons Learned	Project Resource
Perform Final Accounting	Project Products	Project Final Accounting
Monitor Personnel Reassignment	Project Final Accounting	Project Resource Release
Milestone PME1	Project Resource Release	Project Resource Release

Agency Name: New Mexico Environment Department Agency Code: 667

FORM C-2
INFORMATION TECHNOLOGY
SPECIAL APPROPRIATION REQUEST

Information System Name & Acronym: Agency Web Service Portal

Project Type: ___ Infrastructure Expansion/Upgrade ___Software Development
_ X _Software Purchase ___Software Upgrade

System or Project Cost (dollars in thousands)

	FY99 & Prior	FY00 Actual	FY01 OpBud	FY01 Request	FY02 Request	FY03 Estimate	FY04 & Subseq.
General Fund				$0.0	$160.0	$60.0	$0.0
Oth. State Funds				$0.0	$0.0	$0.0	$0.0
I.S./I.A. Trans.				$0.0	$0.0	$0.0	$0.0
Federal Funds				$0.0	$75.0	$25.0	$0.0
TOTAL				$0.0	$235.0	$85.0	$0.0

Expenditure Categories (dollars in thousands)

	FY99 & Prior	FY00 Actual	FY01 OpBud	FY01 Request	FY02 Request	FY03 Estimate	FY04 & Subseq.
000 Per. Svs.				$0.0	$0.0	$0.0	$0.0
010 Emp. Ben.				$0.0	$0.0	$0.0	$0.0
020 I/S Travel				$0.0	$0.0	$0.0	$0.0
030 Maint./Rep.				$0.0	$0.0	$0.0	$0.0
040 Sup./Mat.				$0.0	$0.0	$0.0	$0.0
050 Cont. Svs.				$0.0	$180.0	$85.0	$0.0
060 Op. Costs				$0.0	$5.0	$0.0	$0.0
070 Oth. Costs				$0.0	$0.0	$0.0	$0.0
080 Cap. Out.				$0.0	$45.0	$0.0	$0.0
095 O/S Travel				$0.0	$5.0	$0.0	$0.0
150 Oth. Fin.				$0.0	$0.0	$0.0	$0.0
TOTAL				$0.0	$235.00	$85.0	$0.0

System Development (check when actually or expected to be completed):

	FY99 & Prior	FY00	FY01	FY02	FY03	FY04 & Subseq.
Needs Assess.			X			
Formal Design				X		
Software Develop't.				X	X	
Hardware Acquisition				X		
FTE Hired, Trained				X		
Fully Oper-ational				X	X	
Mainte-nance					X	

System Life Expectancy (Dates in Fiscal Years): 5-7

Project Summary (attach Detailed Project Description as outlined in IT Plan Guide):

This project will develop an agency web service portal to improve the provision and exchange of services between the NM Environment Department and key suppliers and customers. A portal is a "door" to a set of on-line services and resources. In this case, the "door" is a web site that gives the regulated community and the public access to a comprehensive (i.e. all Agency programs) set of on-line services and information provided by the NM Environment Department.

Certification: I hereby certify that the amounts and information provided are the best estimates and that no willful misrepresentation is hereby made.

Chief Information Officer (please print)	Chief Information Officer (signature)	Date

827-0319	renee_martinez.its@nmenv.state.nm.us	827-2836
Phone No.	E-Mail Address:	Fax No.

A. Project Description

This project will develop an agency web service portal to improve the provision and exchange of services between the NM Environment Department and key suppliers and customers. A portal is a "door" to a set of on-line services and resources. In this case, the "door" is a web site that gives the regulated community and the public access to a comprehensive (i.e. all Agency programs) set of on-line services and information provided by the NM Environment Department.

The web service portal will offer an on-line alternative for doing business with the Agency's many regulatory compliance programs. The Agency recognizes that it must offer a number of ways for individuals and organizations to do business. To satisfy the largest number of regulated entities and citizens, the Agency will offer different options such as web forms, electronic data interchange, user defined files, and even paper. Regardless of how successful the Agency's web service portal is, paper will always be an accepted medium to exchange information.

The Agency Web Service Portal will perform the following functions for all media (air, water, soil) regulated by the Agency:

- Allow regulated entities to submit environmental compliance documents (e.g. discharge monitoring reports, excess emission reports) on-line
- Allow regulated entities to submit applications (e.g. permits, registrations) on-line
- Allow regulated entities to submit payments (e.g. permit fees) on-line
- Allow regulated entities to view application (e.g. permits, registrations) status information on-line
- Allow regulated entities to search and view information on all environmental permits for all media
- Notify regulated entities of upcoming regulatory deadlines and expirations
- Allow regulated entities and public to search and view ambient measurement information
- Allow regulated entities and public to search and query appropriate environmental data
- Allow regulated entities and public to submit questions, comments and suggestions to the Agency via e-mail
- Allow US EPA to access standard regulatory reports an data on-line
- Meet US EPA reporting requirements via business-to-business e-commerce exchanges

The Agency Web Service Portal will be designed to satisfy the following major requirements:

- Receive electronic environmental compliance documents from regulated entities
- Authenticate electronic submissions by verifying digital signatures
- Archive electronic submissions consistent with state and federal EPA requirements
- Convert electronic submissions so that the data can be posted to and stored in internal systems
- Distribute electronic submissions to the appropriate internal destination systems

The project implementation costs are estimated at $320,000. Recurring annual costs are estimated at $9,000. The major benefits the Agency anticipates from this project are improved customer service and operational efficiency. The agency web service portal will allow the Agency to provide faster and easier processing of routine customer transactions such as permit applications and fees.

This project was submitted as a C-2 project in FY01, the legislature approved the project and designated 100% funding from the Corrective Action Special Fund. The committee that oversees this fund persuaded the governor to line item veto the project, as they did not feel that the fund should carry the entire financial burden for the project.

B. Business Justification:

(1) Project Relationship to Agency Goals
The project serves and supports the following Agency goals adopted in the Agency's Strategic Plan 2000:

Goal #1: Improve the quality of service to the public through education and participation by governing entities, tribes, businesses, organizations, and citizens in our decision making process

More and more citizens and organizations are using the Internet as an information tool and a service-access tool. The Internet has evolved into a reliable, well-accepted and relatively user-friendly environment for business and individuals to access public and private sector information and services. The Agency believes that the public and many of its customers (e.g. business owners and operators) will use the web service portal to access environmental information and to submit applications and documents to the Agency.

Goal #2: Enhance the way we collect, use, share, and distribute information by shifting measurements of effectiveness from actions to results whenever possible, implementing data and report standards, automating workflows, implementing internet and electronic commerce applications, and giving decision makers easy access to timely and accurate environmental performance information

One of the Agency's goals is to automate appropriate service delivery processes using Internet and electronic commerce technologies. This project will achieve this goal. The convenience of on-line service appeals to many consumers and citizens today. Providing service over the Internet gives the customer the flexibility of do business anywhere and at any time. One of the first web applications that will be available through the agency web service portal is permit applications. Agency customers will be able to submit permit applications and pay permit fees on-line. This on-line process will eliminate the delay of mailing documents between parties and therefore speed up the entire process.

Goal #4: Improve organizational performance by providing an atmosphere that promotes employee enthusiasm and motivation

The purpose of using a web service portal is to streamline and automate common transactions (e.g. permit applications) between the Agency and key customers and stakeholders. As a result, staff can be relieved of routine transaction handling and processing tasks. The operational efficiencies gained will allow the agency to focus more on exceptions and higher level analysis rather than normal procedure.

(2) Project Relationship to State IT Strategic Plan
The project is directly aligned with the *Service Delivery* strategy defined in the State IT Strategic Plan. By implementing a web service portal, the Agency is well positioned for integration into a future state web portal and sub-portals that cluster like services (e.g. all business permits, registrations and certifications) across state agencies.

The project directly supports the *Public Access and Participation of Citizens* strategy and its objectives. The goal of this strategy is to "Use IT to enable the participation of citizens in state government by making the access processes simple, easy to use, affordable, and widely available." The agency web service portal will provide the

public with access to cross-media environmental information and analysis so that they can inform themselves about environmental issues and outcomes. Access to the portal on the Internet will be simple, easy to use, affordable and widely available.

Project Relationship to Agency IT Goals

The project has been identified as a major objective within the Agency's Strategic IT Plan. The following is an excerpt from this plan:

IT Strategic Goal 4 - Assist the Department Implement Applications that Enhance Services and Information Sharing with the Regulated Community and Public

Strategies to Achieve Goal 4:
Strategy 1: Implement the Integrated Database for Environmental Assurance (IDEA)
Strategy 2: Deliver Services and Provide Access to Information via the Internet
Strategy 3: Improve Department GIS Capabilities

(3) Summary Cost-Benefit Analysis

Cost Item	Cost Estimate		Benefit Item	Benefit Estimate
Software Licenses	$25,000		Reduced document/transaction processing costs	$148,000
Software Maintenance	$5,000		Reduced document/transaction processing cycle time (permit cycle time mandates are consistently met)	
Hardware Purchases	$20,000		Improved customer (public and regulated community) satisfaction with agency services	Priceless
Hardware Maintenance	$4,000		Eliminate costs associated with developing multiple program-specific web applications	$50,000
Training & Travel	$10,000		Improve cash flow related to faster payment processing	$60,000
Professional Service Contracts	$265,000		Reduce costs associated with meeting US EPA reporting requirements	$40,000
Total One-Time Costs	$320,000		**Total One-Time Benefits**	
Total Annual Costs	$9,000		**Total Annual Benefits**	$298,000

This project was submitted as a C-2 project in FY01, the legislature approved the project and designated 100% funding from the Corrective Action Special Fund. The committee that oversees this fund persuaded the governor to line item veto the project, as they did not feel that the fund should carry the entire financial burden for the project. The US EPA will be asked to contribute to the funding for the project through federal grants.

Assumptions and Constraints

Software license costs do not include the software license fees for the AMS TEMPO™ software solution that includes web functions and features. Software and hardware costs do not include infrastructure improvements required to make the web portal available 7 days/week and 24 hours/day as these infrastructure needs are handled in a separate C-2. The major costs associated with the project are professional services acquired from an experienced web portal development company to assist the Agency design the web service portal and expand the web functions available through the AMS TEMPO™ software solution.

The benefit associated with reduced document processing costs is based on salary and benefits ($18.50) savings related to an estimated 8,000 work hours saved a year on 3000 permit transactions processed each year.

Benefit Measurement Approach
Once the system is in production for a reasonable amount of time, a before-and-after comparison of specific program performance measures will be made.

Methodology Used to Evaluate Alternatives to Project
Three alternatives were considered prior to approving the strategy to develop and implement an agency web service portal. These alternatives were:
1. Do Nothing
2. Invest in Program Specific Web Applications
3. Develop and Implement a Agency Web Service Portal

The one-time and recurring costs and benefits related to each alternative were estimated compared and compared. Alternative #3 was clearly differentiated as the best strategy for the Agency in achieving significant service delivery improvements with reasonable implementation and maintenance costs.

(4) Customer Benefits

Customer / Stakeholder	*Customer Benefits*
Regulated Entities	• Ability to submit environmental compliance documents on-line • Ability to submit applications on-line • Ability to submit payments (e.g. permit fees) on-line • Ability to view application status information on-line • Ability to search and view information on all environmental permits for all media • Automatic notification of upcoming regulatory deadlines and expirations • Ability to search and view ambient measurement information • Ability to search and query environmental data • Ability to submit questions, comments and suggestions to the Agency via e-mail
Public	• Ability to search and view ambient measurement information • Ability to search and query environmental data • Ability to submit questions, comments and suggestions to the Agency via e-mail
US EPA	• Easy and timely access to standard regulatory reports and data

(5) Inter-Agency Benefits and Infrastructure Sharing
The project will identify any and all opportunities to use and share existing infrastructure components available within state government and will evaluate the components against project requirements. Exceptions to using existing infrastructure will only be made when significant project requirements cannot be satisfied. The project intends to use the CyberCash application that other agencies are using for on-line credit card transaction processing.

The project will identify and prioritize requirements and opportunities to provide access to and exchange information and transactions with federal agencies such as the Environmental Protection Agency (EPA),

Department of Energy (DOE), Bureau of Land Management (BLM) and Department of the Interior (DOI). It will do the same for other state agencies such as the Department of Health (DOH), Economic Development Department, Department of Finance & Administration (DFA) and the Legislative Finance Committee (LFC).

Regarding opportunities to share knowledge and expertise with other agencies, the project will consider what other state agencies have accomplished or planned with electronic commerce. The project will also attempt to glean lessons learned from other agencies and will identify opportunities to share resources (staff, hardware, network, and software) with other agencies.

C. Schedule

Major Project Milestone	Planned Start Date	Planned Complete Date	Major Deliverable
Plan & Activate Project (complete)	5/00	6/00	Project Plan, Work Plan, Project Communication Plan
Research Private & Public Benchmarks (in process)	8/00	10/00	Best Practice Report
Research & Evaluate Web Portal Technologies	10/00	12/00	Technology Assessment Report
Complete System Logical Design	1/01	3/01	Logical System Design Document
Complete System Physical Design	3/01	5/01	Physical System Design Document
Complete System Technical Architecture	5/01	6/01	Technical Architecture Specification
Acquire Hardware & Software	7/01	8/01	Installed Equipment
Build & Test System – Release 1	8/01	11/01	User Acceptance Test Results
Install System – Release 1	12/01	1/02	System & User Documentation
Build System – Release 2	2/02	4/02	User Acceptance Test Results
Install System – Release 2	5/02	6/02	System & User Documentation

D. Technical Overview

(1) Project Requirements & Complexity

Project Scope & Size -
The scope of the project is broad as it serves all Agency programs. Common functionality (e.g. on-line permit application processing) that is needed by more than one program (e.g. air quality, ground water quality) will be programmed as common and shared applications. The use of a phased implementation approach reduces the scope and complexity of the project.

Project Requirements –

The project and system requirements are clearly defined and will not be altered in any significant manner. The Agency Web Service Portal will perform the following functions for all media (air, water, soil) regulated by the Agency:

- Allow regulated entities to submit environmental compliance documents (e.g. discharge monitoring reports, excess emission reports) on-line
- Allow regulated entities to submit applications (e.g. permits, registrations) on-line
- Allow regulated entities to submit payments (e.g. permit fees) on-line
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- Authenticate electronic submissions by verifying digital signatures
- Archive electronic submissions consistent with state and federal EPA requirements
- Convert electronic submissions so that the data can be posted to and stored in internal systems
- Distribute electronic submissions to the appropriate internal destination systems

User Requirements –
The project has already solicited input from all programs within the Agency as to what information and services should be made available through the agency web service portal. Program staff and management will participate throughout the project as the system moves from high-level requirements to detailed system design and construction.

(2) Functional Description of Major Deliverables

Project Plan
The plan describes the project purpose, objectives, benefits, scope, standards, organization, methodology, schedule, risks and constraints, risk mitigation methods, and resources.

Project Work Plan
The project work plan defines all project phases, activities and tasks and assigns timeframes and resources to complete each task. MS Project is the standard work plan software used by the agency.

Project Communication Plan
The project communication plan describes all the communication methods and activities for the project that will keep the agency informed of project status, decisions and implications.

Best Practice Report

Description: This reports summarizes best practices from public and private organizations on how e-commerce technologies and e-government applications have been planned, designed, constructed and implemented.

Technology Assessment Report
Description: The report compares and evaluates alternative technologies for developing and supporting e-commerce applications and web service portals. The report makes recommendations for the agency based on system requirements.

Logical System Design Document
The document will also specify what web service applications need to be developed and what functions each application will perform. It will also document the system performance metrics, operational standards and operational procedures to support the new system.

Physical System Design Document

The physical design document will include data dictionaries, file structures, interface logic, and application logic for the new system.

Technical Architecture Specification
The technical architecture specification will define the hardware (server, client, data network) and software (server, client, data network) configurations for the new GIS.

User Acceptance Test Results
The user acceptance test result document will describe how well the developed GIS satisfies the business and user specifications defined in the logical system design document and whether or not to proceed with system implementation.

System and User Documentation
The system and user documentation contain instructions for system users on how to use the new GIS and instructions for technical support staff on how to troubleshoot problems and maintain the new GIS.

(3) HW/SW/Network Resources
The project will research electronic commerce application technologies that are available and proven within comparable size customer organizations. Technologies that are open, scalable and compatible with the Agency's own open technology standards for hardware, operating system software (NT, Unix) and relational database software (Oracle) will be selected over others. This approach to selecting new technologies will allow the Agency to capitalize on existing investment in technical infrastructure and expertise.

(4) Data & Data Relationships
The project will specify the technical architecture for the agency web service portal. The architecture will be comprised of data, application, user interface, security, and hardware sub-architectures. The data architecture will define the data sources for web service applications. The primary data source will be the IDEA (integrated database for environmental assurance) database, which is the common repository for shared regulatory information on facilities and sites. The use of the IDEA repository will ensure that data and information exchanges facilitated through the web service portal are consistent, current and accurate.

(5) Project Development Approach & Methodology
The Best Practices report will recommend a project and system implementation methodology that has proven to be successful on similar projects. The milestone schedule in section C describes at a high level the systems development methodology that will be followed.

(6) Risk Assessment & Management
A structured risk management methodology will be followed during the course of this project. Project risks will be identified up front and mitigation strategies and actions will be identified, implemented and evaluated for each major risk. The major project risks that have been identified thus far are:

Managing Vendor Performance to Meet NMED Expectations
Mitigation Strategies: All vendor contracts will be written with the following conditions:
- Detailed workplans will be constructed for each phase of the project
- Work on each phase shall begin only after written approval by NMED of a work plan
- All required changes to NMED computing infrastructure shall be identified prior to the design phase of the project

- All vendor deliverables will be approved by NMED prior to payment for such deliverables

Controlling Project Scope, Cost and Timeframe
Mitigation Strategies: The project will document system requirements in detail and use the document to guide the implementation of the system. The project steering committee will approve the system requirements and support a change management process to evaluate and justify any system scope changes prior to approval.

Obtaining Buy-In from all Agency Bureaus and Programs to Use the System
Mitigation Strategies: The project steering committee will include all division managers. The division managers will provide oversight to the project and be responsible for staff involvement on the project.
The major project risks that need to be managed and mitigated during the project are:

Adequate Staffing

Mitigation Strategies: If staff availability becomes a problem, the cabinet secretary will be asked to appoint a team to work on this and/or external expertise will be contracted to work on the project

E. Project Management
The Department CIO will serve as project manager and The Cabinet Secretary will serve as project champion. Project oversight will be provided by a steering committee that will have representation from all Agency divisions. The following project management standards will be followed:

Activity & Task Planning & Tracking
A detailed project workplan will be developed to include all technical and functional tasks necessary to accomplish project objectives. The workplan will be updated at least bi-weekly to reflect progress against tasks and milestones.

Project Status Reporting
A project status report will be produced monthly for the project team, steering committee and other audiences to report project performance against milestones, budget and objectives.

Project Sponsorship
A project steering committee will be established to support the project. All major project stakeholders will be represented on the committee. The committee will be responsible:

- To represent a part of the organization that is at stake for the success of the project
- To ensure that the project approach and schedule is appropriate to achieve project objectives
- To ensure that the project has the appropriate visibility within the organization
- To own the leadership accountability for the project
- To ensure that the necessary resources are made available to the project
- To ensure that appropriate progress is being made on the project to meet goals and objectives
- To make decisions that can not be made at the project team level
- To communicate project status and decisions to appropriate NMED audiences
- To address issues and problems that are escalated from the project team
- To escalate project issues to senior NMED management when necessary

F. Project Staffing

The matrix below outlines the staffing plan for the project:

Project Team Role	Staffing Assignment	Experience / Knowledge Qualifications
Project Champion	Pete Maggiore (Cabinet Secretary)	Knowledge of Agency strategies and goals. Leader and decision make for the entire Agency
Project Manager	Renee Martinez (Department CIO)	Seven years experience developing and implementing I.T. strategies
Business Analyst (1-2)	Laura Orchard (Management Analyst)	Knowledge of NMED processes and services; experience interacting with key customers
Database Administrator (1-2)	Devi Piper (Database Administrator)	Three year experience with NMED applications and databases
Web Architect	New Position	Five years experience developing Web and Electronic Commerce applications
ITS Server / Network Administrator	Fred Gross (IT Technology Master)	Fifteen years experience with hardware design and implementation for server-based applications

G. Change Control and Problem Resolution

A separate development environment will be created for this project. This environment will be isolated from existing Agency production systems so that the new technologies can be testing with no risk to Agency operations. All technical problems will be called into the ITS Help Desk. The Help desk will log, assign and track each problem until final resolution. The project team will review all open problems on at least a bi-weekly basis.

H. Disaster Recovery & Loss/Damage Controls

Disaster recovery requirements will be specified during the requirements and design phases of the project. Technical alternatives will be developed to satisfy these requirements and ultimately a disaster recovery solution will be implemented along with the system.

I. System Security

Security requirements for the web service portal and its applications will be specified during the requirements and design phases of the project. Proven security, authentication and certification methods for handling web-enabled business and financial transactions will be used.

J. Testing, Validation, and User Acceptance

A structured testing methodology will be used to ensure that the system meets all critical functional and technical requirements. The following testing activities will be completed during the lifecycle of the project

Activity: Test Software

Tasks(s): Develop Test Plan; Establish Test Environment; Prepare Unit, System, Integration and Performance Test Cases; Perform Unit, System, Integration and Performance Tests; Perform User Acceptance Testing. The performance test includes a stress test that simulates production-like user and transaction loads.
Purpose: To test the system prior to implementation to ensure it meets critical functional and technical requirements.

K. Training

Technical and functional user system training requirements will be specified during the requirements and design phases of the project. Training curricula will be developed to meet these requirements and all system users and support staff will be trained. A training program for members of the regulated community will be developed.

Agency Name: New Mexico Environment Department Agency Code: 667

FORM C-2
INFORMATION TECHNOLOGY
SPECIAL APPROPRIATION REQUEST

Information System Name & Acronym: Web-Based Agency Geographical Information System (GIS)

Project Type: ___ Infrastructure Expansion/Upgrade ___Software Development
_ X _Software Purchase ___Software Upgrade

System or Project Cost (dollars in thousands)

	FY99 & Prior	FY00 Actual	FY01 OpBud	FY01 Request	FY02 Request	FY03 Estimate	FY04 & Subseq.
General Fund				$0.0	$426.4	$40.9	$0.0
Oth. State Funds				$0.0	$0.0	$0.0	$0.0
I.S./I.A. Trans.				$0.0	$0.0	$0.0	$0.0
Federal Funds				$0.0	$100.0	$8.0	$0.0
TOTAL				$0.0	$526.4	$48.9	$0.0

Expenditure Categories (dollars in thousands)

	FY99 & Prior	FY00 Actual	FY01 OpBud	FY01 Request	FY02 Request	FY03 Estimate	FY04 & Subseq.
000 Per. Svs.				$0.0	$0.0	$0.0	$0.0
010 Emp. Ben.				$0.0	$0.0	$0.0	$0.0
020 I/S Travel				$0.0	$2.0	$0.0	$0.0
030 Maint./Rep.				$0.0	$0.0	$48.9	$0.0
040 Sup./Mat.				$0.0	$0.0	$0.0	$0.0
050 Cont. Svs.				$0.0	$72.9	$0.0	$0.0
060 Op. Costs				$0.0	$133.0	$0.0	$0.0
070 Oth. Costs				$0.0	$0.0	$0.0	$0.0
080 Cap. Out.				$0.0	$298.5	$0.0	$0.0
095 O/S Travel				$0.0	$20.0	$0.0	$0.0
150 Oth. Fin.				$0.0	$0.0	$0.0	$0.0
TOTAL				$0.0	$526.4	$48.9	$0.0

System Development (check when actually or expected to be completed):

	FY99 & Prior	FY00	FY01	FY02	FY03	FY04 & Subseq.
Needs Assess.			**X**			
Formal Design				**X**		
Software Develop't.				**X**		
Hardware Acquisition				**X**		
FTE Hired, Trained				**X**		
Fully Oper-ational				**X**		
Mainte-nance						

System Life Expectancy (Dates in Fiscal Years): 5-7

Project Summary (attach Detailed Project Description as outlined in IT Plan Guide):
This project will design and implement a web-based and agency-wide geographical information system (GIS) to allow the agency to document and analyze environmental data and share environmental information with the public, legislators and the regulated community.

Certification: I hereby certify that the amounts and information provided are the best estimates and that no willful misrepresentation is hereby made.

Chief Information Officer (please print)	Chief Information Officer (signature)	Date

827-0319	renee_martinez.its@nmenv.state.nm.us	827-2836
Phone No.	E-Mail Address:	Fax No.

A. Project Description:

Purpose & Objectives

This project will design and implement a web-based and agency-wide geographical information system (GIS) to allow the agency to document and analyze environmental data and share environmental information with the public, legislators and the regulated community. The system will allow on-line access to environmental data stored in the agency data warehouse that tracks regulatory information about air, water and soil quality including underground storage tanks, public drinking water systems, and ground water basins. The capability to plot and reference information on a map is important to environmental analysis since geology can influence environmental conditions. For example, spatial analysis of local geology and contamination sources such as leaking underground storage tanks can surface potential threats to ground water.

The project goals are to build an agency-wide system with centralized databases and applications, standardize GIS software and hardware in order to reduce maintenance and support costs, and provide a single point of access to agency geo-spatial data.

Current Environment

The New Mexico Environment Department's current GIS architecture is seven years old and is based on ESRI application software and proprietary database software. The current GIS was not designed for broad agency use and has approximately ten (10) casual users and no more than five (5) dedicated users across the agency. The agency has purchased but has not installed several new ESRI products that allow geo-spatial data to be stored in an Oracle database (vs. the current proprietary database) and accessed via the Internet. The new products will allow users to link geo-spatial data to existing Oracle business databases.

The Agency has established a GIS User Steering Committee with representatives from several programs including Air Quality, Water Quality, Drinking Water, Field Operations, Surface Water Quality, Underground Storage Tanks, DOE Oversight and Library Services. The purpose of the committee is to guide agency GIS technology investments to maximize the value of GIS software and data sharing across the Department. This committee has recommended that a web-based agency-wide GIS be designed and implemented. The committee will guide the specification of the functional and user requirements for the new system and will provide oversight to the project.

Major Requirements

The major requirements for the web-based agency-wide GIS are 1) to provide GIS application development tools and standards, 2) to provide program staff, managers and senior staff with access to agency GIS applications, 3) to provide a shared geo-spatial data and application repository, 4) to allow users to conduct analysis that combines geo-spatial and business data, and 5) to allow external parties such as state and federal agencies, contractors, regulated customers, and the public to access agency geo-spatial data and applications using the Internet.

Costs & Benefits

The project implementation costs are estimated at $516,400. The recurring annual costs to maintain the system are estimated at $48,900.

The major benefits the Agency anticipates from the system and project are 1) Agency can more effectively communicate current and potential environmental issues to legislators, the regulated community and the public by using a geographic user interface, 2) Agency can more effectively share geo-spatial data and applications across programs and with other state and federal agencies, 3) Agency reduces the duplication of geo-spatial data and applications, 4) Agency has easy access to current geo-spatial data for analysis and makes better decisions, 5) Agency reduces the time and costs associated with developing geo-spatial applications.

B. Business Justification:

1. Project Relationship to Agency Goals

The project serves and supports the following Agency goals adopted in the Agency's Strategic Plan 2000:

Goal #1: Improve the quality of service to the public through education and participation by governing entities, tribes, businesses, organizations, and citizens in our decision making process

A requirement of this project is to store important geo-spatial data in a central data repository and provide access to this information via the Agency web site. This will result in improved public awareness of agency activities and environmental issues.

Goal #2: Enhance the way we collect, use, share, and distribute information by shifting measurements of effectiveness from actions to results whenever possible, implementing data and report standards, automating workflows, implementing internet and electronic commerce applications, and giving decision makers easy access to timely and accurate environmental performance information

The Web-Based Agency GIS will definitely enhance the way that the agency collects, uses and shares information. The capability to plot and reference information on a map is important to environmental analysis since geology can influence environmental conditions. For example, spatial analysis of local geology and contamination sources such as leaking underground storage tanks can surface potential threats to ground water.

Goal #4: Improve organizational performance by providing an atmosphere that promotes employee enthusiasm and motivation

The Web-Based Agency GIS will provide program staff with tools to access GIS applications and develop GIS applications. On a recent employee satisfaction survey, the lack of automated tools to perform job duties surfaced as a major cause of employee dissatisfaction.

Project Relationship to Agency IT Goals

The project has been identified as a major objective within the Agency's Strategic IT Plan. The following is an excerpt from this plan:

IT Strategic Goal 4. Assist the Department Implement Applications that Enhance Services and Information Sharing with the Regulated Community and Public

Strategies to Achieve Goal 4:
Strategy 1: Implement the Integrated Database for Environmental Assurance (IDEA)
Strategy 2: Deliver Services and Provide Access to Information via the Internet
Strategy 3: Improve Department GIS Capabilities

Objectives that Implement Strategy 3:
Objective 1: Install New GIS Software & Complete a Pilot Project by 3/1/2001
Objective 2: Complete Requirements and Design for a Web-Based Agency GIS by 9/1/2001
Objective 3: Develop and Implement a GIS User Training Program by 1/1/2002
Objective 4: Complete the Implementation for the Web-Based Agency GIS by 4/1/2002

2. Project Relationship to State IT Strategic Plan

The project directly supports the Public Access and Participation of Citizens strategy and its objectives. The goal of this strategy is to "Use IT to enable the participation of citizens in state government by making the access processes simple, easy to use, affordable, and widely available." Members of the regulated community and the public will be able to access the new Agency GIS from the agency's web site. They will have access to timely environmental information using a simple and easy to use geographical user interface. For example, GIS maps will be accessible that relate environmental data and statistics to geology, demographics and cadastre.

3. *Summary Cost-Benefit Analysis*

Cost Item	Cost Estimate		Benefit Item	Benefit Value
Software Licenses	$216,000		Agency can more effectively communicate current and potential environmental issues to legislators, the regulated community and the public by using a geographic user interface	
Software Maintenance	$32,400		Agency can more effectively share geo-spatial data and applications across programs and with other state and federal agencies	$25,000
Hardware Purchases	$82,500		Agency reduces the duplication of geo-spatial data and applications	$75,000
Hardware Maintenance	$16,500		Agency has easy access to current geo-spatial data for analysis and makes better decisions	
Training & Travel	$145,000		Agency reduces the time and costs associated with developing geo-spatial applications	$150,000
Professional Service Contracts	$72,900			
Total One-Time Costs	$516,400		**Total One-Time Benefits**	
Total On-going Costs	$48,900		**Total On-going Benefits**	$250,000

Assumptions and Constraints

The cost estimates assume 100 GIS users to train and that ESRI is retained as the agency GIS product vendor. The benefit estimates are based on current GIS support costs and investments made by the Agency.

Benefit Measurement Approach

Once the system is in production for a reasonable amount of time, a before-and-after comparison of specific program performance measures will be made.

Methodology Used to Evaluate Alternatives to Project

Four alternatives to enhancing the Agency's GIS capabilities were considered prior to approving the strategy to develop and implement and Web-based agency GIS. These alternatives were:

- Do Nothing
- Install New ESRI Products
- Design and Implement a Web-Based Agency Geographical Information System

The approach used to evaluate alternatives was to ask members of the GIS User Steering Committee to describe their current GIS capabilities, the problems with the current agency GIS and future program GIS needs. This information was compiled for each bureau and shared with the committee. It was determined that the first two alternatives would satisfy few bureaus and therefore they were eliminated.

4. *Customer Benefits*

Customer / Stakeholder	*Customer Benefits*
Regulated Community	• Improved awareness and understanding of agency activities, decisions, accomplishments and environmental issues impacting the state
Executive & Legislative Leaders	• Improved awareness and understanding of agency activities, decisions, accomplishments and environmental issues impacting the state
Citizens	• Improved awareness and understanding of agency activities, decisions, accomplishments and environmental issues impacting the state
Agency employees	• Improved work efficiencies through data and application sharing and good GIS tools

5. *Inter-Agency Benefits and Infrastructure Sharing*

The project will identify any and all opportunities to use and share existing infrastructure components available within state government and will evaluate the components against project requirements. Exceptions to using existing infrastructure will only be made when significant project requirements cannot be satisfied.

The Web-based Agency GIS will allow more exchange of geo-spatial information between the Agency and other state and federal agencies including but not limited to the following:

- US Environmental Protection Agency (US EPA)
- Department of Energy (DOE)
- Bureau of Land Management (BLM)
- Department of the Interior (DOI)
- Department of Health (DOH)
- Economic Development Department (EDD)
- Office of the State Engineer (OSE)

C. Schedule

Major Project Milestone	Planned Start Date	Planned Complete Date	Major Deliverable
Plan Project	3/2001	5/2001	Project Plan & Project Work Plan
Activate Project	5/2001	6/2001	Project Communication Plan
Conduct User Needs Analysis	6/2001	7/2001	User Needs Analysis Report
Prepare Conceptual Design	7/2001	8/2001	Conceptual System Design Document
Prepare Logical Design	8/2001	9/2001	Logical System Design Document
Prepare Physical Design	9/2001	10/2001	Physical System Design Document
Define Technical Architecture	9/2001	10/2001	Technical Architecture Specification
Define Development Tools	9/2001	10/2001	Technical Architecture Specification
Acquire Hardware & Software	11/2001	1/2002	
Build, Prototype & Test System	12/2001	2/2002	User Acceptance Test Results
Implement System	2/2002	4/2002	System and User Documentation

D. Technical Overview

1. Project Requirements & Complexity

Project Scope & Size –
The scope of the project is broad as it serves all Agency programs. Common functionality (e.g. maps of permitted facility against legislative districts) that is needed by more than one program (e.g. air quality, ground water quality) will be programmed as common and shared applications.
The complexity of the project is reduced by the fact that the Agency has seven years experience with GIS technologies and with ESRI products.

Project Requirements –
The project requirements are clearly defined and understood within the Agency:

- Build a web-based agency GIS with centralized databases and applications
- Standardize GIS software and hardware in order to reduce maintenance and support costs
- Provide a single point of access to agency geo-spatial data for employees, management, the regulated community and the public

User Requirements –

A collaborative process will be followed on this project to identify and verify system requirements. Representatives from each Agency division and bureau will participate in system requirements and design definition sessions. User participation throughout this project will be critical. Senior management will set expectations for user participation and support of project decisions.

2. Functional Description of Major Deliverables

Project Plan
The plan describes the project purpose, objectives, benefits, scope, standards, organization, methodology, schedule, risks and constraints, risk mitigation methods, and resources.

Project Work Plan
The project work plan defines all project phases, activities and tasks and assigns timeframes and resources to complete each task. MS Project is the standard work plan software used by the agency.

Project Communication Plan
The project communication plan describes all the communication methods and activities for the project that will keep the agency informed of project status, decisions and implications.

User Need Analysis Report
This report will describe at a high level the new GIS capabilities desired by program staff, managers, senior staff and external stakeholders.

Conceptual System Design Document
The conceptual design document will identify current and future system users, specify functions/features required/desired by users, and specify user considerations.

Logical System Design Document
The logical design document will specify the data design, using data flow diagrams and entity-relationship diagrams, application design and interface design for the new GIS. The document will specify what GIS

applications need to be developed and what functions each application will perform. It will also document the system performance metrics, operational standards and operational procedures to support the new GIS.

Physical System Design Document
The physical design document will include data dictionaries, file structures, interface logic, and application logic for the new GIS.

Technical Architecture Specification
The technical architecture specification will define the hardware (server, client, data network) and software (server, client, data network) configurations for the new GIS.

User Acceptance Test Results
The user acceptance test result document will describe how well the developed GIS satisfies the business and user specifications defined in the logical system design document and whether or not to proceed with system implementation.

System and User Documentation
The system and user documentation contain instructions for system users on how to use the new GIS and instructions for technical support staff on how to troubleshoot problems and maintain the new GIS.

3. HW/SW/Network Resources
This project will leverage the existing GIS hardware and software assets as much as possible in order to reduce project costs. The agency intends to continue to use ESRI products as the foundation for the web-based agency GIS. ESRI is the GIS technology market leader in the private and public sector and the agency considers ESRI software as proven and effective. ESRI technology runs on Intel-based clients and Sun Solaris servers both are agency standards and are open platforms. ESRI is utilizing Oracle as the database engine for geo-spatial data and the agency has standardized on Oracle as the database engine for business applications, therefore, integration of agency geo-spatial data with agency business data will be straightforward, and easy to implement and maintain.

4. Data & Data Relationships
The agency currently uses a variety of other state and federal agency sources; including USGS, BLM, and the State Engineer, for baseline geo-spatial data. The agency associates environmental information to these baselines. The web-based agency GIS will be designed to be able to upload new and changed geo-spatial data from external sources. The agency will adopt and apply data quality standards against internal and external sources of data to ensure accuracy. The agency will be responsible for the quality of all geo-spatial data created internally and will follow FSGS metadata standards.

5. Project Development Approach & Methodology
A proven and structured project management and systems implementation methodology will be used on this project. The agency has just started a project to select and implement a standard IT project methodology; the standard methodology will be in place prior to the start of this project and of course will be used. The milestone schedule in section C describes at a high level the systems development methodology that will be followed.

6. Risk Assessment & Management
The major project risks that need to be managed and mitigated during the project are:

Controlling Project Scope, Cost and Timeframe
Mitigation Strategies: The project will document system requirements in detail and use the document to guide the implementation of the system. The project steering committee will approve the system requirements and support a change management process to evaluate and justify any system scope changes prior to approval.

Obtaining Buy-In from all Agency Bureaus and Programs to Use the System
Mitigation Strategies: The project steering committee will include all division managers. The division managers will provide oversight to the project and be responsible for staff involvement on the project.

E. Project Management
Two part-time project managers will be assigned day-to-day project responsibilities. One will be responsible for the functional definition, design and implementation of the system and the other for the technical definition, design and implementation of the system. At least one of the project managers will have experience managing large M.I.S. projects. Formal project management techniques will be used on the project including:

Activity & Task Planning & Tracking
A detailed project workplan will be developed to include all the technical and functional tasks necessary to accomplish project objectives. The workplan will be updated at least bi-weekly to reflect progress against tasks and milestones.

Project Methodology
A formal methodology will be used on the project to specify roles and responsibilities, activities and tasks, deliverables, techniques, and quality assurance checkpoints.

Project Status Reporting
A project status report will be produced monthly for the project team, steering committee and other audiences to report project performance against milestones, budget and objectives.

Project Sponsorship
A project steering committee will be established to guide this project. All agency divisions will be represented on the committee. The agency's ITMO liaison will be asked to serve as a member on the steering committee as well other state agency GIS experts/managers. The committee will be responsible:

- To ensure that the project approach and schedule is appropriate to meet business objectives
- To ensure that the project has the appropriate visibility within the organization
- To own the leadership accountability for the project
- To ensure that the necessary resources are made available to the project
- To ensure that appropriate progress is being made on the project to meet goals and objectives
- To make decisions that can not be made at the project team level, such as allocating resources and prioritizing project activities against other NMED projects & activities
- To represent a part of the organization that has a stake in the success of the project
- To communicate project status and decisions to appropriate NMED audiences
- To address issues and problems that are escalated from the project team
- To escalate project issues to senior NMED management when necessary

F. Project Staffing

Project Team Role	Staffing Assignment	Experience / Knowledge Qualifications
Functional Project Manager	Erik Aaboe (Program Manager)	Seven years experience using GIS to support regulatory environmental management processes
Technical Project Manager	Glen Smutz (ITS Bureau Chief)	Five years experience developing and implementing information systems
IS Database Administrator	Devi Piper (Database Administrator))	Experience with NMED applications and databases

Project Team Role	Staffing Assignment	Experience / Knowledge Qualifications
IS GIS Administrator	Jim Benenson (Technology Master I)	Ten years experience with GIS hardware and software
IS Server and Network Administrator	Fred Gross (Technology Master III)	Fifteen years experience with hardware design and implementation for server-based applications
IS Web Architect	New Position	Five years experience developing web and e-commerce applications
Business Analyst	GIS User Steering Committee Members	Two years experience using GIS to support regulatory environmental programs
Trainer	" "	Two years experience using GIS to support regulatory environmental programs

G. Change Control and Problem Resolution

A formal process for managing issues and changes will be followed on the project.

Issue Management
Project issues will be documented and addressed in a timely manner so as not to impede project progress. A standard issue management process will be used; each issue will be assigned to an individual with a resolution date specified. The project team will review progress against open issues regularly and escalate appropriate items to the project steering committee.
Change Management
All changes from the original design document will be documented and managed closely. The requestor of a change will describe it, evaluate costs and benefits, and offer at least two implementation alternatives including a 'do nothing' alternative. Each change will be evaluated prior to approval.

H. Disaster Recovery & Loss/Damage Controls

A system disaster recovery plan will be developed during the design stage of the project. The plan will take into account the nature of the system and data, and most importantly, the impact of system outages to NMED operations and customers. At a minimum, system data will be backed up daily and stored off-site.

I. System Security

The following user security requirements have been specified:
- User id and password required to access the system
- System access is restricted to screens & functions appropriate to user profile
- User is automatically prompted to specify a new password at least every 30 days
- User is automatically logged off when session has been inactive

J. Testing, Validation, and User Acceptance

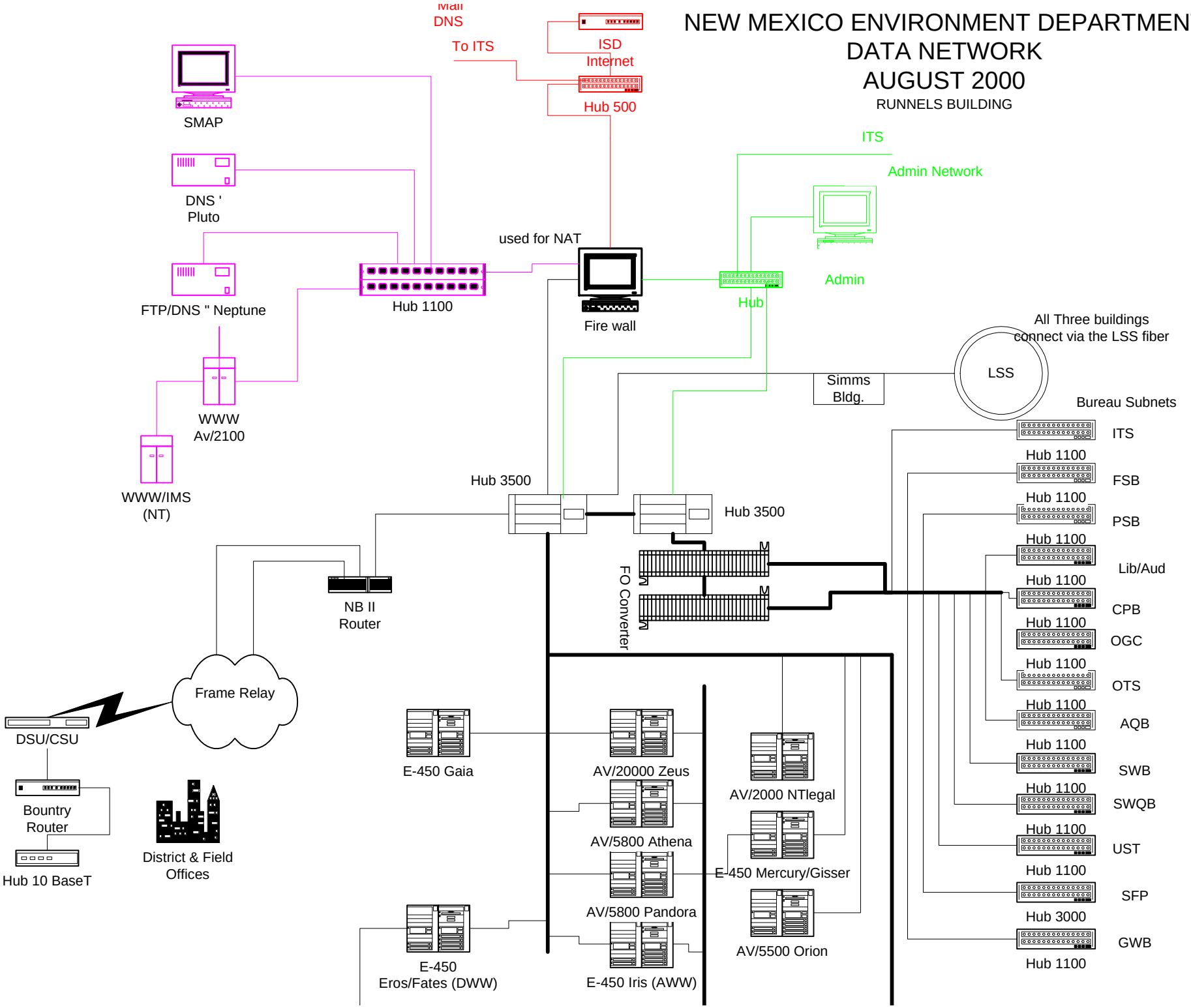
A structured testing methodology will be used to ensure that the system meets all critical functional and technical requirements. The following testing activities will be completed during the lifecycle of the project

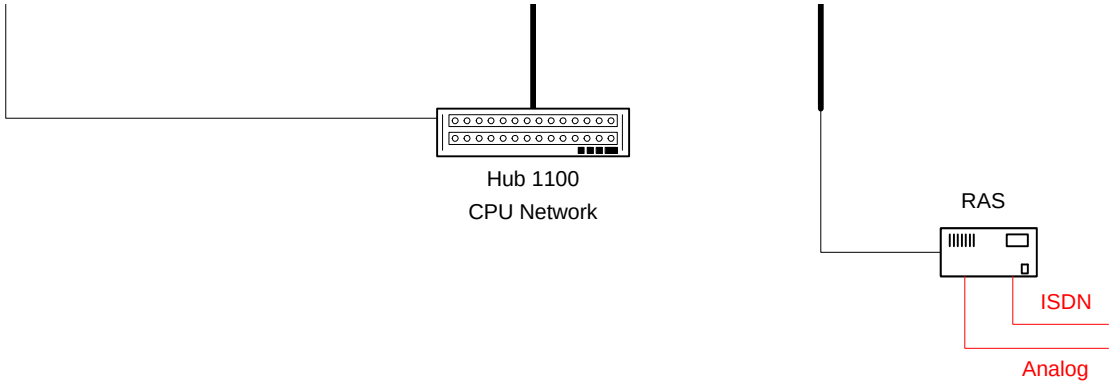
Activity: System Testing
Task(s): Develop Test Plan; Establish Test Environment; Prepare Unit, System, Integration and Performance Test Cases; Perform Unit, System, Integration and Performance Tests; Perform User Acceptance Testing. The performance test includes a stress test that simulates production-like user and transaction loads.
Purpose: To test the system to ensure it meets critical functional and technical requirements. This is done prior to implementing the system.

K. Training

Training will be provided to program staff, managers and senior staff. The agency views GIS as an effective analytical and communication tool for programs and the agency as a whole. Technical training will also be provided to IS staff that will be responsible for supporting the system.

Appendix A – NMED Network Diagram


NEW MEXICO ENVIRONMENT DEPARTMENT
DATA NETWORK
AUGUST 2000
RUNNELS BUILDING
Mail
DNS
To ITS
ISD
Internet
Hub 500
SMAP
DNS '
Pluto
FTP/DNS " Neptune
WWW
Av/2100
WWW/IMS
(NT)
Hub 1100
used for NAT
Fire wall
ITS
Admin Network
Admin
Hub
All Three buildings
connect via the LSS fiber
LSS
Simms
Bldg.
Bureau Subnets
ITS
Hub 1100
FSB
Hub 1100
PSB
Hub 1100
Lib/Aud
Hub 1100
CPB
Hub 1100
OGC
Hub 1100
OTS
Hub 1100
AQB
Hub 1100
SWB
Hub 1100
SWQB
Hub 1100
UST
Hub 1100
SFP
Hub 3000
GWB
Hub 1100
Hub 3500
Hub 3500
FO Converter
NB II
Router
Frame Relay
DSU/CSU
Bountry
Router
Hub 10 BaseT
District & Field
Offices
E-450 Gaia
AV/20000 Zeus
AV/5800 Athena
AV/5800 Pandora
E-450 Iris (AWW)
E-450
Eros/Fates (DWW)
AV/2000 NTlegal
E-450 Mercury/Gisser
AV/5500 Orion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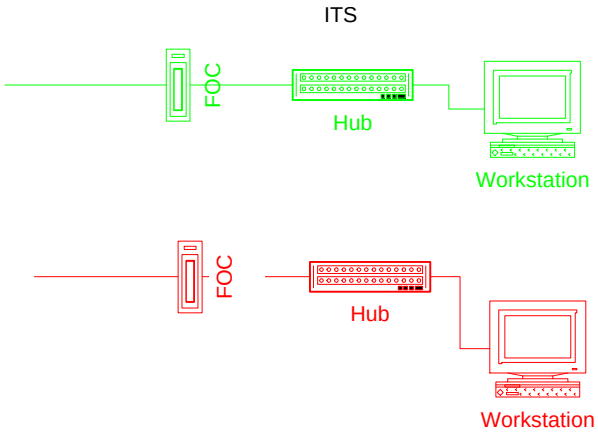
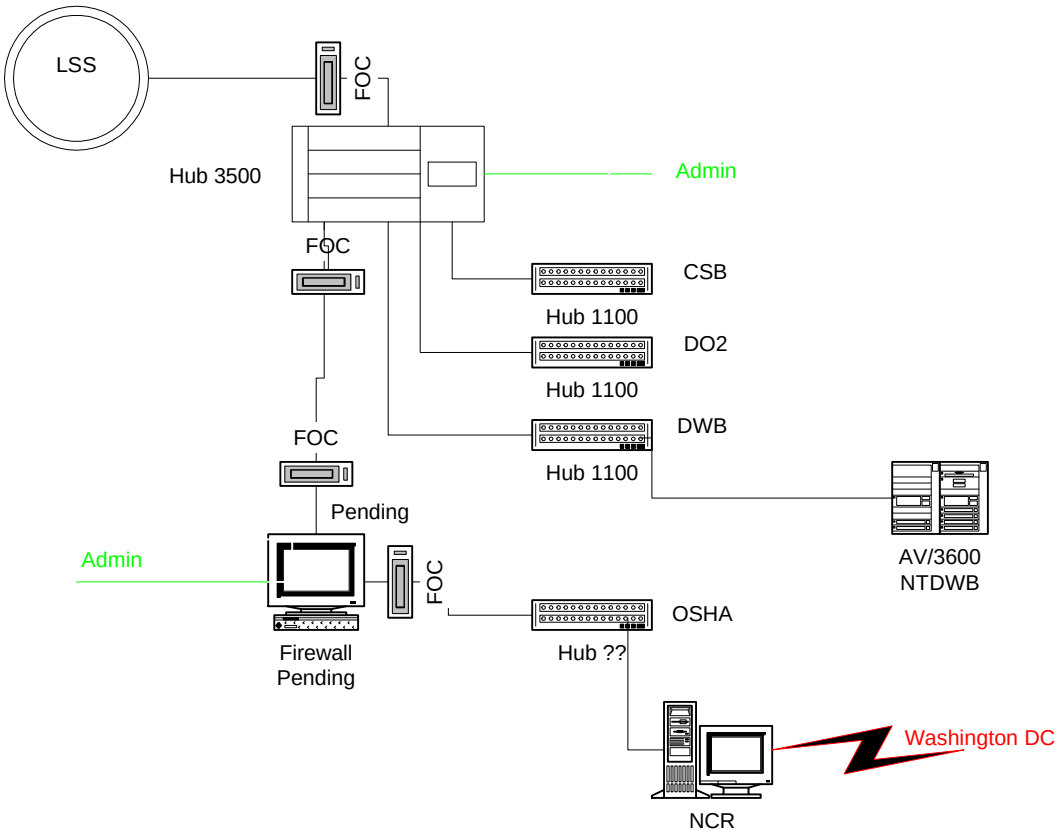
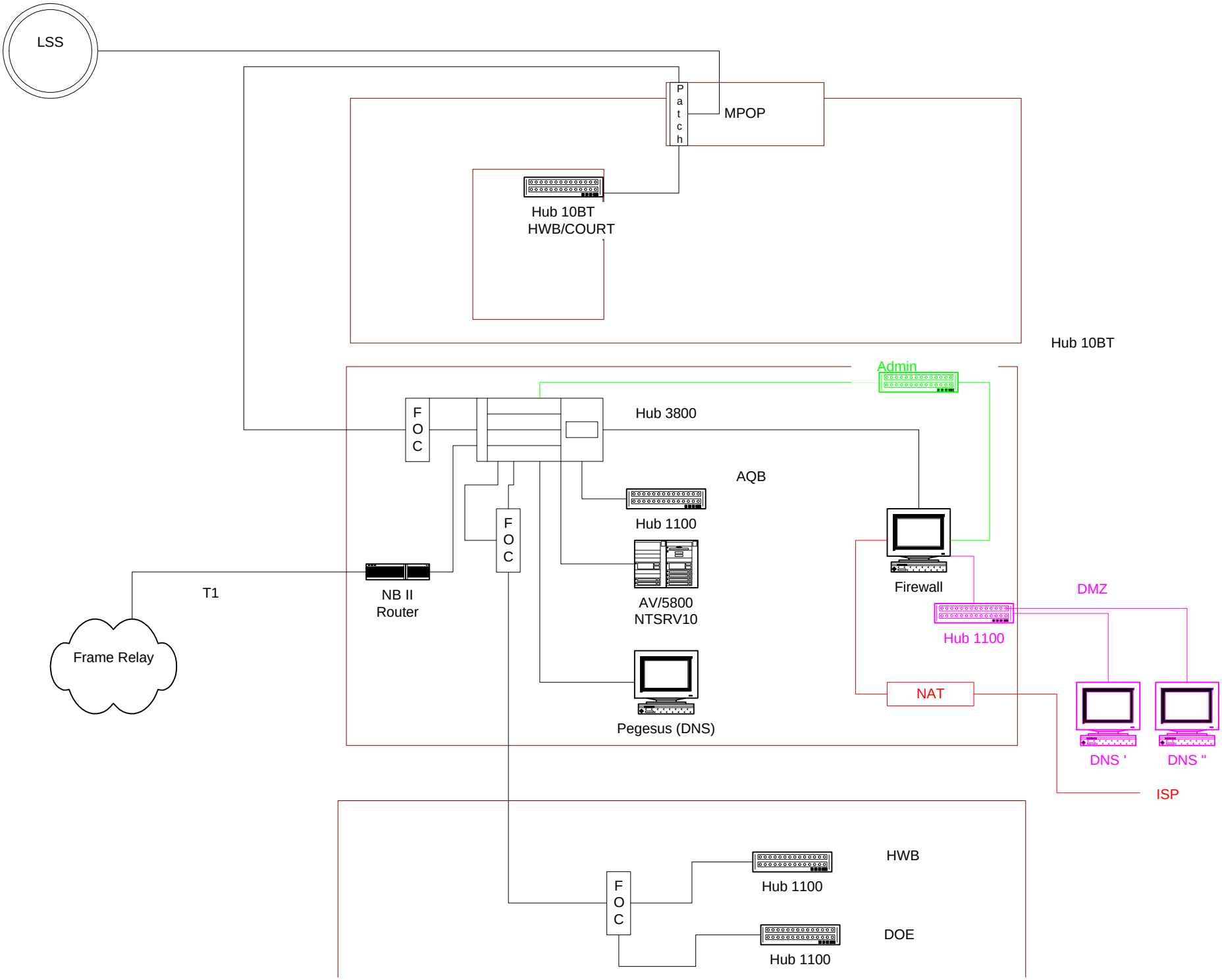
CPU Network
RAS
ISDN
Analog


ITS
FOC
Hub
Workstation
FOC
Hub
Workstation

MARQUEZ PLAZA




LSS
Patch
MPOP
Hub 10BT
HWB/COURT
Hub 10BT
Admin
FOC
Hub 3800
AQB
Hub 1100
FOC
NB II
Router
T1
Frame Relay
AV/5800
NTSRV10
Pegesus (DNS)
Firewall
DMZ
Hub 1100
NAT
DNS '
DNS ''
ISP
HWB
Hub 1100
FOC
DOE
Hub 1100

Appendix B – Hardware Inventory Form

HARDWARE INVENTORY FORM

Agency Name: Environment Department Agency Code: 667

Hardware Inventory	FY00 EOY Actual # of Units	FY01 Planned # of Acquisitions	FY01 EOY Planned # of Units	FY02 Planned # of Acquisitions
Personal Computers				
PC: Pentium (350 & above)	120	150	270	206
PC: Other	200		200	
Laptop: Pentium (350 & above)	20	20	45	20
Laptop: Other	30		30	
Apple				
Network computing device (or other thin client)				
Other Workstations (list)				
Terminals				
5250 Compatible				
3270 Compatible				
VTxxx				
Xwindows	30		30	
Printers				
Cost: $10K and more				
Cost: Less than $10K	130	30	140	40
Minicomputers				
DEC VAX				
HP 3000				
HP 9000				
AS/400				
RS6000				
Other (list)				
Servers				
Intel - non-Pentium				
Intel - Pentium	9	2	9	
Alpha				
Power-PC				
Sun	6	3	9	3
Data General AV	7		6	
Routers (specify brand) 3Com	2		2	
Switches, level 3 3Com	27	3	30	3
Scanners	12	4	16	4
Plotters	5	1	6	1
*Microphotography Systems				
Server				
Scanner				
Jukebox	1		1	
Retrieval eqt. (specify)				
Other hardware (list)				

*Has your microphotography system been approved by State Records Center? N/A

Appendix C - Desktop Software Inventory Form

DESKTOP SOFTWARE INVENTORY FORM

Agency Name: Environmnet Departmnet Agency Code: 667

Desktop Software Inventory	FY00 EOY Actual # of Licenses	FY01 Planned # of License Acquitisions	FY01 EOY Planned # of Licenses	FY02 EOY Planned # of Licenses
Office Suites				
Lotus Smartsuite	4		0	0
Microsoft Office	526	24	550	575
WordPerfect Office	18		0	0
Word Processing Packages				
Word	110		110	110
WordPerfect	120		0	0
Other (list)				
Spreadsheets				
Lotus	40		5	5
Excel	110		110	110
Other(list)				
Database Packages				
Access	46	20	66	80
DBase	4		4	4
Foxpro	8		4	0
Other (list)				
ARCinfo				
EMAIL				
ccmail				
Microsoft exchange				
Microsoft mail				
Eudora				
GroupWise				
Lotus Notes	1		1	1
Other (list)				
Other (list)				
Communications				
Citrix ICA Client	275			
Hummingbird eXceed	4	16	20	30
Ipswitch FTP95 Client	78		78	78
PcAnyWhere	18		18	18
Palm Pilot Desktop	10	20	30	40
Development				
Developer 2000	5		5	5
Visual Basic	2		2	2
Visual C++	2		2	2
Active Perl	6	2	8	8
Internet Applications				
Internet Explorer	540		540	540
Netscape	288	12	300	300
Productivity Applications				
Microsoft Project	16	6	22	30
Utilities				
Acrobat Reader	128	100	228	328
FTP Explorer	40		40	40
McAfee VirusScan	184		184	184
Norton AntiVirus	380	100	480	580
PKWare Pkunzip	56		56	56
Seagate Backup Exec	54		54	54
KeyView Pro	12	8	20	30

Appendix D - Infrastructure Inventory Form

INFRASTRUCTURE INVENTORY FORM

Agency Nam Environment Department Agency Code 667

Infrastructure Inventory	FY00 EOY Actual # of Units	FY01 Planned # of Acquisitions	FY01 EOY Planned # of Units	FY02 EOY Planned # of Units
Mainframe Access				
3270 Emulation	6	0	6	6
Network Operating Systems				
UNIX Solaris Ultra	5	2	7	8
UNIX Solaris Intel	3	2	5	5
UNIX DG/UX	9		8	7
UNIX other	1		1	1
Windows NT 2Advanced Server 4.x (non-Citrix)	5		4	2
Windows NT 3.51 Citrix	1		0	0
Windows NT 4.0 TS	2	0	1	0
Windows 2000	0	2	2	2
Client Software				
Windows 3.x/ Windows for Workgroups	0		0	0
Windows 95/98	488		475	420
Windows NT4.0 Workstation	48		48	48
Windows 2000	2		20	150
UNIX	3		3	3
DBMS				
Oracle	2	1	3	3
Development Tools				
Oracle Developer	2		2	2
Oracle Designer	1		1	1
Oracle Discover	18	12	30	40
Oracle OEM Disgonistics	1		1	1
Oracle Applications				
OFA General Ledger	1		1	1
OFA Accounts Payable	1		1	1
OFA Purchasing	1		1	1
OFA Accounts Receivable	1		1	1
Web page tools (list)				
Oracle Web DB	1		1	1
Oracle Web Server	1		1	1
MS Front Page 2000	1		1	1
UltraEdit	1		1	1
Internet Server Software (list)				
Sunscreen Firewall	2	0	2	2

Appendix E – Applications Inventory Form

SYSTEM INFORMATION		SERVICE INFORMATION			FAILURE INFORMATION priority: 1: < 4 hrs, 2: 2-24 hrs, 3: 1-5 days, 4: >5 days		
BUSINESS PURPOSE	**SYSTEM NAME** LANGUAGE DATABASE	**MAJOR INPUTS**	**MAJOR OUTPUTS**	**CUSTOMERS**	**CONSEQUENCUES**	**Priority**	
Purpose: To create, report, and maintain information on Food, Drinking Water, and Liquid Waste programs.	**FIELD OPERATIONS** *Platform: Unix, NT* *Language: ORACLE, MS Access*	Permits, Monitoring Data, Tracking Data, Regulations, Inspections	Reporting, Compliance, Enforcement, GIS/Web queries, Certification	Citizens, Restaurants	One month to manual processes	4	
Purpose: To create, report, and maintain information on Unauthorized Spills, Discharge Plan, and Water Fair programs	**GROUND/SURFACE WATER** *Platform: Unix* *Language: ORACLE*	Permits, Monitoring Data, Tracking Data, Regulations, Inspections	Reporting, Compliance, Enforcement, GIS/Web queries, Certification	Industry, Citizens	Two weeks to manual process	4	
Purpose: To create, report, and maintain information on Radiation Machines, Radiation Technicians and Inspections.	**HAZARDOUS WASTE** *Platform: : Unix, NT* *Language: ORACLE, MS Access*	Permits, Monitoring Data, Tracking Data, Regulations, Inspections	Reporting, Compliance, Enforcement, GIS/Web queries, Certification	Industry, Citizens	Two weeks to manual process	4	
Purpose: To create, report, and maintain information on User Requests, User Names, Legislative Tracking, Environmental Improvement Review, Parental Responsibility Act programs.	**INFORMATION SYSTEMS** *Platform: Unix* *Language: ORACLE*	Tracking, CSED, LTO, HelpDesk	Reporting	NMED, Legislators	One week	2	

SYSTEM INFORMATION		SERVICE INFORMATION			FAILURE INFORMATION priority: 1: < 4 hrs, 2: 2-24 hrs, 3: 1-5 days, 4: >5 days		
BUSINESS PURPOSE	**SYSTEM NAME** LANGUAGE DATABASE	**MAJOR INPUTS**	**MAJOR OUTPUTS**	**CUSTOMERS**	**CONSEQUENCUES**	**Priority**	
Purpose: To create and report information on time sheet transactions and labor distribution.	**TIME TRACKING** *Platform: Unix* *Language: ORACLE*	Timesheets, Disability	Paychecks, Disability, Retirement	DFA, SPO, NMED employees, past and present	One week	2	
Purpose: To create, report, and maintain information on Tank Registration, Leaking Underground Storage Tanks, Tank Installer Certification, and Scientist Certification Programs.	**UNDERGROUND STORAGE TANKS** *Platform: Unix* *Language: ORACLE*	Permits, Monitoring Data, Tracking Data, Regulations, Inspections	Reporting, Compliance, Enforcement, GIS/Web queries, Certification	Industry, Citizens	One week	4	
Purpose: To create, report, and maintain financial transactions.	**FINANCIAL ACCOUNTING SYSTEM** *Platform: Unix* *Language: ORACLE*	Purchase Requisitions, Payment Invoices, Cash Receipts	Fiscal reporting, payments	NMED, LFC, State and Federal Agencies, Vendors	Two weeks to manual processes	3	
Purpose: To create, report, and maintain information on Solid Waste	**SOLID WASTE** *Platform: PC* *Language: Access*	Permits, Monitoring Data, Tracking Data, Regulations, Inspections	Reporting, Compliance, Enforcement, GIS/Web queries, Certification	Industry, Citizens	Two weeks to manual process	4	
Purpose: To create, report and maintain information on Air Quality	**AIR QUALITY** *Platform: Unix* *Language: ORACLE*	Permits, Monitoring Data, Tracking Data, Regulations, Inspections	Reporting, Compliance, Enforcement, GIS/Web queries, Certification	Industry, Citizens	One week to manual process	4	

SYSTEM INFORMATION		SERVICE INFORMATION			FAILURE INFORMATION priority: 1: < 4 hrs, 2: 2-24 hrs, 3: 1-5 days, 4: >5 days		
BUSINESS PURPOSE	**SYSTEM NAME** LANGUAGE DATABASE	**MAJOR INPUTS**	**MAJOR OUTPUTS**	**CUSTOMERS**	**CONSEQUENCUES**	**Priority**	
Purpose: To create and maintain budget request data; to generate final budget request forms.	**BUDGET PREPARATION** *Platform: UNIX SERVER* *Language: ORACLE*	Operating Budget	Expenditures and encumbrances	NMED, DFA	If budget is in place, six months to manual process	4	
Purpose: To exchange environmental data between our programs and EPA.	**EXTERNAL SYSTEM INTERFACES** *Platform: PC or NT with 3270 emulation* *Language: N/A*	Permits, Monitoring Data, Tracking Data, Regulations, Inspections	Reporting, Compliance, Enforcement, GIS/Web queries, Certification	EPA, EMNRD/MMD	One month to manual process	4	
Purpose: To update financial and payroll data to our in-house accounting system.	**INTERNAL SYSTEM INTERFACES** *Platform: Mainframe to PC* *Language: N/A*	General Ledger, Warrant Backfill	Reconciliation	NMED, DFA	Two weeks to manual process	4	
Discoverer Web dB	**Oracle**	All Oracle databases	Ad hoc reporting	All NMED	N/A	N/A	

Appendix F - Base or Program Change Project Detail Form (Form EBB-2)

Expansion Request: Information Technology Support Structure

REVENUE/SOURCES	FY02 EXPANSION REQUEST
110 General Fund	$631.8 (R), $78.8 (N)
115 Fund Balance	
120 Oper Trnsfr In	
130 Int Svc/Intagncy Trsfr	
140 Federal Funds	$142.0
150 Other Revenue	
TOTAL REVENUE/SOURCES	$773.8 (R), $78.8 (N)
EXPENDITURES/USES	
000 Personal Services	$170.0
010 Employee Benefits	$47.6
020 Travel	$3.2
030 Maintenance and Repairs	$9.1
040 Supplies and Materials	$2.4 (R), $5.6 (N)
050 Contractual Services	$520.0 (R), $5.0 (N)
060 Operating Costs	$11.7 (R), $1.0 (N)
070 Other Costs	$0.0
080 Capital Outlay	$2.4 (R), $67.2 (N)
095 Out-of-State Travel	$7.3
150 Other Fin Uses	$0.1
TOTAL EXPEND/USES	$773.8 (R), $78.8 (N)
FTE EQUIVALENTS (FTEs)	
210 Permanent	4.0
220 Term	
230 Temporary	
TOTAL FTE	4.0

REQUESTED POSITION CLASSIFICATIONS	STATUS	FY02 EST SALARIES	FY02 EST BENEF
IS Systems Analyst III	210 Perm	$45.0	$12.6
IS Software Engineering Specialist I	210 Perm	$32.0	$9.0
IS Software Engineering Specialist III	210 Perm	$48.0	$13.4
IS Network Administrator II	210 Perm	$45.0	$12.6
Note: All FTE will be reclassified from existing vacant FTE.			
Request is for funding and reallocation across divisions.			
TOTAL PERSONNEL COSTS		$170.0	$47.6

REQUESTED PROFESSIONAL SVC CONTRACT	LINE ITEM	FY02 EST COST
E-Mail Services	052	$50.0
PC Support Services	052	$470.0
TOTAL PROF SVCS COSTS		$520.0

REQUESTED CAPITAL OUTLAY	LINE ITEM	FY01 EST COST
Personal computers	083	$2.4
TOTAL CAPITAL OUTLAY		$2.4

Appendix G – FY02 IT Base Budget Expansion Request Narrative (Form EB-1P)

Agency/Program: Environment/Program Support

FORM EB-1P
EXPANSION OF BASE
BUDGET NARRATIVE

Agency Code: 667

Agency Ranking:_____of_____

Expansion Short Title: IT Support Structure

Any expansion of base budget must be tied to an enhanced performance level.

Explain Expansion Request:

Purpose:

The purpose of this request to expand our base budget is to establish a support structure for several new information systems and services that have been implemented for the Department, its programs, employees and stakeholders. Should the expansion not be accomplished, the department will lack support for the following critical systems and services:

- Personal computers which program staff use to enter and analyze environmental and financial data into program databases
- Department e-mail system used for internal communications and to communicate with the regulated community and other state agencies
- Department web-sites used to exchange information with the public and regulated community
- Department intranet used to access and publish department policies, plans and projects
- Department geographic information system used to communicate with the public and regulated community and other state agencies
- User help desk used to report and resolve problems and to submit service requests
- Thin Client and NT Server Support used to access office productivity tools such as word processing, spreadsheet and e-mail applications

ITS Bureau Role & Organization

The ITS Bureau is the computer technology support organization for the department. The ITS Bureau is staffed by eight technical professionals, one Administrative Secretary and one Bureau Chief. A department CIO (Chief Information Officer) reports to the Cabinet Secretary and is responsible for aligning information technology strategies and objectives with department strategies and objectives.

ITS Staffing Trends

Fiscal Year	# IT Staff	Fiscal Year	# IT Staff
1994	9	1998	9
1995	9	1999	8
1996	9	2000	8
1997	9	2001	10

Over the last six years, staffing has not changed with the exception of one additional position created in FY01. During this same period, the following ITS services were added to the department's ITS service portfolio. These new services represent a 60% increase in services offered:

- Geographic Information System (GIS) Support
- Internet Development & Support (approx. 550 users)
- Intranet Development & Support (approx. 550 users)
- E-Mail System Development & Support (approx. 550 users)
- User Help Desk (approx. 550 users)
- Wide Area Network Design & Support (approx. 550 users)
- Thin Client & NT Server Support (approx. 300 users)

Each new service requires an ITS support structure that includes staff, expertise, training, tools, equipment upgrade and maintenance. By not adding staff to support the new services, the ITS bureau has been put into the difficult and frustrating situation of not being able to adequately support services that are provided to a broad user base. For example, approximately 550, or 90%, of the Department's 610 employees use the e-mail system on a daily basis. As a result, service performance has been severely compromised across old and new services as ITS staff is stretched too thin to cover multiple services and technologies.

Comparable Staffing Ratios

In order to evaluate the adequacy of current IT staffing ratios, a comparison of staffing ratios with similar IT organizations was completed. Comparable staffing ratios were obtained from two sources. The first is other agency IT plans gathered by the ITMO and the second is Gartner Group, an IT advisory company.

Service Area	Current Staffing Ratio	Current Service Level(s)	Other State Agency Staffing Ratio (Benchmark)	Gartner Group Staffing Ratio (Benchmark)	Recommended Staffing Ratio
E-Mail Support	550 : 0.2 (users : e-mail support staff)	*Needs Improvement*	Not available	250-400 : 1.0	*400 : 1.0* *(1.0 FTEs)*
Web Administrator	550 : 0.7 (users : web support staff)	*Needs Improvement*	Not available	Not available	500 : 1.0 (1.0 FTE)
NT Server Administrator	4 : 0.8 (Servers: NT support staff)	*Needs Improvement*	Not available	5-10 : 1.0	5 : 1.0 (1.0 FTE)
Unix Server Administrator	14.0 : 1.0 (Servers: Unix support staff)	*Excellent*	Not available	Not available	8 : 1.0 (1.5 FTEs)
Help Desk Support	550 : 0.5 (Employees: help desk staff)	*Needs Improvement*	Not available	Not available	250 : 1.0 (2.0 FTE)
Data Network Administrator	550 : 1.0 (Employees: network staff)	*Excellent*	Not available	Not available	250 : 1.0 (2.0 FTE)
PC Support	500 : 0.2 (PCs: PC support staff)	*Needs Improvement*	Not available	50-100 : 1.0	75 : 1.0 (7.0)
GIS Support	10 : 0.3 (Users: GIS support staff)	*Needs Improvement*	10-20 : 1.0	Not available	15 : 1.0 (1.0 FTE)
Total Staff	70 : 1.0 (Employees: IS staff)		14-40 : 1.0 (2)	17 : 1.0 (1)	25 : 1.0 (22 FTEs)

Notes:

(1) This represents an average IT employee to enterprise employee ratio of 6.13% (median is 5.63% for State Government based on Gartner Group's 1998 IT Spending and Staffing Survey results.

(2) Comparative ratios were taken from the FY01 IT Plans submitted by The State Land Office, Economic Development Department Public Regulations Commission.

As shown in the matrix above, the ratio of IT staff to employees is very low compared with other state agencies and Gartner Group benchmarks. At a minimum, ITS should have at least one backup support staff for each technology or service so that service can continue when a staff member is out on leave.

This minimum standard, however, is not adequate to meet expected service levels for the high-use and mission-critical services such as e-mail, intranet, internet, PC support that have been added to the ITS service portfolio over the past five years.

Conclusions

- ✓ The department and ITS bureau is suffering the consequences of a severe and long-term understaffing problem
- ✓ Several new services have been added to the ITS service portfolio without adding staff and routine maintenance funds to support these services
- ✓ The support areas most severely understaffed are e-mail, data network, PC, GIS and help desk
- ✓ The understaffing problem in compounded by a productivity and focus problem caused by having one ITS staff member support more than one service area
- ✓ Some combination of staff augmentation, outsourcing, staff assignment changes, improved tools, and improved processes is needed to address the problem

Service Area	Recommended Staffing Level	Current Staffing Level	FTEs Outsourced	Difference
E-Mail	1.0	0.2	0.8	0.0
Web	1.0	0.7	0.0	0.3
NT	1.0	0.8	0.0	0.2
Unix	1.5	1.0	0.0	0.5
Help Desk	2.0	0.5	0.0	1.5
Data Network	2.0	1.0	0.0	1.0
PC	7.0	0.2	6.8	0.0
GIS	1.0	0.3	0.0	0.7
Application Development & Database Administration	3.0	3.0	0.0	0.0
Administration	3.3	2.3	1.0	0.0
Total Staff	**22.8**	**10.0**	**8.6**	**4.2 (*)**

(*) FTEs to be taken from existing vacant FTE elsewhere in the Department. This request is for funding and authorization to move across divisions.

Alternative Solutions

The following options were evaluated to resolve the problem:

- Reduce current service levels
- Hire additional staff to meet current service levels
- Reorganize ITS to achieve productivity gains
- Outsource specific ITS services
- Implement new tools to achieve productivity gains
- Improve current processes to achieve productivity gains
- Provide additional training

Selected Solutions

The Department has selected the following set of solutions to establish the support structure required for the new services that have been created over the past six years:

(1) Implement ITS policy and procedures that prevent this same situation to reoccur. The policy and procedures should be designed to achieve the following outcome: A new IT service will not be implemented or supported until 1) an ITS support plan has been approved which specifies service levels and the staff, tools, and training necessary to meet service levels and 2) funds are committed to support the plan

Costs: $0

(2) Hire 1 NT Systems Engineer and purchase NT systems management tools (FTE to be taken from existing vacant FTE)

Rationale:

- NT server performance is our biggest service performance issue
- NT has become a low-cost/high performance platform alternative for business applications
- Resolves NT support staff back-up problem

Costs (recurring): $58K salary & benefits; $7K training, travel, supplies, tools; $6K software maintenance; total is $71K

Costs (one-time) $30-40K for software; $3.5K office set-up; total is $44K

(3) Outsource PC Support and E-Mail Services

Rationale:

- Improves focus on strategic applications and services
- Improves service response and reliability
- Avoids need to add nine additional FTEs to adequately support PC and e-mail services

Costs (recurring): $50K professional services for e-mail; $470K professional services for PC support; total is $520K

Costs (one-time): $5K service set-up

(4) Hire 1 Help Desk Agent and Purchase Suitable Help Desk Tools (FTE to be taken from existing vacant FTE)

Rationale:

- Resolves help desk service back-up problem
- The help desk is the best cost-effective strategy to improve ITS staff productivity and user satisfaction for all services by resolving simple problems at the desk

Costs (recurring): $41K salary & benefits; $7K training, travel, supplies, tools; $3K software maintenance; total is $51K

Costs (one-time): $20K help desk software, $3.5K office set-up; total is $24K

(5) Hire 1 Data Network Technician (FTE to be taken from existing vacant FTE)

Rationale:

- Addresses staffing gap
- Improves ITS ability to keep pace with state-wide data network requirements

Costs (recurring): $58K salary & benefits; $7K for training, travel, supplies, tools; total is $65K

Costs (one-time): $3.5K office set-up

(6) Hire 1 Web Technician (FTE to be taken from existing vacant FTE)

Rationale:

- Improves ITS ability to keep pace with growing department, public and regulated community demand for use of Internet technologies
- Resolves Web and GIS service back-up problem

Costs (recurring): $61K salary & benefits; $7K for training, travel, supplies, tools; total is $68K
Costs (one-time): $3.5K office set-up

(7) Improve problem management and systems management process improvements to increase productivity
Rationale:

- Reduces costs associated with problem solving
- Make staff more efficient
- Reduces problem response time

Costs (recurring): $0

Cost Benefit Analysis:

Cost Item	Est. Cost (one-time)	Est. Cost (recurring)		Benefit Item	Est. Benefit (one-time)	Est. Benefit (recurring)
Salary & Benefits (4 FTE)		$217,600		Avoid adding 9 (8 + 1 supervisor) IT staff for PC and e-mail support	$31,500	$466,200
Staff Training, Travel, Tools, Furniture, Supplies	$13,800	$27,200		Increase employee productivity by 5%		$1,362,000
Software & Hardware Purchases	$60,000					
Software & Hardware Maintenance		$9,000				
Professional Service Contracts	$5,000	$520,000				
Total Costs	$78,800	$773,800		**Total Benefits**	$31,500	$1,828,200

Intangible Costs:

Intangible Benefits:

- Improved employee job satisfaction which increases morale and efficiency, reduces turnover,
- Increased program efficiency, including permit, enforcement and corrective action activities and decisions
- Increased customer (public, regulated community) satisfaction with Department services
- Increased public access to environmental information

Performance Measures (i.e., FY02 Performance targets and overall performance level):

This request will have direct impact to the following measure:

- Department Satisfaction with Program Support Services

Estimated Enhancement in Measure: Increase Satisfaction Rate with ITS Services by 15 %

This request will increase employee productivity and will therefore have positive impact on all efficiency measures for the Department, including:

- % Construction permit decisions made with the time allowed by statute

- % Portable source location applications processed within 15 days
- % Ground water pollution prevention permits issued within prescribed regulatory timeframe
- % Expired ground water pollution prevention permits renewed within one year
- % Hazardous waste permits drafted within one year of application submittal

Estimated Enhancement in Measure: The department estimates that this request will increase employee productivity across the department by 5%.

Appendix H – NMED Strategic IT Plan

Appendix I – C2 - Integrated Database for Environmental Assurance (IDEA) – Project Workplan