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# Department of Natural Resources

Information Management Annual Plan  
VISIONING & PLANNING COMPONENTS



1998

JUN 5

Table of Contents  
1998 Information Management Annual Plan Visioning and Planning Components

I.	Department Business Plan.....	1
	A. Executive Summary.....	1
	B. Department Vision Statement.....	3
	C. Department Mission Statement.....	4
	D. Prioritized Strategic Business Objectives (SBOs).....	6
	E. Department Organizational Chart.....	11
II.	Information Technology (IT) Strategic Plan.....	12
	A. Executive Summary.....	12
	B. IT Vision Statement.....	13
	C. IT Mission Statement.....	14
	D. Prioritized IT Strategic System Objectives (SSOs).....	14
	E. IT Organizational Chart.....	16
III.	Identification of Agency Stakeholders and Their Needs.....	17
IV.	Format 0007 Project & System Sketch(es).....	20

## I. Department Business Plan

### A. Executive Summary

This Plan covers those areas of state government for which the Department of Natural Resources (DNR) is responsible in wildlife, outdoor recreation, water, minerals/energy/ geology, and land management. It addresses relevant needs for the period 1998-2003.

#### *Vision of the Future*

All of the resource management activities of the department have been affected by the rapid growth the state has experienced in recent years. Colorado's population has increased by a third during the last 20 years. Much of DNR's planning efforts continue to focus on how the department can help protect the state's quality of life and the environment, and work with local governments in providing sound resource information and technical assistance as part of their efforts to make proper land use decisions. From an administrative standpoint, the department will continue to review and revise its public regulatory activities to accommodate the increased workload related to the growth in many sectors of the economy.

One of the most effective ways to respond to this challenge has been to make sure that DNR is accessible, accountable and responsive to local communities. Toward that end, the Executive Director's Office has undertaken consultations with many state and local elected officials and organizations, other community leaders and DNR employees on a regular basis. The goal of this effort has been to create a lasting and effective partnership between state government and local communities on key natural resource management issues.

In conjunction with other state departments, DNR maintains Internet access throughout the world to offer departmental rules and regulations; campground reservations; state parks passes; hunting and fishing licenses; boat, snowmobile and off-highway vehicle registration; maps; the ability to query the status of oil, mining and water well permits; order and pay for geological pamphlets; and obtain current avalanche conditions.

The department has committed to making wise decisions about natural resources management -- their value, use, protection and enhancement. Based on common areas of interest, the department integrates divisions with diverse mandates by resource management area. In support of this effort, information technology services staff, continue to migrate data to Internet accessible databases. Electronic commerce, Intranets and Extranets support both internal and external customers.

The Department of Natural Resources consists of eight divisions. Collectively, they carry out the department's responsibilities for natural resources management which includes use or access to some resources, promotion of the development of selected resources, and the protection or preservation of other resources. The divisions are:

- Board of Land Commissioners
- Minerals and Geology
- Geological Survey\*\*
- Oil and Gas Conservation Commission
- Parks and Outdoor Recreation
- Soil Conservation Board
- Water Conservation Board
- Water Resources
- Wildlife

(\*\* incorporated into the Division of Minerals and Geology in Fall 1992)

Most of the divisions have boards and/or commissions that develop regulations and exercise other powers as defined by law. Some specific programs have advisory boards that help guide program direction and policy recommendations. Collectively, there are 13 boards, commissions and advisory boards that assist the department in its duties and responsibilities.

Each division has a director who reports to the executive director of the department and, in some cases, receives advice or policy direction from a board or commission. These divisions have offices or employees located throughout Colorado, with over 60 percent of the department's employees located outside the metropolitan Denver area. The department has employees in 58 of the 63 counties in the state.

The executive director is appointed by the Governor. The Executive Director's Office develops policy on matters that overlap divisional responsibilities, provides comments on federal programs and legislation affecting Colorado, advises the Governor on natural resource issues, and coordinates the legislative activities of the department. The office also provides budget and planning coordination, accounting and financial management support, human resource services, information technology expertise, public information and environmental education coordination, and other services to the divisions.

### *Mission*

The Colorado Department of Natural Resources is responsible for the management of the water, land, minerals/energy/geology, recreation and wildlife resources of the state. Its mission is to develop, preserve and enhance Colorado's natural resources for the benefit and enjoyment of its citizens -- both now and in the future.

### *Strategic System and Business Objectives*

The department's strategic business objectives are to:

1. Provide timely and appropriate information to Colorado citizens, elected officials, the private sector and other government entities.

2. Optimize revenues to the state from its natural resources while protecting those resources for the use and enjoyment of future generations.
3. Carry out state and federal legislative mandates effectively and efficiently.
4. Maintain or improve service levels without increasing staff.

The IT Strategic Systems Objectives are to:

1. Provide management with timely and effective business solutions.
2. Make departmental information resources available to all staff throughout the state in the most effective and least costly manner.
3. Efficiently manage and protect the departmental investment in hardware, software and telecommunication facilities while adhering to industry and state-adopted standards.
4. Enhance the department's ability to integrate and share textual, spatial, graphic and image information.
5. Provide current and accurate information to the public, departmental staff and other governmental agencies.
6. Invest in information technology that will provide cost effective, quality services to the public while improving the productivity and effectiveness of departmental staff.
7. Ensure an infrastructure that facilitates data sharing, compatibility, accessibility and integration.

## **B. Department Vision Statement**

The diversity of issues involving the department, coupled with the globalization of our economy, results in our customers potentially being any person, citizen or visitor with an interest in the State of Colorado.

DNR intends its customers to experience an organization that:

- employs staff who feel pride in their individual and collective accomplishments;
- maintains a national reputation as a leader in natural resources management;
- makes wise decisions about natural resources management -- their value, use, protection and enhancement;
- insists on open, collaborative and fair processes for resolving resource issues and disputes;
- encourages partnerships with private enterprise, interest groups and volunteers in helping the department carry out its mission and programs;
- operates efficiently and uses its fiscal and human resources wisely in responding to the needs of the Colorado taxpayers;
- communicates effectively with its varied natural resources constituencies;
- delivers the highest quality education and information programs to strengthen the public's sense of stewardship for Colorado's natural resources; and

- attracts a highly capable and diverse group of young people into natural resources careers.

The Department of Natural Resources must be aware of and responsive to several fundamental realities in the management of natural resources in the next century. The challenges, trends, needs and problems most critical to the successful accomplishment of its mission include:

- Changing public values and expectations in natural resources management;
- Increasing competition for limited resources caused by rapid growth in recent years;
- Large federal ownership of land and resources in the state;
- Budget limitations based on the revenue sources which fund the implementation of the department's responsibilities;
- Global influences on the economy and environment;
- Increased interest, involvement, and need for technical services by local governments in land use and resource management activities;
- The growing need to educate and communicate with the public on key resource issues;
- Public participation in resource management decisions;
- The need for more public/private partnerships and volunteers;
- Changes in workforce demographics;
- The growing conflict between private rights, public access and off-site impacts related to resource development, use and protection.

Employee skill sets will continue to rely heavily on training in such natural sciences as engineering, earth sciences and biology, as well as knowledge of recreation and business. The continued automation of data and information, as well as the planned wide-scale dissemination of this valuable resource, point to the need for computer literacy at all levels throughout the department. Training, therefore, is viewed as a long-term management objective.

### **C. Department Mission Statement**

The mission of the Colorado Department of Natural Resources is to develop, preserve and enhance Colorado's natural resources for the benefit and enjoyment of its citizens -- both now and into the future.

The department completed a comprehensive strategic planning effort involving all the divisions in FY 1994-95. The development of the individual division plans incorporated input from a wide range of individuals and organizations that have a strong interest in the future of Colorado's natural resources and who are stakeholders in the decisions of those divisions. The plan outlines department-wide policy and

administrative priorities as well as management priorities for each of the department's five resource areas: water, outdoor recreation, wildlife, land management, and minerals/energy/geology.

This integrated resource management approach will not only promote better cooperation and quality decision-making among the divisions, boards and/or commissions that are involved in managing the same resource, but will also allow limited financial and personnel resources to go further. The plan has been monitored and updated annually with input from employees, members of boards and commissions, constituency and industry groups, and the General Assembly. In addition, the various boards and commissions meet jointly as appropriate on selected issues. Where beneficial, memorandums of understanding between divisions and programs have been executed to assure cooperation and collaboration in program planning and implementation.

Through the planning process -- which involved a wide range of constituency groups and employees in the department -- **six themes** were identified that consistently emerged in almost every division plan. The department-wide plan links the goals of each of the division plans to these strategic planning themes. These themes articulate in broad terms the direction both of the Department of Natural Resources as a whole and of all of its programs. They are:

**Themes:**

1. **Leadership.** DNR will anticipate natural resources opportunities and challenges and lead efforts to develop an integrated approach to capture those opportunities and meet those challenges.
2. **Collaboration.** The department will seek broad public participation in achieving its mission through open, accessible and collaborative processes which include the following:
  - facilitating and supporting efforts to define and implement long-term visions for the future, taking into consideration geographic, topographic and ecological boundaries;
  - strengthening relationships and developing partnerships with and among the general public, community leaders, constituents and government agencies; and
  - to the extent allowed by state and federal law, encouraging collaborative efforts to respect local visions, values, traditions, and cultures.
3. **Stewardship.** DNR is committed to sound stewardship practices that recognize the importance of sustaining natural resources for our quality of life. DNR will solicit views and utilize the expertise of other federal, state and local agencies, recognizing that economic development must be sustainable and must respect

complex ecological functions that transcend jurisdictional boundaries. Resources management decisions will:

- integrate all information from relevant disciplines;
- sustain the health and viability of both the natural environment and the economy; and
- acknowledge the values of protection and responsible use of Colorado's natural resources.

4. **Science and Information.** DNR will strive to obtain and use complete and credible information to guide policy development and decision making.

- Policies and decisions will be supported by the best available scientific data and will take into account local values, traditions and cultures.
- DNR will develop state-of-the-art technical capabilities and will make effective use of this expertise throughout the department.

5. **Communications.** DNR will communicate effectively with the public and provide leadership in natural resources education.

6. **Effective Management.** DNR will exemplify efficient, effective, responsive and accountable government by:

- ensuring that department expenditures are consistent with division missions and legal directives;
- maximizing organizational productivity by motivating employees through career development opportunities and recognition of accomplishments;
- striving for a workforce and programs that reflect the diversity of the public we serve;
- engaging all our employees in the use of quality management tools to continuously and proactively improve the quality of our services to our customers; and
- evaluating systems, organizational structures and processes on a regular basis to maximize the efficient delivery of services and institute change when appropriate.

#### **D. Prioritized Strategic Business Objectives (SBOs)**

The Colorado Department of Natural Resources Long Range Plan Update spells out DNR's strategic business objectives by resource management area. The objectives of each operational division are tied to the strategic business objectives (SBOs), of the department, which are outlined below.



*1. Provide timely and appropriate information to Colorado citizens, elected officials, the private sector and other government entities.*

Wildlife

- Improve public awareness.

Recreation

- Maintain a customer focus.
- Expand parks partnerships.

Water

- Improve the administration of water rights.
- Relate water quantity and quality.
- Promote cooperative Front Range water initiatives.
- Address selected water management, allocation and use challenges.

Minerals and Geology

- Protect the environment and understand geologic hazards.
- Provide mineral resource information to support resource allocation decisions of the state, industry and citizens.

Land Management

- Promote public awareness and education.

*2. Optimize revenues to the state from its natural resources while protecting those resources for the use and enjoyment of future generations.*

Wildlife

- Protect wildlife habitat.
- Promote habitat protection partnerships.
- Stabilize threatened and endangered species.
- Increase public access to areas where people can enjoy wildlife.

Recreation

- Improve state parks.
- Expand parks partnerships.
- Expand the state parks and trails system.

Water

- Increase water efficiency.
- Protect instream flows and lake levels.

Minerals and Geology

- Promote mineral resource development.

Land Management

- Develop management plans.
- Increase revenues.
- Improve management practices.
- Inventory surface and mineral values of state lands.

*3. Carry out state and federal legislative mandates effectively and efficiently.*

Wildlife

- Support traditional wildlife activities.

#### Recreation

- Identify stable funds for the outdoors.

#### Water

- Develop Colorado's water.
- Protect Colorado's interstate compacts.
- Relate water quantity and water quality.

#### Minerals and Geology

- Outreach to citizens and local government.
- Secure diversified program funding.

#### Land Management

- Evaluate the creation of natural resource districts.
- Fund soil conservation districts.

#### *4. Maintain or improve service levels without increasing staff.*

##### Water

- Improve the administration of water rights.

The department is continually looking at overall management and inter-divisional efficiencies that might be obtained by linking the Strategic Business Objectives to current management practices. Internal teams are reviewing, on an ongoing basis, the structure and functions (centralized and decentralized) in the planning, budgeting, accounting, environmental education, information technology, human resource and public information areas. Four examples of this type of effort, designed to move the department forward in pursuit of our vision are:

1. The department, the Division of Wildlife, and the Wildlife Commission completed a management review of the Division in FY 1994-95. This review, performed by Deloitte and Touche, is part of the implementation of the newly adopted 15-year plan of the Division. It focused on organizational structure, program delivery, and employee accountability. Implementation of the review is currently underway.
2. The department participates in numerous performance and financial audits by the State Auditor's Office on an annual basis. As appropriate, cost-effective and politically feasible recommendations are adopted in part or whole. Currently, the department is involved with implementation of recommendations the statewide financial audit, the parks fee audit, and the confiscated property audit.
3. The department will continue to assess whether or not efficiencies can be gained through the physical co-location of offices in selected communities in Colorado as DNR Service Centers. The Department is also accessing the adequacy of it's offices in the capital complex. Estimates by CPC Inc., consultants to the Department of General Support Services, estimate the deficit

in office, record, public and storage areas to be in excess of 10,000 square feet.

4. In 1996 the Department combined two of its forums for management and quality improvement. The QUEST Council -- our Total Quality Management group -- and the Deputy Directors meetings were combined into the Interagency Council (IAC). The group works for quality improvements and coordination among the agencies of the department using TQM techniques. Currently, the Interagency Council has the following projects underway:

- ITS Themes - The Executive Director of the department has directed the IAC to play a significant role in discussing and addressing technology issues, particularly those that affect planning, budgeting and management of programs, divisions and the department. The council has been directed to begin looking into these issues immediately by creating an Information Technology Summit. This effort is being undertaken to maximize the operational efficiency of the organization and to engage top management in planning for the use of technology within the department.
- Internet Development Group - In 1996 the department established a presence on the Internet. The department has established a program to develop and use the Internet to provide information to the citizens of the state and its visitors. In addition, the department will be looking at various service delivery options to allow for more convenient access to the department's various licensing and permitting requirements.

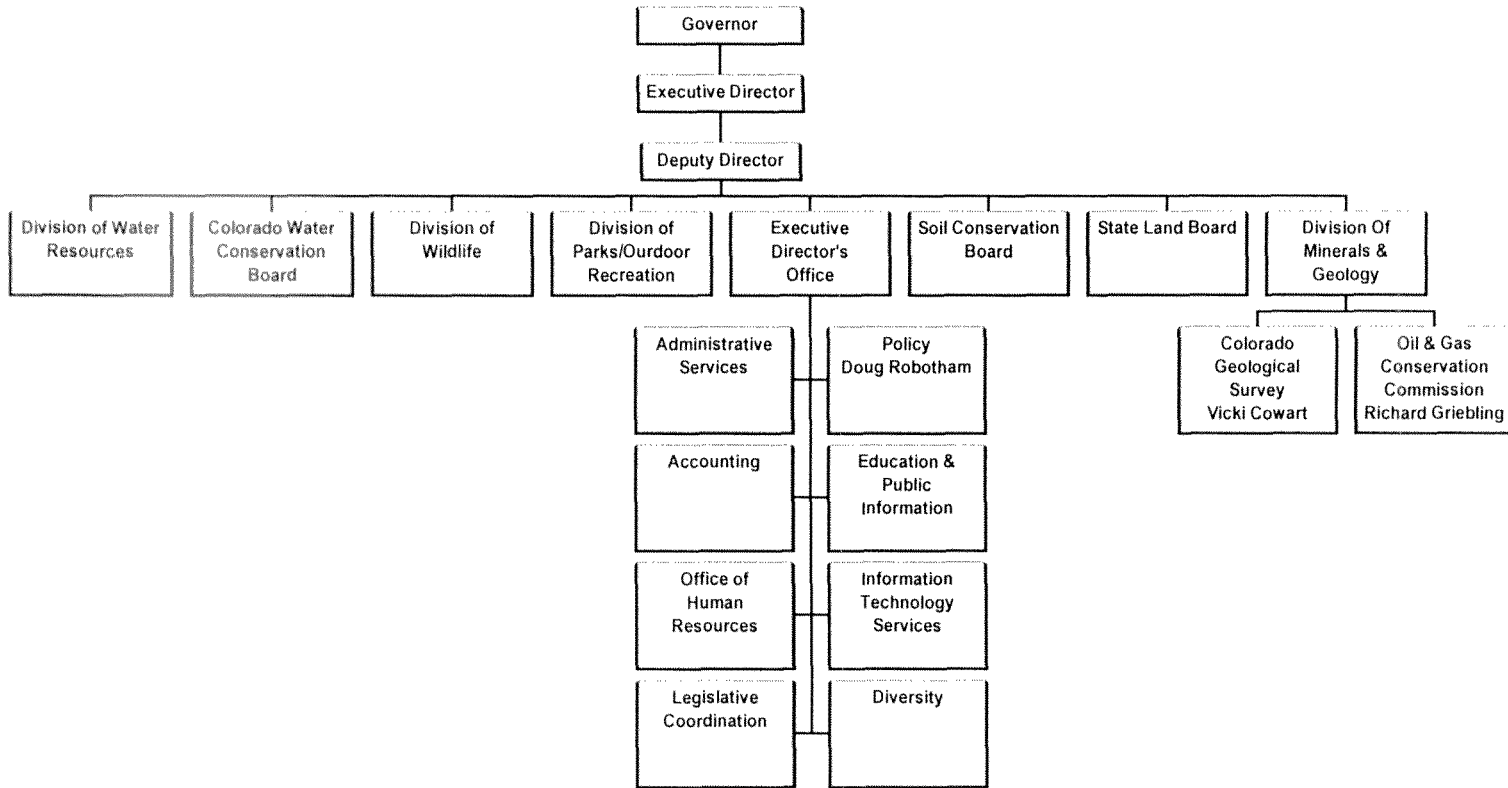
Under the authority of C.R.S. 24-33-109, DNR has adopted natural resource and environmental education as a priority throughout the department, because the long-term good health of the state's natural resource base and economy it supports will ultimately depend upon a highly interested, educated and involved citizenry. By providing a variety of learning opportunities -- from curricula materials and teacher training to interpretive activities in state parks and summer employment for youth -- DNR hopes to engage the imagination and energy of Coloradans at all stages of their lives.

As part of this effort, the Department of Natural Resources has established the Youth in Natural Resources (YNR) program statewide to provide high school students with an exposure to and participation in natural resource management opportunities in its divisions and programs throughout the state. Over 170 high school students and college student crew leaders from throughout Colorado participated in the program. Additionally, 150 middle school students in selected cities participated in a companion program called Colorado Youth Naturally (CYN).

The department has also adopted and is implementing a long range plan for environmental education that sets forth priorities for coordinated, comprehensive delivery of natural resource education services both in and outside the classroom on a statewide basis.

The Department of Natural Resources is committed to expanding opportunities within department activities and programs to women, people of color and persons with disabilities. The department in its effort to diversify its workforce participates in job / career fairs at the colleges, universities, and community-based organizations around the state.

Not only is the state's population growing, but is also becoming increasingly urban and more diverse. Therefore, the department's planning efforts seek to ensure that its workforce and programs will reflect and serve all of Colorado's citizens. To that end, the department has a Diversity Committee and a Diversity Program Director to institutionalize programs to ensure that the department meets its objectives relative to employment, procurement of goods and services, and the provision of programs and services.



## II. Information Technology (IT) Strategic Plan

### A. Executive Summary

#### *IT Vision of the Future*

The department, through its five-year plan, has pledged to operate efficiently and use its fiscal and human resources wisely in responding to the needs of the Colorado taxpayers. In pursuing its business goal of offering complete, effective, service throughout the state, the department's information technology services (ITS) environment has become dominated by integrated telecommunications-oriented applications.

As part of its plan, DNR pledged to communicate effectively with its varied constituencies. To this end, the department has encouraged partnerships with private enterprise, interest groups and volunteers to fulfill its mission and programs. The department has responded to increasingly strong requests from its business and scientific partners in the private and government sectors to provide quick, easy access to its non-confidential data. The technological result is that from anywhere in Colorado, as a local phone call to a regional service center, or world-wide, through an Internet Service Provider (ISP), citizens can dial-in, access data and download it as necessary.

Geographic Information Systems (GIS) provide a valuable source of information for local decision making, research and general information to a world wide community of interest. Maps are available via the Internet to interested parties. Metadata, which is data about GIS data, is also accessible over the Internet. Providing this type of service, seven days a week, twenty-four hours a day, ties in directly with the department's Strategic System Objectives for improving customer service.

The department has committed to making wise decisions about natural resources management -- their value, use, protection and enhancement. Based on common areas of interest, the department integrates divisions with diverse mandates by resource management area. In support of this effort, information technology services build linkages between decentralized databases to provide integrated information sources.

#### *Mission*

As stated earlier, the mission of the Colorado Department of Natural Resources is to develop, preserve and enhance Colorado's natural resources for the benefit and enjoyment of its citizens -- both now and into the future.

As technical support partner to work units in the Department of Natural Resources, the mission of the Information Technology Services section is to ensure that the

department's information and information management activities are effectively coordinated, integrated, accessible, useful and efficient.

#### *ITS Strategic System Objectives*

1. Provide management with timely and effective business solutions.
2. Make departmental information resources available to all staff throughout the state in the most effective and least costly manner.
3. Efficiently manage and protect the departmental investment in hardware, software and telecommunication facilities while adhering to industry and state-adopted standards.
4. Enhance the department's ability to integrate and share textual, spatial, graphic and image information.
5. Provide current and accurate information to the public, departmental staff and other governmental agencies.
6. Invest in information technology that will provide cost effective, quality services to the public while improving the productivity and effectiveness of departmental staff.
7. Ensure an infrastructure that facilitates data sharing, compatibility, accessibility, flexibility, scalability and integration.

#### **B. IT Vision Statement**

Seven department-wide goals that apply to all divisions and programs within the department have been defined in the Department of Natural Resources Long Range Plan Update. The following is a summarization of these goals.

1. Promote Quality Management
2. Maintain a Quality Workforce
3. Encourage Efficiency Initiatives
4. Enhance Statewide Services
5. Assure Effective Communications
6. Deliver Quality Education Programs
7. Require Integrated Resource Management

ITS views these goals as the foundation on which to build systems both now and in the future.

The various divisions and programs that make up the Department of Natural Resources operate under the guidance of these common goals. It is obvious that the composition of the department is extremely complex and specialized. Work is fast becoming location dependent; however, ITS sees the organizational diversity that exists within the department as a strength. Business and technical specialists exist in each division to support their respective area. This environment gives us the opportunity to treat these diverse, specialty areas as "**knowledge centers.**"

The ITS vision is to link these centers into a cohesive "**knowledge network**" that supports the department's vision, mission and goals.

To implement this vision ITS will integrate existing and emerging technologies. Standards will drive the integration. Two key categories of standards in the computer industry today are **de jure** and **de facto**. The department will adopt a flexible strategy that incorporates products available in these categories. This strategy will provide direction and clarity to system development efforts.

In the future, we envision changes to the IT infrastructure. A single network operating system and communications protocol will be supported; wide spread use of the Internet and Colorado's Multi-use Network; a combination of thin-client, network computers and desktop computers will access departmental systems depending on business requirements; Web enabled access to information anywhere, anytime; ubiquitous telecommuting by staff; real-time Internet/Intranet collaboration on natural resources issues; and an increased role of ITS as a services broker or internal consultant.

We envision a knowledge network that will allow our customers access to a variety of services and data collected and managed by the department. Dial-up connections from anywhere in the world through personal or network computers via the Internet, audio and video steaming applications, interactive imaging systems, remote sensing collection devices, distributed, integrated databases and Web enabled software tools are examples of the technologies to be employed in supporting the knowledge network.

Our approach to move toward this vision will be responsible, thoughtful and decisive. Providing quality services to our customers is foremost in our minds. The ITS section is the appropriate organizational entity to lead the department in this effort.

Our vision of the future begins with commitment and direction today. The department's Interagency Council plays a vital role, relative to IT, by providing direction and leadership as we move into the 21<sup>st</sup> century.

### **C. IT Mission Statement**

As the technical support partner to the divisions and units in the Department of Natural Resources, the mission of the Information Technology Services section is to ensure that the department's information and information management activities are effectively coordinated, integrated, accessible, useful and efficient.

### **D. Prioritized IT Strategic System Objectives (SSOs)**

The IT Strategic System Objectives for DNR are listed below.

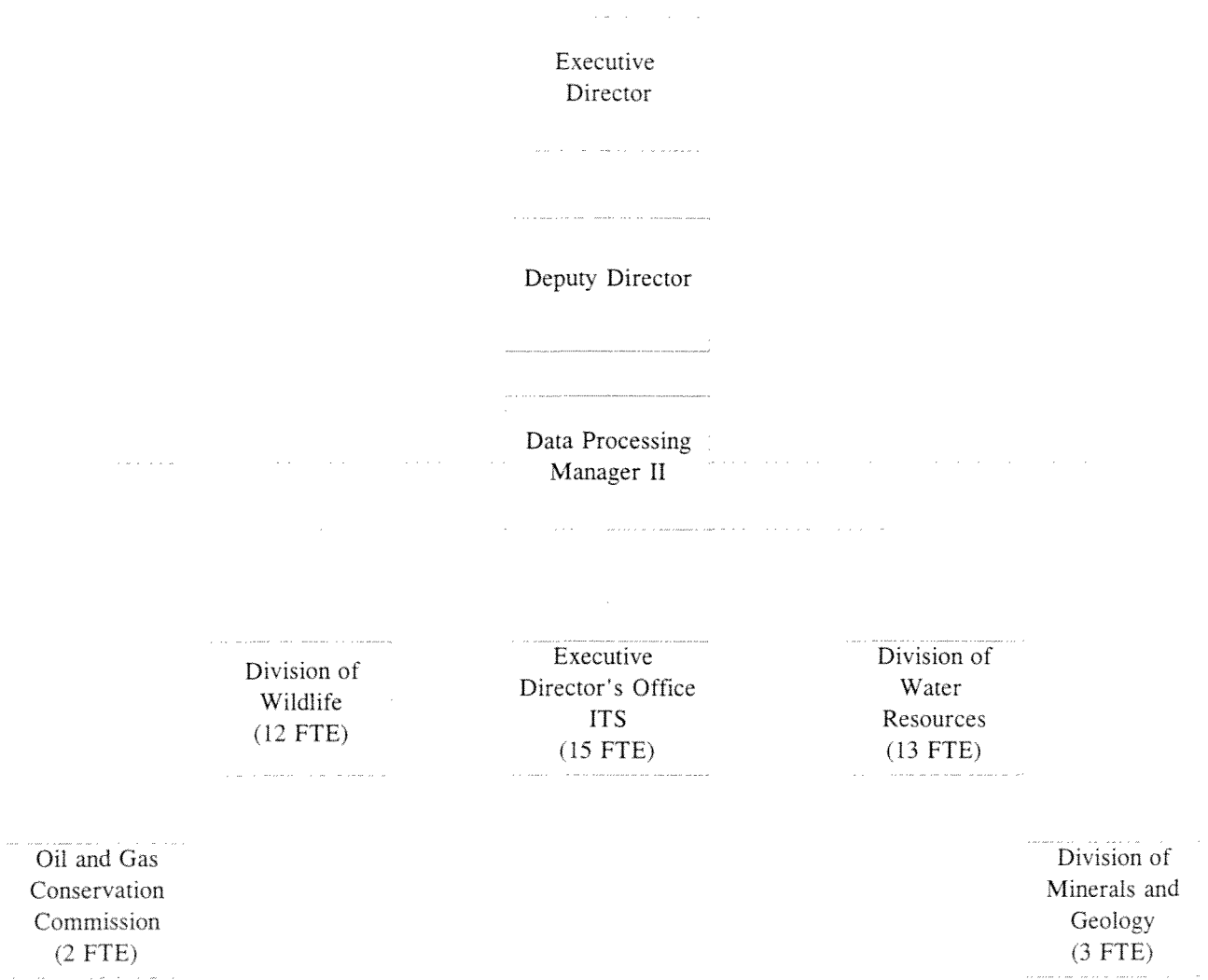
- Provide management with timely and effective business solutions.



- Make departmental information resources available to all staff throughout the state in the most effective and least costly manner.
- Efficiently manage and protect the departmental investment in information technology facilities while adhering to industry and state-adopted standards.
- Enhance the department's ability to integrate and share textual, spatial, graphic and image information.
- Provide current and accurate information to the public, departmental staff and other governmental agencies.
- Invest in information technology that will provide cost effective, quality services to the public while improving the productivity and effectiveness of departmental staff.
- Ensure an infrastructure that facilitates data sharing, compatibility, accessibility, flexibility, scalability and integration.

As new systems are developed that support our Strategic System Objectives, the department will adhere to the direction described in two publications created by the Commission on Information Management (IMC); the State of Colorado, Strategic Technology Direction & Initiatives and the State of Colorado Information Systems Policies & Standards. DNR believes that a strong statewide IT presence requires the cooperation of individual agencies.

**E. IT Organization Chart**



### III. Identification of Agency Stakeholders and Their Needs

#### *Executive Director's Office (EDO)*

In addition to the stakeholders for specific interest areas listed below, EDO stakeholders include the state legislature; Colorado's U.S. Congressional delegation; Governor, Lt. Governor, their staff, the cabinet and their agencies; institutions of higher education; libraries; industry organizations and professional associations related to those industries; environmental organizations; federal natural resource agencies; local government officials and agencies; Attorney General and staff; general public; K-12 education; community based organizations; youth employment entities; other state natural resource management agencies; environmental educators and associations; and planners and their associations. For these stakeholders, information is a bi-directional exchange, although not always in electronic form.

Information technology needs with respect to almost every one of those stakeholder groups includes two-way exchanges of all sorts of data and information, from e-mail to GIS data, plus virtually all records that are subject to open records laws: reports, publications, correspondence, technical studies, contracts, meeting agenda and minutes and directories.

#### *Minerals and Energy*

Regulation of the oil and gas industry, including service companies. Protection of mineral owner's correlative rights and surface owner's ground water rights. Federal agencies, Indian tribes, other DNR departments and other state agencies, local governments in Colorado, title companies, and any parties interested in oil and gas operations within Colorado use information collected and stored by the department to assist them in making important determinations: Volume and value of oil and gas produced and sold during a given period of time from a property or properties; projected tax revenues and/or accuracy of tax monies received; economic evaluations of oil and gas properties; existence of oil and/or gas wells on properties for sale.

Provide to other state agencies and to federal agencies advice and support in analysis of geologic problems. This includes traditional geologic information such as paper maps and statistics as well as digital maps, databases and other computer based products.

Provide to Russia and China assistance in developing rules and regulations for their mining industries. Associate with other states in transfer of data and documents to improve the environment and mining regulation. Provide to mining consultants data, documents and maps pertaining to mining permit submittal, amendments and reclamation. Provide requested data to the public. Provide public with notice of mining regulatory activities and give public the opportunity to comment or respond.

## *Water*

Stakeholders include water users, to whom the department is responsible to deliver the correct amount of water to those who are entitled to that water, based on natural streamflow, reservoir releases, or transmountain diversions. To document these actions, the department keeps extensive water records which become valuable to those seeking potential sources of water in the future. Bi-directional information exchange. There is a similar two-direction information exchange with the general public; federal agencies; city government water agencies throughout Colorado; people with water rights or people applying for them; water attorneys and consultants doing long term planning or adjudicating water right cases. In addition, the department provides services to and obtains information from people who want a permit to drill a water well; provides services to and exchanges information with water agencies in downslope western states; and provides information to rafters and anglers.

The department provides and exchanges data and ideas, as well as cooperating and debating on various water issues with the Colorado Water Congress; Colorado cities and counties; water conservancy districts; public sector; other state agencies; and federal agencies. In addition, the department may also negotiate or litigate settlements with entities over disputed water right issues/cases. Through its Construction Fund Program, the department may provide loans for water projects to Colorado cities and counties, water conservancy districts, and the public sector.

## *Recreation*

The department provides information to local and out-of-state Tourist Information Centers, including trail maps and brochures. Maps and brochures are also provide to local, federal and other state governments. The department makes available to the general public maps, brochures and phone numbers to park offices throughout the country.

## *Land*

The department works with 78 Soil Conservation Districts offices; the nine-member State Soil Conservation Board; and the ten-member Board of the Colorado Association of Soil Conservation.

For these stakeholders we provide administrative, financial, and technical assistance for conservation concerns; coordination of federal, state, and local natural resource conservation programs; and information and education.

Additional stakeholders include individuals and entities involved with State Trust lands, such as trust beneficiaries, surface and mineral lessees, private landowners adjacent to trust lands, local government entities and the general public. Part of the department's

connection is regulatory; much of it centers around discussion and resolution of land use issues. It is the department's responsibility to maintain timely, accurate information for these stakeholders.

### *Wildlife*

The department regulates, exchanges information with and provides other customer related information services to the Colorado Bowhunters Association, the United Sportsmen's Council, the Colorado Environmental Coalition, the Colorado Wildlife Federation, Trout Unlimited, Pheasants Forever, the Colorado Bass Federation, Colorado Muzzleloaders Association, the Audubon Society, and the Colorado Trappers Association.

#### **IV. Format 0007 Project & System Sketch(es)**

Each year, the Executive Director of the Department of Natural Resources convenes a Division Director's Retreat to discuss critical legislative, policy, planning and budgeting issues for the coming fiscal year. This year's Retreat is scheduled for June 17<sup>th</sup> and 18<sup>th</sup>.

As a result, we are unable to provide any Format 0007s at this time. At the conclusion of the Retreat, we will know what technology initiatives the department will be submitting for FY 99-00. The department will notify the IMC Staff, by way of a Format 0007, as soon as these decisions are made.

Colorado Department of Natural Resources

# Asset Management Plan for Information Technologies

A Narrative Report for the  
Information Management Commission

November 19, 1997



by the

Colorado Division of Wildlife  
Wildlife Technologies

Judy Hatfield-Mihelic, Manager  
Rob Molloy, Analyst

NOV 19 1997

# Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>BACKGROUND.....</b>	<b>1</b>
MISSION .....	1
MANAGEMENT REVIEW RECOMMENDATIONS.....	1
THE ROLE OF WILDLIFE TECHNOLOGIES .....	2
<b>THE INFORMATION TECHNOLOGY BUSINESS ENVIRONMENT .....</b>	<b>3</b>
BUDGET OPERATIONS .....	3
CENTRAL VS DISTRIBUTED ACQUISITION AND DISTRIBUTION.....	3
TECHNOLOGY CLIENT DEMOGRAPHICS.....	4
STANDARDS .....	4
RESPONSIBILITY OF WILDLIFE TECHNOLOGIES .....	5
<b>BETTER CUSTOMER SERVICE .....</b>	<b>5</b>
<b>ELEMENTS OF THE PLAN .....</b>	<b>5</b>
CATEGORIZED USER PROFILES.....	6
STANDARD CONFIGURATIONS.....	6
ASSET MANAGEMENT .....	6
<i>Replacement Guidelines and Policy.....</i>	<i>6</i>
<i>Inventory of Equipment, Software, and Profiles .....</i>	<i>7</i>
<i>Work Packages and Accountability.....</i>	<i>7</i>
<b>ALTERNATIVES TO ASSET MANAGEMENT .....</b>	<b>8</b>
NO REPLACEMENTS .....	8
NO ASSET MANAGEMENT.....	8



# Narrative

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## Executive Summary

The Colorado Division of Wildlife has determined that a comprehensive asset management plan for information technology equipment and software will reduce the cost of PC ownership, leverage IT administrative and support resources, and facilitate a more efficient and effective way of doing business overall. This narrative describes how and why it works.

Over seven years ago the division slowly began purchasing and installing desktop computers in significant quantities. All of those PCs have been replaced since that time. However, about four years ago, a local area network was put in place and soon included wide area network connections. These 150 networked PCs included Intel '286 and '386 based machines with a modest amount (for those times) of random access memory and storage. Some of these '386 PCs are still in service. The division is now trying to replace these original network PCs and those that were acquired that same year throughout the state. A plan has been developed to replace PC hardware and upgrade software every four (4) years. Equipment reliability and suitability to business needs over time are used to determine the frequency of replacement. Replacement priorities are determined by the age of the equipment and the critical nature of the business application into which the equipment is placed.

The Division of Wildlife's asset management plan includes three key strategies; 1) the establishment and of standard hardware and software, 2) the use of job profiles in matching information technology to business needs, and 3) implementing a comprehensive, state wide IT equipment replacement policy.

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## Background

### *Mission*

The mission of the Colorado Division of Wildlife is to perpetuate the wildlife resources in the state and provide people the opportunity to enjoy them. The Wildlife Technologies section at the division is a support services unit providing technology planning, development, support, and networking services to CDOW employees state wide. Its stated mission is to support the Colorado Division of Wildlife and its customers by building communication bridges through technology.

### *Management Review Recommendations*

The Colorado Division of Wildlife has reorganizing its business operations based on recommendations made as a result of a management review completed in the summer of 1995. The Management Review Final Report, co-authored by Deloitte

and Touche and division employees, identified technology as one of six major areas of impact for a successful re-engineering effort to more effectively and efficiently accomplish Wildlife's mission. Three strategies were recommended to improve operations and prepare for future needs. Implementation teams focused on access to technology, support for technology based activities, and integration of technology with division business operations.

Access to technology addressed use of the local and wide area networks by the division for electronic communication and sharing business applications by all division offices including home offices. Recommendations were for the establishment of a specific budget for information technology that either redirects existing funds or requests additional funds through the legislative budget process and for the development of an implementation schedule to prioritize the order in which locations and individuals will be brought on-line. This should be done in a reasonable and equitable fashion that relies on the division's long range plan (LRP) goals, not individual unit budgets or "squeaky wheels".

Support of technology services focused on adequate, efficient, and effective support for the division employees that use computer based and communications technologies across the state. Recommendations were made regarding the consolidation of computer programming services, management of all telecommunications activities including telephony and digital radio, administration and management of the network infrastructure and user support requirements, the development of standards, policies, and procedures, establishing a training policy, and consolidating programming resources. Providing full service technology acquisition and delivery services were also recommended.

Integration of technology with the division's business operations encompassed a broad range of solutions to focus efficient and effective use of technology throughout the division. Through the establishment of standard information technology equipment packages, operations can link directly to division needs and business requirements. These packages include hardware, software, and applications access for activities ranging from home office needs to engineering work stations. Standard packages will save time and effort for the technology "customer" and staff responsible for procuring, installing, training, and supporting the technology.

### ***The Role of Wildlife Technologies***

Wildlife Technologies has been charged with implementing management review recommendations and has achieved a respectable measure of success toward this over the last 18 months. The section was consolidated into a single operational unit from the division's CORIS operations group and the PC/network administrative and support group. Staff were reassigned to this new group to provide field support around the state and to better ensure robust technology for core business operations. The Wildlife Technologies section continues to implement specific strategies, accomplish goals and meet objectives that fulfill the spirit and/or the letter of the

management review report. Effectively managing our technology assets and facilitating their effective use is a critical component of the division's success.

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## **The Information Technology Business Environment**

The Division of Wildlife is comprised of three main business branches, a planning, budgeting, and evaluation unit and the director's staff. Branch administrators for Public Services, Wildlife Programs, and Support Services oversee section managers responsible for operations across the state. Section managers typically have the authority to operate their units as they see fit within division policy and administrative directives. Employees have individual responsibilities associated with their particular jobs. While some employees are closely supervised, many enjoy a level of independence that is typical of a field agency whose agents need to make decisions around the state on the spot. This environment fosters consensus building and challenges the homogeneous implementation of state wide policies, procedures, and standards. This is the very reason that strong IT asset management practices are important for efficient and effective IT based operations. IT is an important tool that should be kept sharp to cut through the tasks at hand without ragged edges that slow production.

### ***Budget Operations***

Each section has a budget designed to meet the requirements of the division to meet the goals and objectives of its long range plan. A planning, budget, and evaluation unit develops these modified zero base budgets with section managers annually. All funds are tied to work packages that are designed to address specific LRP goals and objectives. Each package contains performance objectives used to measure the implementation of the package's action plan and determine the true value of the effort. Budget's and action plans are adjusted accordingly and the cycle repeats. Wildlife Technologies has recently been assigned the responsibility of implementing an asset management plan and will include new acquisition and replacement costs in its budget. The budget addresses robust procurement, replacement, upgrade and maintenance issues.

### ***Central vs Distributed Acquisition and Distribution***

Central operation of technology acquisition and distribution accomplishes several important goals. The right technology makes it into the right hands in the correct configuration and training can reliably precede or follow as appropriate. The distributed model allowed technology users to procure goods and services that they often didn't understand. Many times these technology users would not satisfactorily match the technology they ordered with their tasks. This was both wasteful and inefficient and usually resulted in more time being spent by IT staff to correct the resultant problems. Time and money will also be saved by using bulk ordering and distribution methods.

In the distributed model, timing and support was often an issue as equipment would arrive that needed to be configured properly to connect to the network. Whether a local area network connection is required in Denver or out state offices, dial up services need to be installed, or software simply needs to be installed and configured, IT staff should be aware of these needs so that timely service is deliverable. Central management of these activities can ensure that tasks are scheduled and staff are available when needed.

Moving from distributed operations to centralization frequently appears to be a burden for the distributed client while delivering goods in a less timely fashion. The division will avoid the trap of "red tape" operations by using a combination of proactive tools and measures. For example, IT staff are currently investigating the viability of using PC manufacturers to preload software. A distributed work force addresses this concern as well.

### ***Technology Client Demographics***

A comprehensive database of employees and their work related attributes is currently in the planning stages. The division will use this information system for typical personnel operations as well as to profile job classes, track correspondence, and share important information about individuals and positions. This database can serve as a link to an IT asset management system that can accurately track and project IT equipment needs and operations. Information regarding user skills, training, experience, and work requirements can be profiled and then used to attend to the needs of an individual within the constraints of the division's LRP.

### ***Standards***

User demographic information can be overlaid onto division hardware and software standards to determine the best technology fit to an individual in any position around the state. Although the use of standards typically reduces choice, these standards correspond to business requirements and ensure that tasks will be accomplished in an efficient and effective fashion. By simplifying the existing technology environment, we can reduce the administrative and support load on IT operations by reducing the number of protocols, desktop computer configurations, operating systems, and application delivery systems that need administration, maintenance and support. The division adheres to existing state standards throughout its IT environment wherever appropriate and will comply to future standards whenever possible.

Standards based IT operations facilitate the development of applications better suited to increase employee efficiency and effectiveness state wide. These applications can be customized to the division's needs and, with a known and reliable IT environment, can include the use of electronic forms and routing processes, access to business products and processes, and a comprehensive corporate information system.

## ***Responsibility of Wildlife Technologies***

Wildlife Technologies is directly responsible for the acquisition, configuration, distribution, installation, support and maintenance of information technology placed throughout the division. Effective methods to communicate with technology customers must be securely in place on both the front and back ends to successfully operate in this capacity. For direct support, the technologies support group uses a help desk application to collect user requests for goods and services and to assign staff to attend to this work load. On a more strategic level, the division supports a Technology Advisory Group (TAG) to see that the technology employed and the methods of its implementation are on the mark. TAG membership consists of a mix of technology users from around the state and represents a good cross section from all three organizational branches. This is an effective back end tool that helps Wildlife Technologies to adjust its course whenever necessary.

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## **Better Customer Service**

Effective administration, management, and support of IT assets through regular replacements and standardized configurations provides a stable technology environment. Technology support can be simplified and broadly distributed when IT staff focus on known configurations and, consequently, can resolve predictable and known problems. As a result, overall system administration becomes more efficient and more time can be spent developing new technology based improvements to business processes. The quality of help desk operations significantly improves by reducing the complexity of problem solving and providing technology users with a more timely and effective response.

A stable IT environment should improve IT staff's response to a rapidly changing business environment allowing them to adapt to technology users' needs as well as to changing technologies. For example, the division should be able to effectively respond to advances in browser technologies and easily move to cost effective new technologies such as network PCs as they mature. Extending the desktop environment to home offices, providing universal connectivity, and the need for information on demand will increase the need for IT personnel in an environment where hard working support staff will be asked to work smarter. IT asset management is a smart tool.

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## **Elements of the Plan**

The Division of Wildlife's asset management plan includes three key strategies; 1) the establishment and mandatory use of standards based hardware and software, 2) matching user profiles to the information technology required to satisfy business needs, and 3) implementing a comprehensive, state wide IT equipment replacement policy. While the first two strategies represent work done by Wildlife Technologies staff and the corporate resolve to adhere to new policies, the third strategy commits the organization fiscally by providing over \$350,000 annually to purchase new replacement equipment and software.

### ***Categorized User Profiles***

A profile will be used to determine the technology best suited to each technology user throughout the division. It will be comprised of a job position's requirements for computer based technologies as well as attributes specific to each particular job. When significant, an individual's special skills or role in the organization will be considered. Of equal importance is the business function accomplished through technology. Core business activities, mission critical tasks, key business support and strategic project work will be top priorities considered when scheduling installations. High-end technology users will also be given special scheduling consideration

### ***Standard Configurations***

Standardization of the division's desktop computing environment reduces support costs, simplifies procurement operations, leverages technology user skills, training, and expertise, facilitates consistent communications, and provides a sound basis for custom development of organizational forms and documents.

The current standards for the division's technical architecture for the desktop computing environment are as follows. A relatively high end configuration is used so that the PC will retain its useful life into the fourth year of service. Configurations will be revised on a regular basis as necessary.

Personal Computers ...	Intel based pentium processors with 64M of random access memory, 3G of fixed disk storage, super VGA video display, a 1.44M floppy diskette drive, and an 12X CD-ROM drive. Field and home office personnel also use a fax/modem.
Software .....	Microsoft Windows 9x/NT operating system with the Microsoft Office Suite of applications software.
Networking .....	Dual protocols of TCP/IP for major business systems and Banyan Vines IP for LAN/WAN operations. Vines is IP based for server to server communications and is migrating to standard IP for desktop communications. Access is via 10base-T and 100base-T ethernet or V.32 dial-up.

### ***Asset Management***

- **Replacement Guidelines and Policy**

PC equipment and software are tools to create products that either directly or indirectly contribute to work. These tools have become a mainstay throughout the division and many jobs could not be reasonably performed without them. The useful life of a PC can be measured with two rules; its ability to physically produce and operate as it was intended and its ability to deliver useful products for the tasks at hand. While the first is a function of the machine's electronic and mechanical health, the latter takes its queue from the market and prevailing work environment. Both

must be considered when determining its replacement. Business PCs tend to provide from three to five years of continuous, reliable service. However, the IT industry is constantly changing to meet the demands of a market that is always expecting it to do more. As new products are incorporated into the normal business flow, achieving parity becomes critical if information and the means to share and distribute it are part of the business plan. This phenomenon drives upgrades and system replacements to occur as frequently as every year in competitive environments and every two to four years otherwise. The Division of Wildlife chooses to reasonably balance these guidelines by replacing PC hardware every four (4) years. As a general rule, older PCs will be replaced first unless another replacement has a higher business based priority.

As new software upgrades are produced, current software becomes outdated until it is no longer supported by software manufactures. Support then becomes the responsibility of software users or their support staff. In an effort to preserve support resources, the Division of Wildlife will not support more than two levels of any brand name software applications. Software will usually be replaced when a PC is replaced. However, due to the volatile nature of software development and support, strategic software upgrades may occur more frequently.

- **Inventory of Equipment, Software, and Profiles**

A reliable replacement strategy needs a good inventory to achieve meaningful success. The division currently uses a database to track technology users, purchase orders, and IT equipment and software. This tool will be adapted to accommodate proactive asset management and continue to serve as a tracking tool as well. A division personnel database will include information that can determine technology users' needs and their relative role within the organization's long range plan. This information will provide the technology group with guidelines for prioritizing replacement schedules. Business rules will be defined and used to formulate queries to extract appropriate data pertaining to PC replacement and software upgrade scheduling.

- **Work Packages and Accountability**

The division's budgeting process requires that funds requested be tied to distinct work packages that are directly linked to a formal long range plan goal. A planning, budget, and evaluation unit reviews each package annually to measure the effectiveness of the plan and determines its relative value within the organization. IT equipment, software, and services are formally integrated into this process, and division business units that request and receive technology are accountable for their use of it. This will allow Wildlife Technologies to gain insight into effective asset management practices and revise policies and procedures accordingly.

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## **Alternatives to Asset Management**

### ***No Replacements***

PCs will continue to be integral parts of many employees jobs throughout the division. Proceeding without attention to replacing aging and obsolete equipment will rapidly decrease productivity and the organization will become more inefficient and less effective. Unless it can compensate for the reduction of work accomplished by existing employees by hiring additional staff to perform tasks manually, the Division of Wildlife will have to reduce the scope of its mission. Neither adding full time employees nor narrowing its mission is a real option for Wildlife. In regards to the first option, adding costly new employees to the state personnel system is an option used only after most other means to accomplish the same results have been rejected. Reducing the scope of mission is not acceptable to the state's wildlife constituents. The management review performed in 1995 was a result of an exhaustive effort to reach out to wildlife advocates state wide to formulate a new long range plan in 1994. The plan identified 40% more work than the division was staffed for or funded to perform. The review identified strategies that could reduce resource requirements of current operations to accommodate the new work load through a reorganization. The Division of Wildlife cannot rewrite a plan that was built through a consensual process by diverse communities of interest.

### ***No Asset Management***

The division can choose not manage it technology assets. However, to do so would cost more money to accommodate a mixed technology environment, expend more resources across the network infrastructure, use more support staff to keep systems functional, frustrate employees who couldn't use their own technology, and generally reduce the efficiency and effectiveness of the organization. Clearly, implementing an asset management plan is an obvious choice the Division of Wildlife wants to make.



State of Colorado  
Department of Natural Resources  
**Project Detail**

Date: August 1, 1997

Project Title: Asset Manage Plan	Category: II	New: <input type="checkbox"/>	Completed: <input type="checkbox"/>	Budget Decision Item Request: XX	Supplemental: <input type="checkbox"/>
		Continuing: XX	Future: <input type="checkbox"/>	Capital Construction Request: <input type="checkbox"/>	

**Business Requirements:**

Support improved staff efficiency by providing responsive, standardized hardware and software on the desktop. Reduce cost and improve quality of technical support services. Support improved business communications. Maintain access to standard office automation tools and agency information systems.

**Project Description:**

On-going effort to provide capable, reliable, cost-effective hardware and software to agency employees. Implement regularly scheduled replacement of desktop hardware and software every four years. Replace approximately 168 desktops each year.

**Technical Architecture:**

Department standards for desktop PCs, both hardware and software. Intel Pentium CPUs, fax modems, Microsoft Office software, Banyan Vines and TCP/IP protocols.

**Benefits:**

Modern, faster computers improve efficiency and ensure compatibility with current software versions. Improved efficiency, timeliness and consistency of communication. Provide on-line access to standardized forms. Reduced technical support costs. Implement department standards for desktop hardware and software. Reduced need for travel associated with technical support.

**Project Management:**

In-house project management will be provided by the Manager of Wildlife Technologies and a Network Analyst III.

**Stakeholders/Communities of Interest:**

General public, especially outdoor recreationists. All department and division employees.

## Project Detail

Department of Natural Resources

Date: August 1, 1997

Project Title: Asset Manage Plan

A	B	C	D	E	F	G	H
Phase/Milestone Description	Estimated FTE	Actual FTE	Estimated Start Date	Actual Start Date	Estimated End Date	Actual End Date	Percentage Complete
1. Inventory current equipment	1.00		8/1/97		6/30/98		
2. Prioritize and schedule installs	0.08		5/1/98		Recurs annually		
3. Order and receive equipment	1.00		7/1/98		Recurs annually		
4. Manage physical inventory	4.00		9/1/98		Recurs annually		
5. Configure equipment	4.00		9/1/98		Recurs annually		
6. Deliver and install equipment	4.00		10/1/98		Recurs annually		
7. Migrate from old desktop PC	2.50		10/1/98				
8							
9							
10							
11							
12							

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Page 2 of 5

**Project Detail**  
Department of Natural Resources

Date: August 1, 1997

Project Title: Asset Manage Plan

Cost Components	Total Costs Thru 6/30/97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02	Total
<b>I. Personal Services</b>							
Labor:							
State Employee		45,000	175,275	175,275	175,275	175,275	746,100
Contract & Consulting			25,000	25,000	25,000	25,000	100,000
Other							
<b>Total Personal Services</b>	<b>0.00</b>	<b>45,000</b>	<b>200,275</b>	<b>200,275</b>	<b>200,275</b>	<b>200,275</b>	<b>846,100</b>
<b>Total FTE</b>							
<b>II. Operating Expenses</b>							
Materials and Supplies							0
Maintenance:							
Equipment:							
Large Systems							0
LAN Systems							0
Desktops							0
Network							0
Software:							
Large Systems							0
LAN Systems						0	0
Desktops						0	0
Network							0
Non-Capitalized Equipment		200	200	100	100	100	700
Processing at State Computer Center							0
Communications Services							
From Division of Telecommunication:							
Voice							0
Data							0
From Outside Source							
Voice							0
Data							0

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Page 3 of 5

**Project Detail**  
**Department of Natural Resources**

Project Title: Asset Manage Plan

<b>Cost Components</b>	<b>Total Costs Thru 6/30/97</b>	<b>FY 97-98</b>	<b>FY 98-99</b>	<b>FY 99-00</b>	<b>FY 00-01</b>	<b>FY 01-02</b>	<b>Total</b>
Utilities/Rent							0
Administrative Expenses			1,500	1,500	1,500	1,500	6,000
IT/IS Training							0
Travel			15,000	15,000	15,000	15,000	60,000
Other Purchased Services							0
<b>Total Operating Expenses</b>	<b>0.00</b>	<b>200</b>	<b>16,700</b>	<b>16,600</b>	<b>16,600</b>	<b>16,600</b>	<b>66,700</b>
<b>III. Capital Outlay</b>							
Equipment:							
Purchased							
Large Systems							0
LAN Systems							0
Desktops			352,800	352,800	352,800	352,800	1,411,200
Network							0
Leased							
Large Systems							0
LAN Systems							0
Desktops							0
Network							0
Software:							
Purchased							
Large Systems							0
LAN Systems							0
Desktops							0
Network							0
Leased							
Large Systems							0
LAN Systems							0
Desktops							0
Network							0
<b>Total Capital Outlay</b>	<b>0.00</b>	<b>0</b>	<b>352,800</b>	<b>352,800</b>	<b>352,800</b>	<b>352,800</b>	<b>1,411,200</b>

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Page 4 of 5

**Project Detail**  
 Department of Natural Resources  
**SUMMARY**

Project Title: Asset Manage Plan		Category:	New:	Completed:	Budget Decision Item Request: XX		Supplemental:
			Continuing: XX	Future:	Capital Construction Request:		
Cost Components	Total Costs Thru 6/30/97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02	Total
<b>GRAND TOTAL PROJECTED COSTS</b>	<b>0.00</b>	<b>45,200</b>	<b>600,275</b>	<b>600,275</b>	<b>600,275</b>	<b>600,275</b>	<b>2,446,300</b>
Base Budget Cost	0.00	45,000	200,275	200,275	200,275	200,275	846,100
New Funds Required	0.00	200	400,000	400,000	400,000	400,000	1,600,200
Federal Cost							0
Other Cost							0
Benefit Components	Total Costs Thru 6/30/97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02	Total
Tangible Benefits:							0
Computer assisted work efficiencies*		2,520,000	3,360,000	3,360,000	3,360,000	3,360,000	15,960,000
Management plan IT support savings			280,000	280,000	280,000	280,000	1,120,000
							0
<b>GRAND TOTAL PROJECTED BENEFITS</b>	<b>0.00</b>	<b>2,520,000</b>	<b>3,640,000</b>	<b>3,640,000</b>	<b>3,640,000</b>	<b>3,640,000</b>	<b>17,080,000</b>
<b>Benefits Less Costs</b>	<b>0.00</b>	<b>2,474,800</b>	<b>3,039,725</b>	<b>3,039,725</b>	<b>3,039,725</b>	<b>3,039,725</b>	<b>14,633,700</b>
(subtract Total Costs from Total Benefits)							

\* Based on average cost of \$40,000/yr/FTE, average work avoided through use of technology is 1 hr/day/FTE

Expected Life of Components (hardware/software): \_\_\_\_\_  
 Four (4) years. \_\_\_\_\_

Strategic Business Objective(s):  
 Maintain or improve service levels. \_\_\_\_\_  
 Provide timely and appropriate information. \_\_\_\_\_  
 Carry out mandates. \_\_\_\_\_

IS Unit/Division: Wildlife  
 Department Priority 9 of 22  
 IS Unit Priority 5 of 5

Strategic System Objective(s):  
 Ensure availability and reliability of mission critical systems.  
 Provide timely and effective business solutions.  
 Enhance ability to integrate and share information.  
 Provide current and accurate information.  
 Ensure infrastructure that facilitates data sharing.

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Page 5 of 5