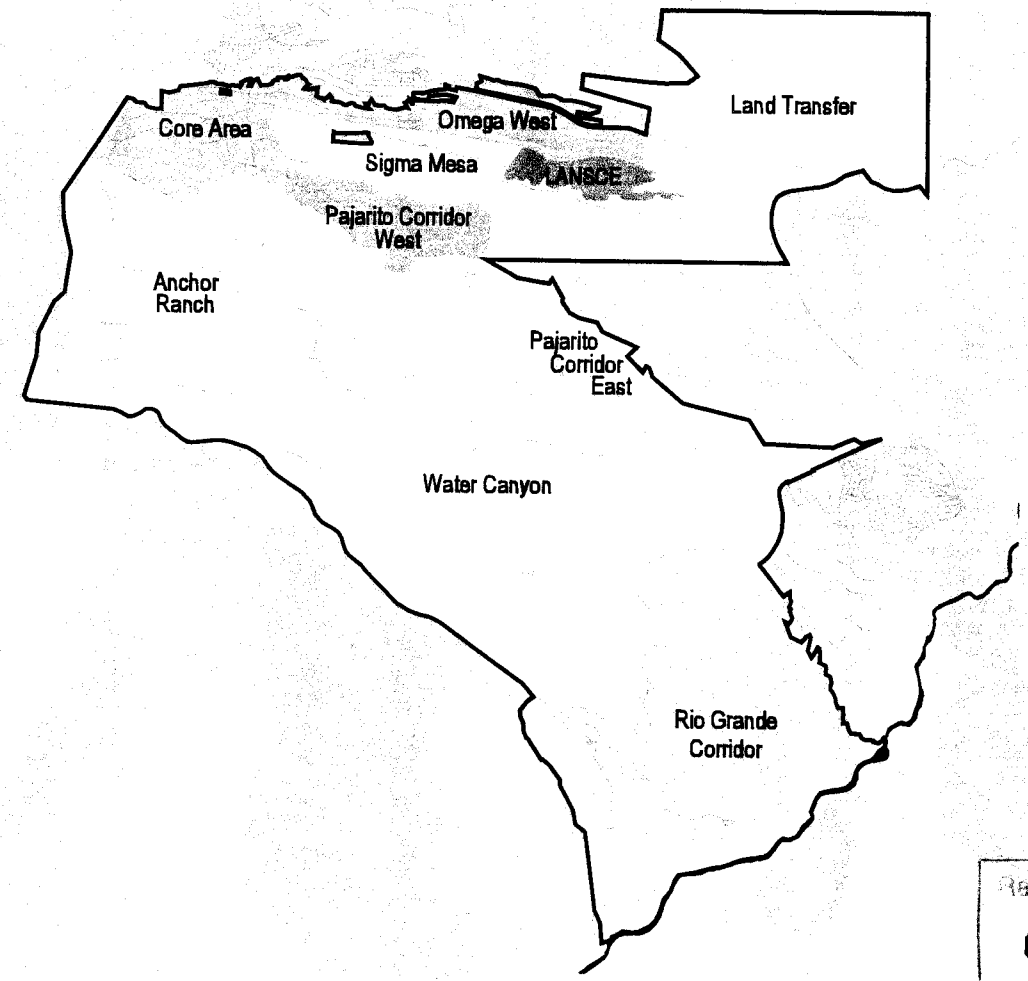
#70210

COMPREHENSIVE SITE PLAN 2001

Los Alamos
NATIONAL LABORATORY



Received by EM-RPF
OCT 2 4 2001

3605

LA-UR-01-1838

Los Alamos National Laboratory

Los Alamos, New Mexico 87545 **Operated by the University of California for the Department of Energy**

April 13, 2001

Mr. David A. Gurule, Area Manager
Los Alamos Area Office
U.S. Department of Energy
Los Alamos, NM 87545

THRU: Stephen M. Younger, Associate Laboratory Director for Nuclear Weapons

Dear David:

Subject: Defense Program (DP) Ten Year Comprehensive Site Plan (TYCSP)

Enclosed is the Draft TYCSP, which has been developed within the guidance transmitted to LANL on February 9, 2001. This Draft TYCSP is being submitted in two components. One portion is titled "Comprehensive Site Plan 2001" (CSP). The CSP 2001 builds upon the CSP 2000 while also addressing TYCSP guidance. This document meets the UC Performance Measure, Appendix F, Category 3. The CSP 2001 and the project list in an Excel spreadsheet is also provided on a CD. In addition, we are submitting the TYCSP Action Plan as a companion document of the CSP 2001. The Action Plan identifies those areas, which require further development or are beyond the specific TYCSP guidance. Together these two documents comprise the "Draft TYCSP." **The "Final TYCSP" will be submitted as one integrated document in September 2001.**

The two-document strategy is consistent with previous dialog with DOE and as presented in the DOE Progress Review on March 14, 2001, in Albuquerque. The Action Plan identifies the dynamic factors, which will impact the development of the "Final TYCSP." The evolution of the FY02 and FY03 budget guidance is a critical issue as we strive together "to establish a closer link between annual budget submissions and the existing Comprehensive Site Plan documentation." The integration of RTBF as the fundamental link with mission requirements and infrastructure needs is one of our key strategies in developing the TYCSP as an effective tool. In addition, the details of the ongoing Integrated Nuclear Planning, as presented to Brigadier General Gioconda is an important area to be addressed in the Final TYCSP.

(505) 667-5101 / FAX: (505) 667-2997

While the "Draft TYCSP" is a significant accomplishment, we recognize the development of the "Final TYCSP" as our ultimate goal. If you have any questions, please contact Randy Parks at 665-0000.

Sincerely,

Richard J. Burick
Deputy Laboratory Director for Operations

RJB:RP:amj

Enclosure: a/s

Cy S. C. Fong, DOE/LAAO, A316
D. J. Post, PM-DO, M984
R. Parks, PM-DO, M984
J. L. Holt, NW-IFC, F627
C. E. Zerkle, NW-IFC, F627
M. M. Shurter, PM-1, M871
IM-5, A150
File

FORWARD

The following is an excerpt from a written statement by John C. Browne, Director of Los Alamos National Laboratory, to the Energy and Water Development Subcommittee of the Appropriations Committee, United States Senate, March 13, 2001.

Statement of the Problem

The entire nuclear weapons complex managed by the DOE/NNSA-the production plants and laboratories-is faced with serious aging problems that threaten our ability to carry out the stockpile stewardship mission. To continue to work effectively on these DOE/NNSA missions, our Laboratory needs outstanding scientists and engineers working in state-of-the art facilities. Unfortunately, our facilities have deteriorated badly. Buildings, roads, sewer systems, electrical power grid and other critical infrastructure are approaching fifty years old and are crumbling at an alarming rate. The ability to conduct our programmatic mission is clearly at stake. A dedicated revitalization effort is crucial for the long-term viability of this Laboratory.

Statement of Solutions

We believe that there are three distinct areas that must be addressed in order to ensure infrastructure sustainability to meet our mission. Those three areas include:

1. *Implementing formal facilities consolidation efforts and cost reduction initiatives to reduce facility footprints, which in turn reduces operating costs and improves safety, security, and scientific interactions;*

2. *Addressing unfunded high-priority facility maintenance backlogs before these backlogs become expensive emergency repairs; and*

3. *Investing in new construction projects, where appropriate and economically feasible, to ensure that the Laboratory can meet programmatic mission needs over the next twenty to forty years.*

ACKNOWLEDGMENTS

Senior Executive Team

John C. Browne, Laboratory Director
William H. Press, Deputy Laboratory Director for Science, Technology, and Programs
Richard J. Burick, Deputy Laboratory Director for Operations
Joseph F. Salgado, Deputy Laboratory Director for Business Administration and Outreach
Stephen M. Younger, Associate Laboratory Director for Nuclear Weapons
Donald D. Cobb, Associate Laboratory Director for Threat Reduction
Thomas L. Meyer, Associate Laboratory Director for Strategic and Supporting Research

Site Planning and Construction Committee (SPCC) (not including PM-1)

Richard J. Burick, Deputy Laboratory Director for Operations
James Holt, Program Director, Nuclear Weapons Infrastructure, Facilities and Construction
Christopher Webster, Strategic and Supporting Research Directorate
Evelyn Mullen, Nonproliferation and International Security Division
Allan Johnston, Director of Business Operations Division
David Post, Director of Project Management Division
Anthony R. Stanford, Director of Facility and Waste Operations Division
Dennis Martinez, Area Manager of Department of Energy Los Alamos Area Office

Department of Energy

Lee LeDoux, General Engineer, Nuclear Programs Division, Albuquerque Operations Office
Herman LeDoux, Supervisory General Engineer, Los Alamos Area Office
Steve Fong, General Engineer, Office of Project Management, Los Alamos Area Office

PM-1, Site Planning and Development Group

Ricardo Gonzales, C.B.O., Group Leader
Melanee Shurter, R.L.A., Acting Deputy Group Leader
Dan Pava, A.I.C.P., Planner
Kirt Anderson, A.I.C.P., R.L.A., Planner
Rae Anne Tate, Planner
John Stanford, Planner
Scott Richardson, Architect
Joan Stockum, Geographic Information Systems Analyst
Mona Valencia, Geographic Information Systems Analyst
Don Sandstrom, Senior Management Liaison
Valerie Herrera, Planning Technician
Debra Griego, Group Administrator

Los Alamos National Laboratory Divisions/Organizations Participating in Development of Information for the Comprehensive Site Plan 2001

Deputy Laboratory Director for Science, Technology and Programs, DLDSTP
Associate Laboratory Director for Strategic and Supporting Research, ALDSSR
Applied Physics Division, X-DO
Bioscience Division, B-DO
Business Operations Division, BUS-DO
Chemistry Division, C-DO
Computing, Communications and Networking Division, CCN-DO
Decision Applications Division, D-DO
Department of Energy - Albuquerque Operations Office, DOE-AL
Department of Energy - Los Alamos Area Office, DOE-LAAO
Dynamic Experimentation Division, DX-DO
Earth and Environmental Sciences Division, EES-DO
Engineering Sciences and Applications Division, ESA-DO
Environmental Science and Waste Technology Division, E-DO
Environment, Safety and Health Division, ESH-DO
Facility and Waste Operations Division, FWO-DO
Industrial Business Development, IBD
Los Alamos Neutron Science Center, LANSCE-DO
Materials Science and Technology Division, MST-DO
Nonproliferation and International Security Division, NIS-DO
Nuclear Materials-Technology Division, NMT-DO
Nuclear Weapons-Experimental Programs, NW-EP
Nuclear Weapons-Infrastructure, Facilities and Construction, NW-IFC
Nuclear Weapons-Materials and Manufacturing, NW-MM
Nuclear Weapons-Simulation and Computing, NW-SC
Nuclear Weapons-Stockpile Systems, NW-SS
Physics Division, P-DO
Science and Technology Base Programs, STB-DSTBP
Security Division, S-DO
Theoretical Division, T-DO

Los Alamos National Laboratory Divisions/Organizations Contributing to Production of the Comprehensive Site Plan 2000

Environment, Safety, and Health - Ecology, ESH-20
Environmental Restoration Project Office, E-ER
Environment, Safety, and Health - Integrated Risk Analysis Management, ESH-3
Environment, Safety, and Health - Site Wide Environmental Impact Statement, ESH-EIS
Facility and Waste Operations - Facility Management Services, FWO-FMS
Facility and Waste Operations - Support Service Contract Management, FWO-SSCM
Facility and Waste Operations - Systems Engineering and Maintenance, FWO-SEM
Facility and Waste Operations - Utilities and Infrastructure, FWO-UI
Facility and Waste Operations - Waste Facilities Management, FWO-WFM
Earth and Environmental Sciences - Geoanalysis, EES-5
Nuclear Weapons - Infrastructure, Facilities, and Construction, NW-IFC
Project Management Division, PM-DO
Security - Security Plans and Programs, S-1
Security - Program Integration, S-2
Security - Emergency Management and Response, S-8
Science Technology Base, STB-DSTBP

Consultants

Design Workshop, Inc., Santa Fe, NM
Higginbotham/Briggs & Associates, Colorado Springs, CO

TABLE OF CONTENTS

I. INTRODUCTION

A. PURPOSE OF THE CSP 2001

The *Comprehensive Site Plan 2001 (CSP 2001)* is the first supplement of the *Comprehensive Site Plan 2000 (CSP 2000)*.

The *CSP 2001* provides new and updated information and recommendations for Laboratory decision makers regarding policies affecting the development and maintenance of the Laboratory's physical plant. The *CSP* documents encapsulate development recommendations to achieve a "desired end-state" Laboratory physical plant that can operate efficiently to accomplish the Laboratory's mission of ***enhancing global security***.

The *CSP 2001* contains recommendations that go beyond specific planning areas to address needs related to specific Department of Energy (DOE) programs or unique organizational requirements within the Laboratory. Individual area plans targeted toward a specific or unique audience within the Laboratory are included in the *CSP 2001*.

The *CSP 2001* incorporates the planning assumptions, strategies, analyses, and elements presented in *CSP 2000.* It does not repeat information or the general descriptions of planning areas, land use, transportation, security, utilities, facilities, and quality environment except where those assumptions, strategies, analyses, or elements are affected by new facts.

B. RELATIONSHIP TO OTHER PLANS

The overarching purpose of the *CSP 2001* is to better manage our physical assets, thereby promoting DOE Corporate Management Objective CM3. The *CSP 2001* recognizes the goals and objectives in the recently adopted DOE Strategic Plan and the recent Ten-Year Comprehensive Site Plan (TYCSP) guidance. This plan has been developed to be consistent with the Laboratory's Strategic Plan and Institutional Plan.

Throughout the *CSP 2001* and in its project list, the National Nuclear Security General Goal and Objectives NS1, NS2, NS4, and NS6 are addressed. The *CSP 2001* describes planning, programs, initiatives, and procedures to support the Environmental Quality General Goal and planning efforts with the Supporting Scientific Research Directorate to meet the Science General Goal and Objectives SC1, SC2, SC3, and SC4. Refer to: *http://www.cfo.doe.gov/stratmgt/plan/DOE-SP-goals.htm.*

Note:
The names of two planning areas have been changed since the CSP 2000.

The Experimental Engineering Planning Area has been changed to ***Anchor Ranch Planning Area.*** *The Dynamic Testing Planning Area has been changed to* ***Water Canyon Planning Area.***

C. ACCOMPLISHMENTS IN 2000

Since the publication of the *CSP 2000*, a number of important planning accomplishments have occurred.

Excellence Award from the Federal Planning Division (FPD) of the American Planning Association as the Planning Program of the Year, *see Figure I-1***.**

The FPD 2000 Awards Jury stated the award was given to Los Alamos National Laboratory for its Planning Program that has "*reinvigorated and is the center for innovative, high quality work. The planning process was reinvented, with facility siting conducted completely on-line. The jurors felt that the document prepared for the Los Alamos program was comprehensive, strategic, and of excellent quality. They were also impressed with the architectural guidelines specified by the projects.*"

Figure I-1: APA Award Ribbon

Tri-Lab Benchmarking for Planning
The Laboratory is participating in a Tri-Lab Planning benchmarking effort that resulted in a report submitted to DOE in October 2000. Benchmarking with Sandia National Laboratory and Lawrence Livermore National Laboratory introduced new ideas for improvements and consistency in planning for DOE facilities. This effort has initiated an on going cooperation and process improvement between the planning organizations at all three Laboratories.

Electronic Comprehensive Site Plan (eCSP)
This new Web-based program allows wider distribution of the *CSP 2000* planning information in an interactive electronic format. eCSP improves the usefulness and convenience of planning information and maps as a tool for Laboratory management and development. The *CSP 2001* will be added to the Website upon publication, see *Figure I-2*.

Updated Site and Architectural Design Principles
The Site and Architectural Design Principles are undergoing a major revision, see *Figure I-3*. The final document*, Design 2001: Site Design and Architectural Guidelines,* will be completed during the spring of 2001 and reviewed through the Laboratory, with final endorsement by the Site Planning and Construction Committee (SPCC) and the Senior Executive Team (SET).

Wayfinding Proposal
A Wayfinding Proposal recommending an improved institutional signage system is being reviewed by the Laboratory, see *Figure I-4*. The proposal is to be presented to the Laboratory's SPCC, with plans to forward the SPCC's recommendation to the Laboratory's SET for adoption.

Gap Analysis
The Laboratory required an independent audit of the facilities planning functions. The study was undertaken by reviewing written background documentation and by interviewing 21 selected stakeholders, both from the Laboratory and the DOE, over a period of seven working days in August 2000. A report was issued that discusses the changes that have occurred since August 1999 and includes a revised set of recommendations that can be reviewed for action by the Laboratory management team.

Area Development Plans
Area Development Plans (ADPs) are 5–10-year land use plans that emphasize analysis and implementation. ADPs have been initiated for all ten planning areas and are nearly complete. The ADPs involve the PoC committee and guide strategic facility plans for organizations searching for improved facility efficiency and effectiveness for future operations.

Figure I-2: eCSP, http://ecsp.lanl.gov

Figure I-3: Site Design and Architectural Guidelines

Figure I-4: Wayfinding Proposal

Laboratory Performance Requirement (LPR) and Laporatory Implementation Requirement (LIR) Adoption

The LPR for Comprehensive Site and Facilities Planning was approved and adopted in April 2000. The LPR requires the Laboratory to develop and maintain a CSP, a siting process, and architectural design principles, among other requirements. The LIR for a Comprehensive Site Planning Program was approved and adopted in Spring 2001. The LIR identifies the CSP process and contents and assigns responsibilities to ensure that comprehensive planning continues to be implemented at the Laboratory.

Improved Communication for Planning Activities:

To improve communications between the various entities that are doing development planning at the Laboratory, three new committees were organized and instituted.

Planning Point of Contact (PoC) Standing Committee

Improved Laboratory-wide planning communication is being implemented through identification of a Planning PoC for each organization and program at the Laboratory. Planning PoCs help in ongoing dialog with the Site Planning and Development Group on planning issues and activities that affect all Laboratory stakeholders. PoCs are updated on key planning initiatives and activities through regular progress meetings.

Subject Matter Expert (SME) Working Group

The SME Working Group serves as a forum for discussion and as an expanded decision-making body that participates in and contributes to the long-range development of the institution. The SME Working Group formalizes communications and coordinates planning with the knowledge of SME, to develop improved, more realistic, and efficient long-range development plans for the Laboratory. The SME Working Group meets monthly to discuss and coordinate planning-related issues and activities.

Internal Siting Committee (ISC)

The ISC is a new review committee added to the Laboratory's award-winning siting process. The committee, composed of Laboratory SMEs, provides earlier reviews of proposed facility sitings to assist the project manager and client during the intial planning of a project. This informal early review can result in better-sited facilities and less controversy during the development of the project. The committee is made up of Laboratory professionals from planning, National Environmental Policy Act (NEPA), ESH-ID project review, program offices, facilities, space management, and utilities.

D. *CSP 2001* GOALS

CSP 2000 provided a sitewide plan to guide future Laboratory development that promotes a quality work environment conducive to research and mission success.

Four goals, seven principles, and thirteen strategies for planning at Los Alamos National Laboratory were endorsed by Laboratory senior management in the spring of 2000 and remain viable guidelines.

1. CSP Planning Goals

- To advance ongoing revitalization and maintenance so the Laboratory's work can be safely and efficiently performed;
- To develop facilities that support and contribute to the core competencies of the Laboratory;
- To create an efficient place to work that is comfortable, safe, secure, and aesthetically pleasing; and
- To create an environment that contributes to attracting and keeping top-quality personnel.

CSP PLANNING PRINCIPLES

Integrate the Laboratory's planning elements into the development process. The planning elements are land use, transportation, security, utilities, facilities, environment/safety/health, and quality environment.

Plan for ***long-range*** occupancy and programmatic needs. Facilities should be planned to accommodate the dynamic scientific future as well as to meet current needs.

Plan ***flexibility*** into facilities to accommodate change in existing and emerging missions and programmatic needs.

Support ***partnerships*** between Laboratory programs and private enterprises. Develop stakeholder support at the local and regional levels.

Improve ***transportation and utilities infrastructure systems*** regionally and Laboratory wide to provide reliable service capacity, enhance traffic safety, upgrade operations and activities, reduce energy costs and improve security.

Upgrade facilities by replacing temporary, outmoded, and substandard facilities with new, permanent, or renovated facilities as appropriate.

Create ***quality work environments*** that are safe, environmentally sound, and physically attractive. Design environments for people to interact and exchange ideas.

CSP PLANNING STRATEGIES

1. Comprehensively Plan for the Long Range
Comprehensively plan the long-range (10-year) development of the Laboratory's physical plant. Comprehensive site planning contributes to the Laboratory's mission by aligning program needs with facility capabilities and needs to derive the most benefit from development investment.

2. Coordination with Sitewide Environmental Impact Statement
SWEIS process helps to assess the environmental impact of Laboratory programs and decisions. Specific actions listed in the plan either have been or will be coordinated with NEPA review.

3. Reorganize Facilities
Reorganize facilities to bring disbursed program components into closer physical proximity to each other for operational efficiency and enhanced staff interaction.

4. Infill and Revitalize
Encourage construction of new facilities within existing developed areas and support revitalization efforts. TA-03 revitalization is a major effort in this strategy.

5. Replace Temporary and Aging Facilities
Replace, remove, or decommission temporary, aging, and/or contaminated facilities to control the high cost of maintaining these structures. Replacement with new, permanent, or revitalized facilities will control and reduce operational costs.

6. Manage Infrastructure Extensions
Future infrastructure development will emphasize upgrading and/or replacing existing utility systems. Extension of new infrastructure into undeveloped "greenfield" areas will be permitted only for major mission-directed programs requiring facilities that cannot be located within existing developed areas of the Laboratory.

7. Consolidate Security Zones
Consolidate special nuclear materials (SNM) facilities into a single zone whenever possible. Organize high-security facilities close to one another to avoid security conflicts with nonsecure facilities.

8. Consolidate Support Facilities
Consolidate support facilities to locations with access to roads that avoid truck and delivery routes through densely developed areas and/or secure areas of the site.

9. Manage Facility Space As an Asset
The cornerstone of integrated space management will be stewardship of the Laboratory's physical assets as valuable national resources from acquisition through operation and disposition.

10. Match Space to Work
Create work spaces that appropriately match the tasks being done in those spaces.

11. Relocate Work in Leased Facilities to Laboratory Land
Relocate most facilities to Laboratory sites. In particular, most sites north of Los Alamos Canyon should be relocated onto Laboratory land south of the canyon.

12. Develop Quality Work Environment Improvements with Each Project
In the future, project planning should identify, incorporate and budget for environmental enhancements such as pedestrian walks, sitting areas, bus shelters, etc.

13. Develop a Secure and Safe Road System
Develop the road network to enhance the regional road system and reduce long term conflicts between Laboratory development and public traffic uses. Specific improvements include a loop road around TA-03 to remove public traffic conflicts, enhance safety, and reduce security concerns.

II. EXISTING CONDITIONS

A. REGIONAL OVERVIEW

Los Alamos National Laboratory is located in north-central New Mexico, an area of enchanting natural beauty enriched by the interweaving of Native American, Hispanic, and Anglo-American cultures.

The very old and the very new are juxtaposed within the immediate environs of the Laboratory: pueblos where traditional ceremonies and customs are still honored, old high-mountain Hispanic villages, and the ruins of prehistoric Native American cultures are found nearby, see *Map II-1*.

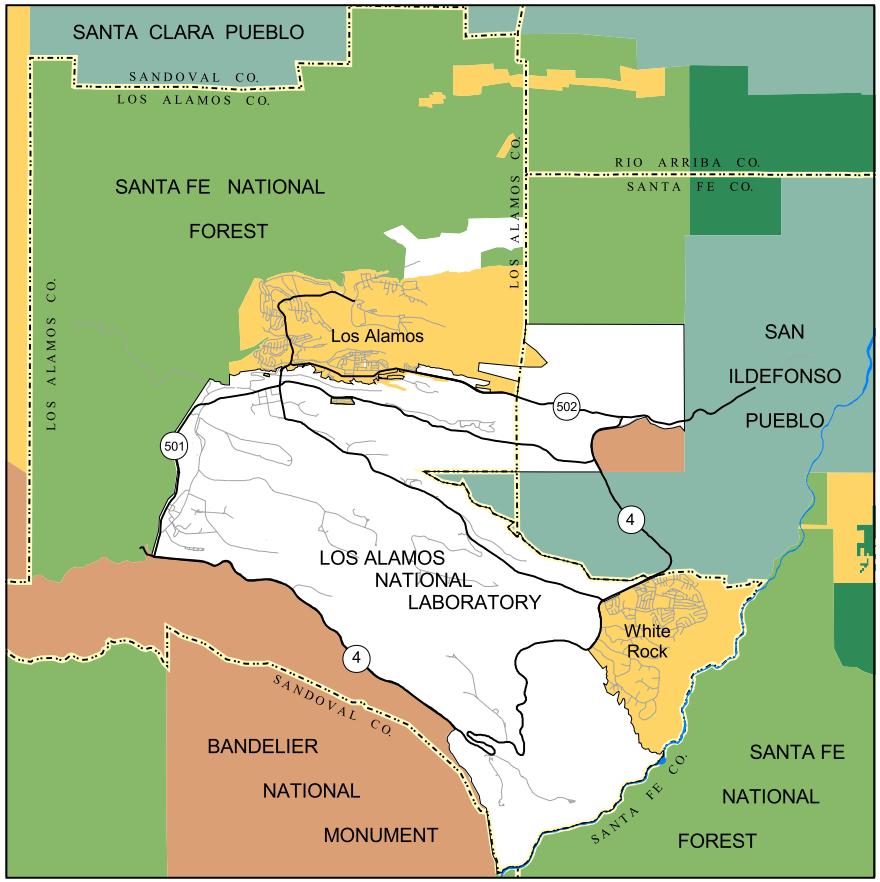
North-central New Mexico is dominated by the Jemez Mountains to the west and The Sangre de Cristo Mountains to the east. These two ranges flank the Rio Grande Valley, which bisects the state from north to south.

The northern portion of New Mexico depends heavily on tourism, recreation, agriculture, and the state and federal governments for its economic base. The Laboratory and its associated support service sub-contractors are the largest industrial employers in the region.

Laboratory activities directly influence four major communities in New Mexico: Los Alamos, Santa Fe, Espanola and Albuquerque. The Laboratory draws employees, contractors, and resources from throughout the region.

Infrastructure requirements for roads and utilities are intimately tied to the regional systems in this area. The Laboratory is a major influence in the economic, social, and environmental management of the region.

Map II-1: Surrounding Land Ownership



B. REGIONAL FACTORS AFFECTING PLANNING AND DEVELOPMENT

People in and around Los Alamos are concerned with several local issues that merit brief review to provide a better grasp of general planning concerns affecting the region. These issues include concerns about the environment, economic development, tourism, housing, schools, public services, and transportation and are often manifested as disputes about appropriate land use decisions.

1. Laboratory Related Economy

The Laboratory and its associated support service subcontractors are the largest industrial employers in Northern New Mexico. The Laboratory directly or indirectly creates about 29% of the region's jobs, and its positive impact on the Northern New Mexico economy is commensurate with this fact. In FY99, the Laboratory's estimated operating budget was $1.5 billion. The total economic impact of the Laboratory in 1997 was $4.1 billion for the overall New Mexico economy and $3.4 billion for the three counties of Rio Arriba, Santa Fe, and Los Alamos. This represents 4.8% of the total New Mexico economy and 30.1% of the three counties' economies. Tourism, recreation, agriculture, and the state and federal governments complete the list of predominant economic generators in the region.

2. Economic Development

Generally, area residents have been supportive of the Laboratory and its activities. This attitude has been fostered by the economic benefits resulting from the Laboratory during the past four decades.

Efforts to identify additional land for industrial development that could complement programs at the Laboratory are ongoing. These efforts constitute an attempt to continue to diversify the local economy. Two projects—the research development park adjacent to the Laboratory and the DOE-sponsored transfer of particular Laboratory lands to other public entities—will be discussed in greater detail later in this document.

3. Transportation

Currently, over 50% of Laboratory and contractor employees commute to the site. This has regional impacts on transportation, planning, and development. Highways provide primary access to the Laboratory from the Rio Grande Valley and Albuquerque. The Los Alamos Airport, now managed by Los Alamos County, allows for air service between the town site and Albuquerque. There are also several privately sponsored commuter flights between the two communities. Commuter van service is available from Albuquerque, Santa Fe, and Española to Los Alamos, but private vehicles provide the bulk of transportation to and from "the Hill." Los Alamos has no rail service. The Laboratory supported the State of New Mexico's sponsored park-and-ride mass transportation (bus) system in November 1998. The service was interrupted early in 1999, but plans to reinstate the service are ongoing. The Laboratory will continue to cooperate with the county, state, and federal transportation agencies to continue to develop regional transportation and transit systems.

4. Adjacent Landowners

It is in the Laboratory's best interest to continue its cooperation with Los Alamos County, the U.S. Forest Service, Bandelier National Monument, San Ildefonso Pueblo, and other neighbors to attain mutually beneficial land use planning goals. The Laboratory's planning efforts should be coordinated with the efforts of these other entities whenever feasible.

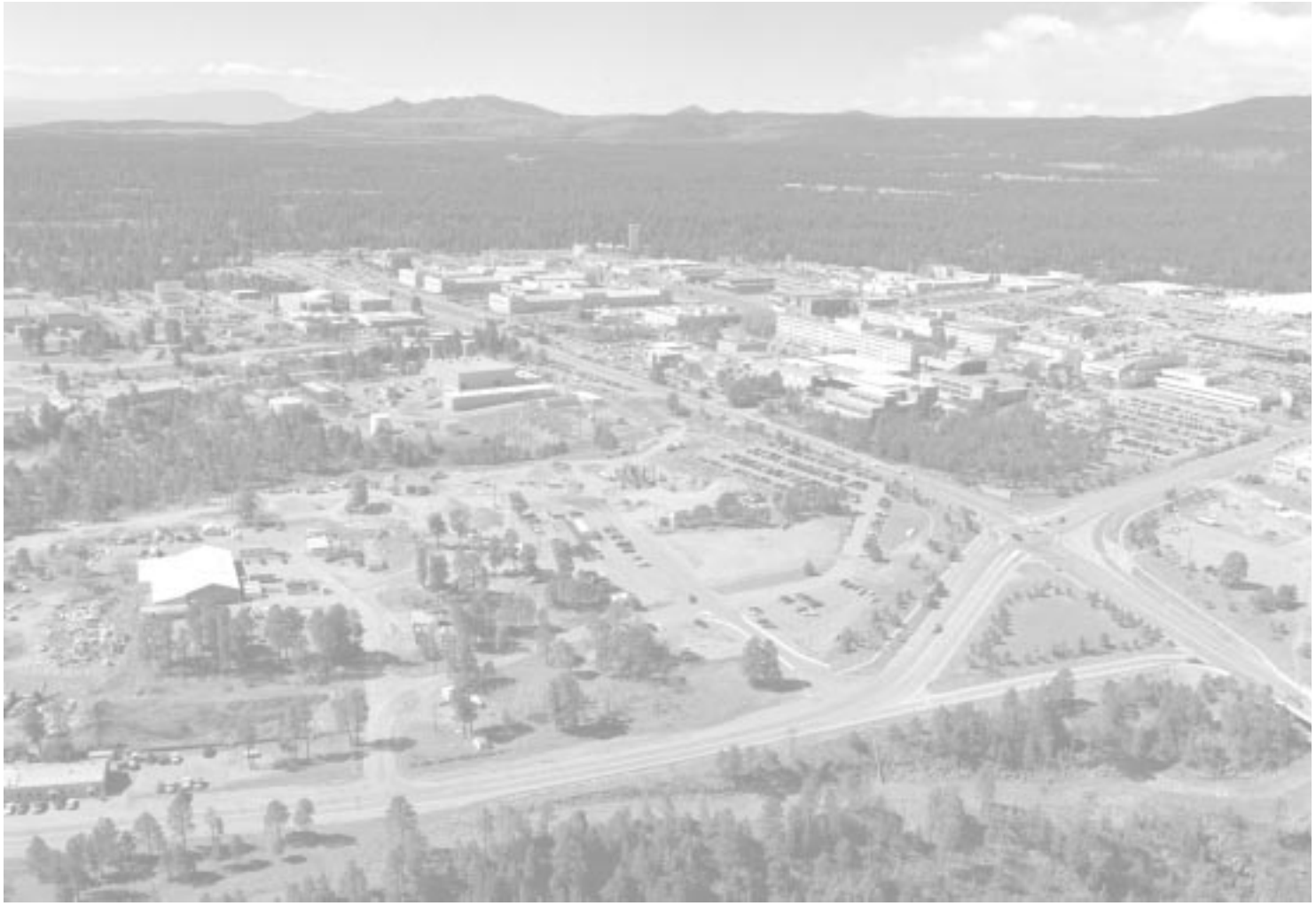
5. Environmental Stewardship

Public concern continues about environmental compliance throughout the DOE complex. People who live in Los Alamos and the surrounding region value the quality of life that distinguishes this area. The Laboratory must continue to demonstrate that it can and will comply with all applicable federal and state environmental regulations.

6. Housing

Housing supply and demand, housing choices and affordability, and the selection of new areas for future housing development are always topics of concern to local residents and the Laboratory. Recent losses of homes in the Cerro Grande Fire have reduced the housing supply further. The high cost and scarcity of available housing impacts the Laboratory's ability to recruit and retain top-quality staff. The Laboratory needs to identify steps to support development of more diverse housing.

Figure II-1: Laboratory aerial image



C. PHYSICAL CONSTRAINTS

The following natural and physical constraints constitute major determinants of opportunities and constraints for development at the Laboratory. Refer to the *CSP 2000* for the physical constraints map.

1. Natural Resource Management Plans

Natural Resource Management Plans are an integral part of the planning process at the Laboratory. Because they apply to the entire site rather than to individual projects, they affect all planning and development.

DOE is responsible for managing the natural resources at the Laboratory as a Natural Resources Trustee. The Record of Decision for the 1999 SWEIS requires the Laboratory to create an Integrated Resource Management Plan. In order to fulfill this responsibility, DOE and the University of California are implementing a Natural Resources Management Program integrating natural resources management activities that include:

- biological management,
- forest management,
- threatened and endangered species habitat management,
- groundwater protection,
- watershed management, and
- air-quality management.

Results of these ongoing programs are reported in annual surveillance reports, the Annual SWEIS update, and other Laboratory documents.

2. Topography and Slope

Los Alamos is located on the Pajarito Plateau. The plateau has been deeply eroded by runoff, resulting in a series of mesas separated by canyons, many of which are several hundred feet deep, see *Map II-2*.

Much of the Laboratory's land is unbuildable. Within the Laboratory, steep slopes and deeply cut canyons severely constrain development. Over 25% of the Laboratory site has canyon-side slopes that have 20% gradients or greater. In contrast, many portions of the broad mesa tops and canyon floors have flat gradients of 0–5%. Facilities siting is based on a consideration of slopes in terms of safety (i.e. stability, landslides, and rockfalls) and development costs.

3. Soils

All soils at the Laboratory have limitations for building, some limitations are exceedingly difficult to overcome. There are 28 soil types within the Laboratory boundaries. Refer to the *Soil Survey of Los Alamos County, New Mexico* in the *CSP 2000* Technical Site Information for the suitability of soils for various types of development. Development on soils with severe limitations is discouraged.

4. Vegetation

Plant diversity within the Laboratory site is extensive and varies with the localized topography, elevation gradients, and microclimates. Seven major overstory vegetation types exist throughout the 4,900-foot gradient in the county. See Volume II of the *CSP 2000* and the SWEIS report for additional vegetation information.

The ability of the habitats to absorb new structures should be evaluated before facilities are sited. Sites should be engineered to prevent excessive erosion. Site plans should incorporate landscaping that uses native species to maintain continuity with the natural environment and to conserve water.

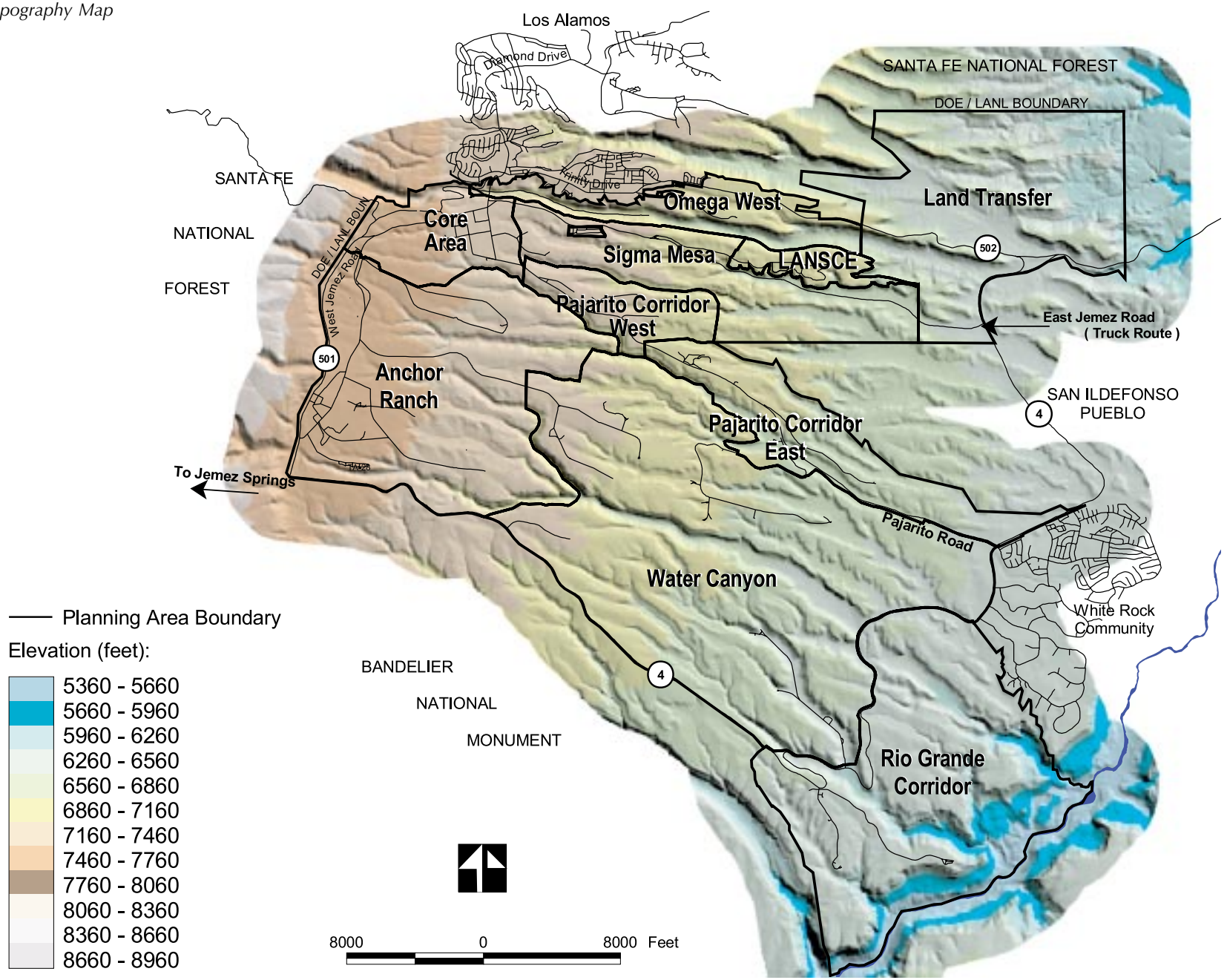
5. Climate

In general, climate at the Laboratory does not have a major planning impact. Los Alamos has a temperate mountain climate with four distinct seasons.

The average annual precipitation (rainfall plus the water-equivalent of frozen precipitation) is 47.6 cm (18.7 in.). Los Alamos winds are generally light, at an annual average of 2.5 m/s (5.5 mi/h). However, the period from mid-March to early June is generally a windy time.

Lightning is very frequent in Los Alamos. In an average year, Los Alamos experiences 61 thunderstorm days about twice the national average.

Map II-2: Topography Map



6. Geology and Seismology

Los Alamos National Laboratory lies atop the Pajarito Plateau, which was formed by cataclysmic volcanic eruptions approximately 1.2 million years ago. Slope stability within the Laboratory is extremely variable. Steep canyon walls are susceptible to massive failures, posing rockfall hazards and long-term stability problems at mesa edges.

Los Alamos is located in a moderate seismic zone when compared to other areas of the country. Twenty-five faults and four zones within the Los Alamos region have been identified as potential seismic sources significant to the Laboratory in terms of ground shaking. Ground motion accompanies all earthquakes and is the primary effect that must be considered in the design and construction of Laboratory facilities.

Because of the close proximity to the Pajarito fault system, including the Pajarito, Guaje Mountain, and Rendija Canyon faults, surface rupture must be considered in the siting of facilities. Surface rupture is a low-probability event and generally only accompanies larger earthquakes of magnitude 6 and above. Nevertheless, new facilities should not be sited over known faults with significant existing displacement.

7. Threatened and Endangered Species

Federal agencies must comply with the 1973 Endangered Species Act (ESA) and as amended. The Los Alamos National Laboratory Threatened and Endangered Species Habitat Management Plan (HMP) has been developed to protect federally listed threatened and endangered species on or near the Laboratory.

The HMP defines habitats for threatened and endangered species. Each of these areas is designated as an Area of Environmental Interest (AEI) and mapped in that document. The designated AEIs have both core and buffer areas. The core area designates the necessary habitat for a species and has the highest level of protection. The protective elements of the buffer are related to preventing core degradations primarily from noise and light disturbances. Areas that are not designated as AEIs are presumed to have little or no impact on endangered or threatened species.

8. Surface Hydrology

The Rio Grande is the master stream of the region and drains an area of more than 14,000 square miles in northern New Mexico and southern Colorado. Many drainage areas originate in or pass through the Laboratory, the Los Alamos townsite, and the White Rock area.

Mesa-top locations are generally free from any risk of flooding; however, storm water and snowmelt runoff concentrate in the site's deep, narrow canyons, thereby increasing the risk of flooding for any facilities constructed on the canyon bottoms. The floodplains and wetlands in the canyon bottoms are cautionary zones for siting buildings.

Floodplains are protected under Executive Order 11988. This order emphasizes the need to reduce the risk of flood loss; tries to minimize the impact of floods on human safety, health and welfare; and aims to restore the natural and beneficial values of floodplains.

Activities triggering the Laboratory's review of potential floodplain impact are as follows:

- construction within a floodplain
- alteration of a stream course
- significant increase in the water flow into a floodplain (e.g., a large new development with numerous impervious surfaces)
- removal of large amounts of vegetation in a floodplain

Wetlands are protected under the Clean Water Act and Executive Order 11990. Any excavation or fill activity in a wetland requires a Laboratory review. Depending on the extent of the excavation and fill, a permit may be required. Vehicle access in a wetland must also be reviewed by the Laboratory. Other activities requiring Laboratory review of wetlands include: any significant change (increase or decrease) in effluent discharge to a National Pollutant Discharge Elimination System outfall, elimination of an outfall, and discharge to a new outfall. These activities may require a wetland assessment.

9. Archeology and Cultural Resources

At present, approximately 80% of Laboratory lands have been surveyed for cultural resources. The Laboratory uses the DOE's definition of cultural resources, which includes archeological sites and artifacts dating to the prehistoric, historic, and ethnohistoric periods; standing structures that are over 50 years old and that represent a major historical theme or era; cultural places and sacred objects that have importance to Native Americans; and sites and artifacts pertaining to American folklife traditions and art.

The Laboratory site and surrounding areas contain examples of all of these types of cultural resources. These include the material remains of over 10,000 years of prehistoric human occupation, the historic occupation of the Pajarito Plateau beginning in the 1400s, and the Laboratory buildings and structures associated with the Manhattan Project and the Cold War. Almost 75% of the cultural sites are found on mesa tops, which are the preferred locations for Laboratory development today.

Under Section 106 of the National Historic Preservation Act (NHPA), all proposed work must be evaluated for its potential to adversely affect significant cultural resources, and appropriate measures must be taken to mitigate any impact.

Over 1,400 archeological sites have been recorded at the Laboratory to date, and approximately 500 of 2000 facilities are potentially significant historic properties.

D. OPERATIONAL CONSTRAINTS

The following operational characteristics constitute additional major determinants of site opportunities and constraints for development at the Laboratory. Refer to the *CSP 2000* for the operational constraints map.

1. Radiological Zones

Radiological hazard areas should be considered in the planning process. Information on specific locations can be obtained from the Environment, Safety, and Health (ESH) Radiation Protection Program Office. Radiation hazard areas are not "development exclusion zones." Neither construction nor new operations are precluded, but the reasonableness of the proposed activity must be considered. For example, a new storage facility might be ideally located within one of these areas adjacent to a facility that needs new storage. The most important objective is to ensure that the use is compatible with the hazard concerns and that documentation for the decision is provided.

2. Blast Buffer Zones

Explosives research, development, and testing uses require large, isolated, exclusive, and consolidated reservations of land. Carefully controlled access is utilized to maintain safety, security, and environmental compliance. These areas require buffers to minimize adverse impact on surrounding lands. Only specialized facilities and approved personnel are permitted, in accordance with ESH procedures.

3. Radio Frequencies

Many operations, programs, and experiments occurring at the Laboratory are adversely affected by AM radio transmissions. Therefore, for safety and other operational reasons, AM transmissions are not allowed to originate on Laboratory property. Any new radio frequency broadcasts at the Laboratory must be coordinated with the frequency manager in the Telecommunications Group (CCN-4).

4. Hazardous Waste

At Los Alamos, the number of potentially contaminated sites is approximately 2,100. Much of the investigative work on these sites has been completed; as a result, many of them have been found not to be contaminated and are being removed from the list of sites without further action. At many of the remaining sites, accelerated cleanup has been completed or begun. A small percentage of sites, currently estimated at less than 10%, will need to go through the entire corrective action process, a task that is expected to take until 2009 to complete.

Data gathered since 1970 in a comprehensive environmental monitoring and surveillance program indicate that no contamination that threatens the health or safety of local residents is known to exist on private property.

The Laboratory Environmental Restoration (ER) Project is governed primarily by the corrective action process prescribed in the Resource Conservation and Recovery Act (RCRA), but it is also subject to other applicable laws and regulations and to Laboratory policies.

The New Mexico Environment Department administers RCRA in New Mexico. The ER Project must respond to RCRA requirements for assessing and cleaning up sites at active hazardous waste treatment and storage units.

Other applicable federal acts are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the NEPA. Federal and state statutes, executive orders, DOE orders, and Secretary of Energy notices also guide hazardous waste remediation at the Laboratory.

5. Airspace

Although not a physical constraint to development, the Laboratory's airspace constraints could affect any aerial survey of the Laboratory required in the development process. For planning purposes, all airspace within 12,500 vertical feet above sea level inside Laboratory boundaries is safety-restricted airspace. No aircraft can enter this restricted air space without prior approval from the Laboratory.

III. PROGRAM CONSIDERATIONS

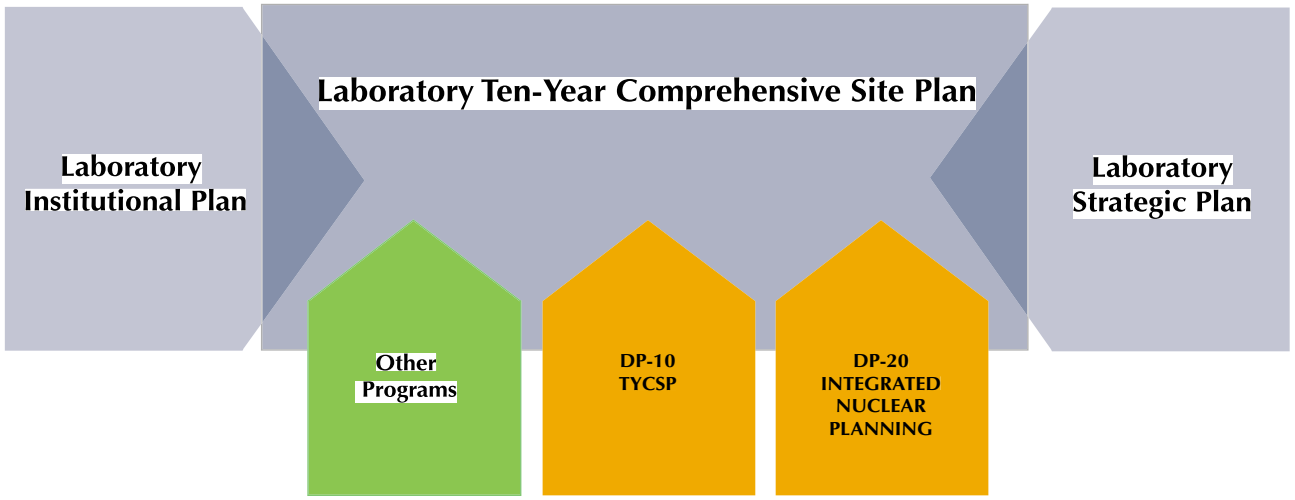
A. PROGRAMMATIC ISSUES

1. Ten-Year Comprehensive Site Plan

The *CSP 2001* incorporates components of the *Guidance for Ten-Year Comprehensive Site Plans* (TYCSP) and *Readiness in Technical Base and Facilities Implementation Plans* (RTBF). Tables on the following pages define those aspects of the January 2001 guidance that have been integrated into the *CSP 2001*. Recent guidance from DOE indicates emphasis on a TYCSP for Defense Programs (DP)-10 and (DP)-20. *See Figure III-1.*The Laboratory CSP will coordinate and interface as shown in the TYCSP cross-walk, presented on the following pages. The TYCSP will replace future CSPs.

The Laboratory's TYCSP will include land use planning for all Laboratory organizations in order to coordinate all planning efforts for effective and efficient use of land, facilities, and infrastructure. The Laboratory's TYCSP will incorporate all aspects of land use at Los Alamos and their interrelationships because the Laboratory is a multiprogrammatic site also funded by sources other than Defense

Figure III-1: TYCSP Relationship to Laboratry Planning



2. TYCSP Crosswalk

Legend for CSP/TYCSP Coverage

❖	Covered by *CSP 2000* and/or *CSP 2001* Annual Update
❍	CSP and TYCSP overlap but have different focus
na	Not applicable

FWO-SEM	Facilities & Waste Operations–Systems, Engineering, & Maintenance
FWO-SSCM	Facilities & Waste Operations–Support Services Contract Management

TYCSP Requirements	Status	Organization
1.0 Introduction/Site Description	❖	PM-1
2.0 Mission Needs	❖	PM-1
3.0 Current Facilities and Infrastructure (F&I) Situation		
3.1 Maintenance Backlog Analysis	❍	FWO-SEM
3.2 Excess Facilities and Land Assessment	❍	FWO-SSCM
3.3 Plant Capacity Analysis	❍	PM-1
3.4 F&I Utilization	❍	FWO-SSCM
3.5 Condition Assessment	❍	FWO-SEM
4.0 The Plan		
4.1 Maintenance Backlog	❍	FWO-SEM
4.2 Production Readiness Assessment	❍	PM-1
4.3 F&I Cost Projection Spreadsheets	❖	PM-1
4.4 Prioritized Project List	❖	PM-1
4.5 *TYCSP* Changes from Previous Year	❖	PM-1
4.6 Excess Facilities	❍	FWO-SSCM
4.7 Possible F&I Impacts from Non-DP Programs	❖	PM-1

TYCSP Requirements	CSP 2001 Section	Reference/Source
1.0 Introduction/Site Description	II	*CSP 2001*
2.0 Mission Needs	III B. and C.	*CSP 2001*
3.0 Current Facilities and Infrastructure (F&I) Situation		
3.1 Maintenance Backlog Analysis	III B.2.	Fiscal Year 2000, Business Management Oversight Process (BMOP) Report, RTBF, UC Contract Appendix F
3.2 Excess Facilities and Land Assessment	III B.2.d	UC Contract Appendix F
3.3 Plant Capacity Analysis	SMART Tables III.C	*CSP 2001*
3.4 F&I Utilization	III B.2.	UC Contract Appendix F (Office Utilization), BMOP
3.5 Condition Assessment	III B.2.a.	BMOP, UC Contract Appendix F
4.0 The Plan		
4.1 Maintenance Backlog	III B.2.	BMOP and RTBF
4.2 Production Readiness Assessment	III C.	*CSP 2001*
4.3 F&I Cost Projection Spreadsheets	VII	NW-IFC/FM, Part of Prioritized Project List for maintenance and equipment information
4.4 Prioritized Project List	VII	*CSP 2001*
4.5 TYCSP Changes from Previous Year	I.C. and VII.E.	*CSP 2001*
4.6 Excess Facilities	III B., C., and D.	Appendix F, FWO-D Organization
4.7 Possible F&I Impacts from Non-DP Programs	III A.5., III.C.	*CSP 2001*

TYCSP Approach

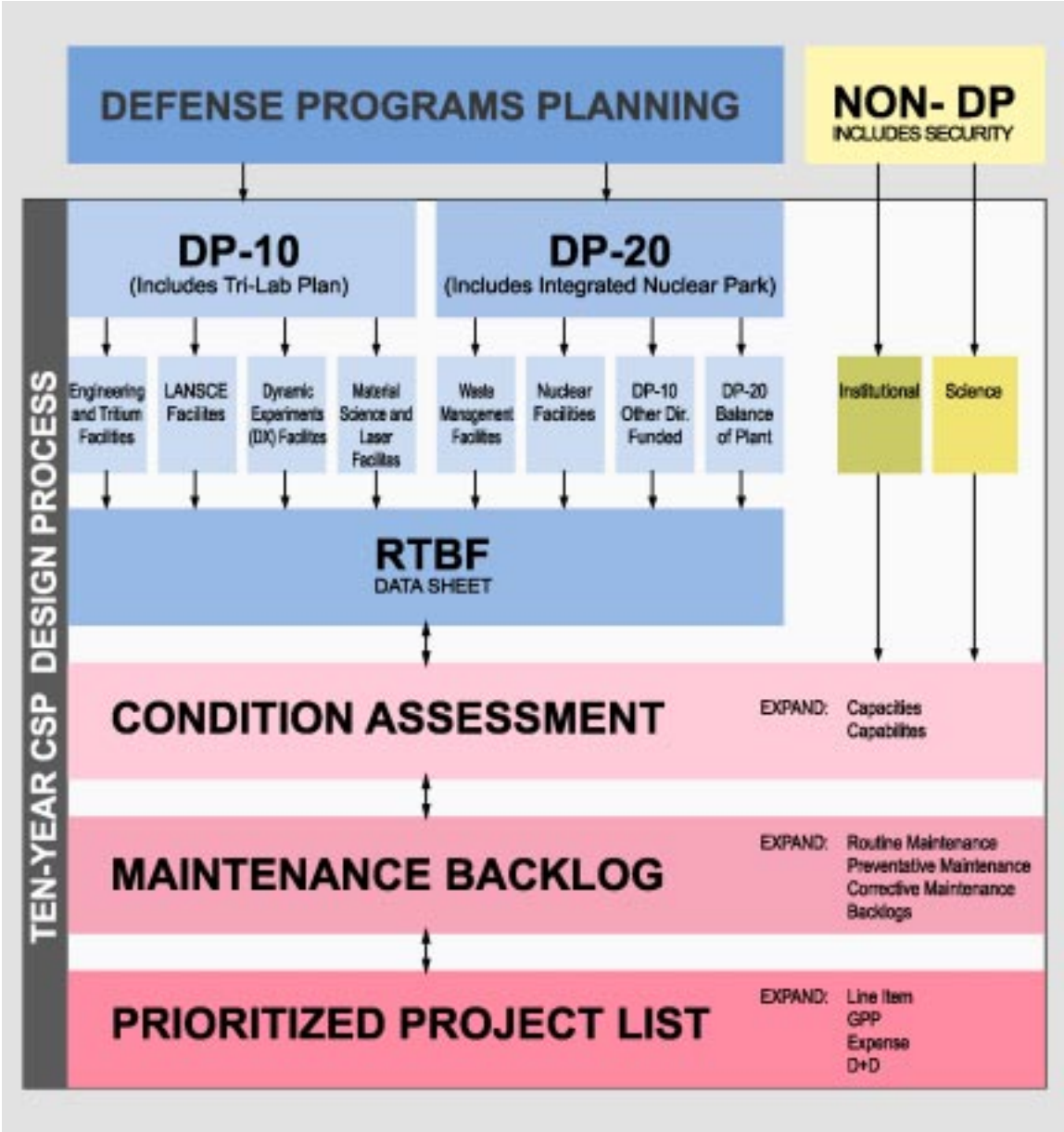
The Laboratory proposes the integration of the TYCSP into the existing hierarchy of strategic planning at the Laboratory. See *Figure III-2*.The TYCSP will include information for the Laboratory to improve the coordination of all land use and facilities plans for both DOE and Non-DOE users on the site.

TYCSP Conceptual Approach

The Laboratory will use the following concepts for further developing the TYCSP:

- The RTBF Implementation Plan will be the core of the TYCSP. The RTBF Plan is based on the annual Program Plan provided by DOE. It also provides a 5-year funding profile for each RTBF element. Per the TYCSP guidance, this profile will need expansion to 10 years.
- Condition assessments will be aligned with the facilities in each RTBF element.
- Maintenance backlogs will be aligned for the facilities in each RTBF element.
- F&I proposals will be identified and prioritized for each RTBF element, then prioritized across all of the RTBF facilities.
- Non-DP facilities will be noted in the TYCSP.
- Annual updates to the TYCSP will be done as appropriate for the ongoing changes in both mission requirements and the funding ultimately authorized.

Figure III-2: RTBF/TYCSP Organization Diagram



3. Readiness in Technical Base and Facilities (RTBF)

The DOE RTBF program has the ongoing mission of implementing technologies and methods necessary to make construction, operation and maintenance of DP facilities safe, secure, reliable, cost-effective and environmentally sound. The goal is to have the facilities in place to manufacture and certify the 21st Century nuclear weapons stockpile. A combined RTBF Summary of DP-10 and DP–20 proposed funding is presented in *Figure III-3*. A $2.3 million increase for RTBF operations between FY2001 and FY2002 represents a less than 1% funding increase.

Figure III-3: RTBF Funding Chart

Activity	FY01	FY02	FY02 OT	FY03	FY04	FY05	FY06
Operations of Facilities	218.6	230.5	8.1	237.50	244.6	251.9	259.5
Other Direct Funded Facilities & Balance of Plant	76.7	105.9	54.6	108.9	112.3	117.5	121.0
Special Projects*	8.9	11.8		11.1	11.6	10.4	10.7
Weapons Incident Response	6.0	9.9		10.2	-	-	-
Total RTBF	310.2	358.1	62.7	367.7	368.5	379.8	391.2

FYO1 Adjusted for PMDR Reductions

B. INSTITUTIONAL SUPPORT NEEDS

1. Workforce Revitalization

The Laboratory is facing a future staffing crisis as more people retire than are recruited. People between the ages of 40 and 54 make up 56% of the Laboratory's workforce. See *Figure III-4*. Over the next few years, the first wave of these employees will begin retiring. The employees in younger age groups–one exception being employees between 25 and 29–have either remained stagnant or decreased over the past five years. Recent security incidents, the Cerro Grande Fire, and the age of the Laboratory facilities all contribute to a negative work-place image of the Laboratory. Young scientists are being hired into private industry where lucrative salaries, newer facilities, and fewer security policies predominate. The Laboratory must actively pursue recruitment and retention of high-quality young people to continue performing world-class science.

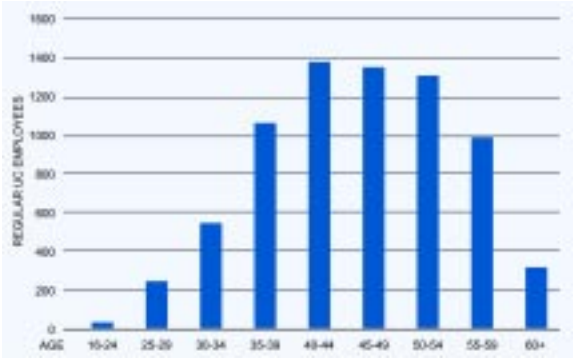
Initiatives for Workforce Revitalizaton

Physical planning of the Laboratory must consider the work environment, both functionally and aesthetically, as the Laboratory competes against private industry in hiring staff.

The following are recommendations that support workforce revitalization.

- Adopt and implement the *Design 2001, Architectural and Site Design Guidelines* being developed in the spring of 2001.
- Use the Planning LIR for more consistency in the planning and implementation of projects.
- Monitor private industry standards for workplace quality and utilize similar or better standards in Laboratory development.
- Implement ergonomic standards in the development of workspace designs.
- Develop a quality child care center.

Figure III-4: Employee Age



2. Facility Revitalization

In order to meet its mission, the Laboratory must provide good-quality facilities that are safe, highly functional, and cost-efficient to operate. Many current facilities at the Laboratory are aging and are no longer quality work environments.

An accepted private industry standard for determining building condition is the age of the facility. This is a standard that can be applied to assess current Laboratory facility conditions. In private industry, facilities over thirty years old are considered priority candidates for major renovations or replacement.

As *Figures III-5, III-6, and III-7* illustrate, 54% of the Laboratory facilities' gross square footage (GSF) has reached a point in its life-cycle where extensive renovation or replacement is recommended. These facilities were constructed before modern design and energy consumption codes and standards. Their major operating systems (electrical, mechanical, etc.) are either obsolete or failing because of age. It is cost- prohibitive to bring many of these older facilities into compliance with today's codes and safety requirements.

In addition, many Laboratory facilities are affected by a lack of preventative maintenance. The "30/20/50" rule is a general rule of thumb in understanding the relationship between maintenance and the life cycle of a facility. With general preventative maintenance, a building can be operated hard for about 30 years. After this period, a major renovation is generally required to extend the useful life for another 20 years. After 50 years, the building is generally considered obsolete. When facilities have little or no preventative maintenance and rely only on emergency repairs, the life of the facility is measurably shortened. *Figure III-5* charts this rule.

In the past, preventative facility maintenance has been deferred, because maintenance dollars must be taken from programmatic funding. The current DOE budgeting process allows less than 2% for infrastructure maintenance and repair. The industry average is between 7% and 10%. Emergency repairs have only kept facilities operable and have not improved their overall condition or functionality. Older facilities require more maintenance and repairs as they age, and the costs only escalate as time goes by. The result of this practice is a backlog of repairs that threatens to overtake the Laboratory's ability to address the problem.

Figure III-6: Facility Gross Square Footage with Facility Age

Facility Age	Total GSF	Percent of Total GSF
0–9	715,892	9%
10–19	1,543,383	18%
20–29	1,612,950	19%
30–39	877,868	11%
40–49	3,307,354	40%
50+	284,490	3%

Figure III-7: Facility Age Percentage

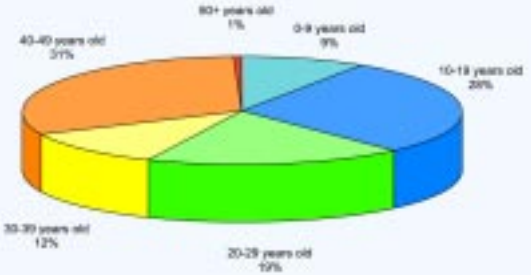
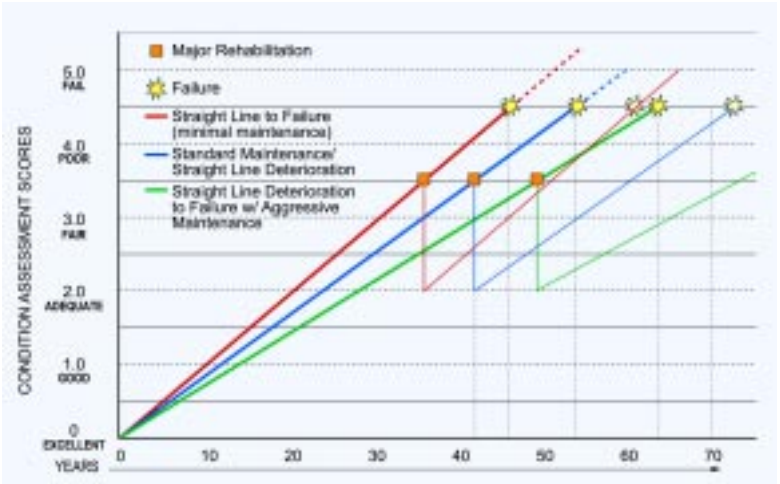


Figure III-5: Maintenance Effects on Facility Conditions



a. Facility Condition / Assessment / Replacement Plant Value

Los Alamos National Laboratory assesses existing facilities to determine the adequacy of the facilities to meet mission needs. *Figure III-8* organizes the facility condition, assessment, and replacement plant value by Technical Area (TA).

Good: Performs to original specifications as measured using historical data and non-standard tests and requires routine maintenance at a cost of less than or equal to 5% of replacement plant value.

Adequate: Performance meets requirements and requires some corrective and preventative maintenance at a cost of less than or equal to 10% of replacement plant value.

Fair: Performance fails to meet code or functional requirements in some cases; failures are inconvenient, and extensive corrective maintenance and repairs are required at a cost of less than or equal to 25% of replacement plant value.

Poor: Demonstrates consistently substandard performance; failures are disruptive and costly, and the facility fails most code and functional requirements and requires constant attention, renovation, or overhaul at cost less than or equal to 60% of replacement plant value. A poor facility could also be a temporary structure or a facility that is nonoperational or demonstrates significantly substandard performance; replacement is required because repair is not cost-effective (cost exceeds 60% of replacement plant value).

Figure III-8: Facility Condition Assessment and Replacement Value Chart

TA	# of Facilities	Total Acquisition Cost	Total Building Replacement Cost	Total GSF	% Good Condition	% Adequate Condition	% Fair Condition	% Poor Condition	% No Condition Available
0	47	$424,730	$63,954,394	295,633	0%	67%	0%	0%	32%
2	12	$1,348,073	$10,779,349	24,851	0%	99%	0%	1%	0%
3	278	$278,833,099	$1,121,709,010	3,226,812	0%	64%	2%	32%	2%
5	5	$4,692,996	$868,996	2,813	0%	100%	0%	0%	0%
6	10	$170,445	$3,452,759	6,157	0%	100%	0%	0%	0%
8	19	$2,973,702	$24,112,655	58,609	0%	70%	1%	29%	0%
9	43	$6,566,294	$44,473,343	68,567	0%	47%	8%	45%	0%
11	11	$467,642	$3,028,051	9,012	0%	99%	0%	1%	0%
14	9	$340,283	$1,465,408	2,999	0%	43%	0%	57%	0%
15	68	$109,073,799	$77,919,097	215,705	0%	80%	1%	12%	7%
16	153	$53,550,741	$194,087,392	604,037	0%	66%	3%	31%	0%
18	36	$7,297,339	$22,079,225	76,899	0%	94%	1%	5%	0%
21	58	$16,382,280	$90,214,131	238,541	0%	76%	4%	19%	0%
22	35	$11,270,272	$54,540,029	77,892	0%	76%	18%	0%	6%
28	5	$68,600	$6,049,400	1,400	0%	100%	0%	0%	0%
33	42	$2,099,538	$19,481,805	52,110	0%	74%	3%	21%	2%

Figure III-8: Facility Condition Assessment and Replacement Value Chart continued

TA	# of Facilities	Total Acquisition Cost	Total Building Replacement Cost	Total GSF	% Good Condition	%Adequate Condition	% Fair Condition	% Poor Condition	% No Condition Available
35	77	$80,156,663	$182,590,829	558,616	0%	94%	2%	3%	0%
36	32	$1,984,059	$20,843,151	29,773	0%	86%	3%	11%	0%
37	27	$887,762	$9,593,198	18,685	0%	98%	0%	2%	0%
39	35	$3,411,435	$35,454,538	39,159	0%	97%	0%	1%	2%
40	31	$2,909,638	$51,162,290	28,473	0%	95%	2%	3%	0%
41	14	$5,304,322	$63,321,168	73,393	0%	100%	0%	0%	0%
43	14	$12,603,964	$67,761,597	150,751	0%	100%	0%	0%	0%
46	74	$16,152,966	$72,456,881	210,343	0%	86%	5%	8%	2%
48	29	$17,981,405	$64,172,814	154,616	0%	90%	5%	6%	0%
49	15	$572,928	$3,051,610	11,041	0%	87%	3%	6%	3%
50	23	$16,905,091	$44,022,220	82,265	0%	97%	0%	2%	1%
51	24	$1,517,932	$4,564,868	20,860	0%	91%	0%	7%	2%
52	21	$3,576,832	$23,568,527	73,001	0%	44%	54%	2%	0%
53	172	$88,417,226	$244,498,239	905,120	0%	76%	2%	22%	1%
54	84	$11,071,596	$29,106,322	253,291	0%	93%	0%	0%	7%
55	50	$76,938,957	$260,468,869	449,882	0%	94%	0%	0%	6%
57	18	$653,993	$3,861,090	12,082	0%	77%	12%	11%	0%
58	1	$6,370	$10,099	130	0%	100%	0%	0%	0%
59	23	$6,583,121	$30,588,578	101,805	0%	98%	0%	2%	0%
60	21	$10,959,232	$36,968,593	128,400	0%	73%	22%	0%	5%
61	5	$57,356	$1,541,230	6,341	0%	100%	0%	0%	0%
63	16	$760,481	$3,649,477	17,789	0%	86%	4%	0%	10%
64	9	$5,015,595	$13,290,139	28,871	0%	94%	2%	4%	0%
66	1	$666,583	$2,343,658	10,140	0%	100%	0%	0%	0%
69	6	$168,043	$755,679	3,343	0%	79%	0%	21%	0%
72	20	$176,648	$1,217,297	5,290	0%	71%	7%	22%	0%
73	7	$317,209	$2,338,917	14,452	0%	89%	11%	0%	0%
Laboratory Totals	**1,680**	**$861,317,240**	**$3,011,416,922**	**8,349,949**	**0%**	**75%**	**19%**	**3%**	**3%**

Source for Facility Condition Assessment and Replacement Value Chart: Los Alamos National Laboratory Facility Information Management System (FIMS) Database

Initiatives for Facility Revitalization
The following activities are being implemented as part of the Laboratory's site-wide plan to revitalize and improve facilities to support the Laboratory's mission.

TA-03 Update

The Strategic Computing Complex *(Figure III-9)* and the Nonproliferation and International Security Center, currently under construction, will have a major impact on the TA-03 environment. Both will relocate people from substandard buildings for their respective programs.

TA-03 Revitalization through a significant third party financed approach is currently stalled. That vision would have constructed a number of new facillities and demolition of the existing buildings. The development would have occurred over just a few years. ***SM-43*** Replacement, the Laboratory's "administration" building is included in the DP-10 Tri-Lab Construction Plan and is proposed as the next DP-10 Line Item construction project after the Strategic Computing Complex (SCC). This project is one component of the TA-3 Revitalization vision . It is the only major project currently with a viable funding appproach. The SM-43 replacement funding estimate totals $88 million, with capital allocations of $16 million in FY03, $37 million in FY04 and in FY05, along with expense funding of $17 million in FY06 for the demolition of the existing buildings. The Request for Mission Need and the Conceptual Design Plan has been submitted and approved. An environmental assessment is being pursued concurrently. The project will use a design-build process similar to that used in the SCC procurement and will improve on that process by applying the lessons-learned from the SCC project. The new structure will house approximately 700 staff members and include a parking structure for up to 400 vehicles. The facility will also replace and consolidate records storage and archival space currently stored in substandard buildings.

Los Alamos Research Park

The Laboratory, DOE, Los Alamos County, and the Los Alamos Commerce and Development Corporation (LACDC) are developing a research park to foster scientific and technological exchange between private industry and the Laboratory. See *Figure III-10*. The first building at the park will be completed in 2001 with an additional building planned in the near future. The research park is providing high-quality workspace for partnership activities on a quick-development timeline and with the cost-efficiencies of private development.

Figure III-9: SCC

Figure III-10: Los Alamos Research Park

Institutional Infrastructure Reinvestment Fund (IIRF)

The Institutional Infrastructure Reinvestment Fund is a proposed initiative to reinvest in selected aspects of the Laboratory's infrastructure. The IIRF focuses on three critical areas:

- traffic and parking,
- D&D of selected facilities, and
- upgrade and replacement of institutional facilities and buildings.

Laboratory utility projects (water, sewer, and power) are funded from utility rates and are not part of the IIRF.

The IIRF is institution-wide and does not benefit any specific research or development program. Funding for the program will be levied from the Laboratory's initial gross budget before funds are distributed to cover direct and indirect expenses.

The proposed program budget totals $32 million per annum for the first 10 years and $20 million per annum thereafter. This budgeting concept is based on a 50-year life cycle for institutional facilities. The $32 million annual budget for the first 10 years would be divided between infrastructure improvements on selected projects ($20 million per year) and backlog expenditures to correct infrastructure neglect ($12 million per year). The $20 million for each of the years thereafter is based on 2% of the annual Laboratory budget.

An advantage of the IIRF is that infrastructure projects such as these would not have to be funded out of operating funds, and the program in the initial years could increase annually. This will reduce the impact on general and administrative (G&A) budgets and allow for proper project planning and development. The first year's start-up funding was proposed to be $10 million for FY01.

The IIRF has been reviewed and tentatively approved by the SPCC. A list of potential projects has been developed, and the projects have been prioritized using a formal risk analysis method.

No actual funding for this program has been received as of April 2001.

IIRF Projects

Projects identified include:

- a northwest connector road, and
- new surface parking.

Figure III-11: ESA Existing View

Figure III-12: Sample of ESA Strategic Facility Plan

Strategic Facility Plans

Strategic Facility Plans focus on resolving program and organizational issues and needs using a facility perspective. These plans assist organizations in developing facility strategies to establish maintenance priorities, plan for decontamination and demolition, and develop new construction proposals. The Strategic Facility Plans provide a framework to evaluate issues and needs, to budget for long-range requirements to upgrade or replace substandard space, and to make recommendations for projects and their sequencing.

The Laboratory is encouraging strategic consolidation of functions and capabilities that have strong dependencies; that support improvement of future capabilities and competitiveness; that encourage better communication and productivity; and that reduce vehicular travel. Consolidation through upgrading and replacing substandard work facilities allows for the evacuation and eventual demolition of these spaces. Removal of substandard spaces reduces workplace risks due to accidents from overcrowding, health and productivity problems from inadequate building systems, and ergonomic injuries. Budget allocations now require that project proposals include evaluations for cost avoidance and future cost savings. Projects currently underway for ESA Division resulted from their study of productivity improvement and cost savings through consolidation. See *Figures III-11, and III-12*.

Two major planning initiatives are underway for programs and organizations in the Laboratory: the Los Alamos Strategic Research Complex (LASRC) and the Integrated Nuclear Plan (INP).

The NSRC would support the Strategic and Support Research Directorate (SSR) and realize the benefits of colocating and consolidating operations and replacing substandard facilities. The NSRC could be constructed at Two-Mile Mesa North (TA-58) or another feasible site that meets its siting criteria.

The INP addresses the future needs of DP-10 and DP-20, and coordinates with the TYCSP. The INP focuses on relocating and consolidating compatible nuclear research activities, including the relocation of functions currently in the Chemistry and Metallurgy Research (CMR) building and at TA-18. Potential development options are shown in the Strategic Facility Plan for a 20-year time period based on the need to maintain current capabilities and support capability growth. DP-20 is developing its first TYCSP, which coordinates with Area Development Plans (ADP) and Strategic Facility Plans.

b. Space Management

Space Management's intent is to offer the best work environment possible for Laboratory employees and to assure the uninterrupted availability of appropriate work space in which to carry out the Laboratory's mission.

The Laboratory has a building inventory of about 8 million square feet that houses over 10,000 workers. An additional 465,000 square feet in TA-03 will come on line with completion of the SCC and NISC buildings. The SM-43 (Administration Building) replacement project and others around the Laboratory will add additional good-quality square footage. Meanwhile, a number of facilities are being removed, such as SM-105 (Sherwood Building) and adjacent smaller structures. This incremental revitalization process is planned to continue for the next several years.

Facility and Waste Operations Division (FWO) administers the Laboratory's space management program. The space management program is built on the following four premises:

- Space is a Laboratory-wide resource that is allocated for the benefit of each division's mission,
- FWO develops the standards and procedures used to allocate space and evaluate its utilization See *Figure III-13*,
- Each deputy and associate Laboratory director is responsible for managing his or her target space allocation, and
- FWO is to provide better automated tools to manage and report on space utilization.

FWO is responsible for translating these general goals into a comprehensive set of policies, procedures, and standards.

Initiatives for Space Management

- An improved process for input into the space management process, the program, and associated processes is planned to be in place in 2001. Under this improved program, the final arbitration of any space management dispute is the responsibility of the Deputy Laboratory Director for Operation (DLDOPS).

Figure III-13: Cramped Work Space

c. Decommissioning and Demolition (D&D) / Excess Facilities / Land Transfer

The Laboratory's FWO Division maintains the official list of buildings, currently 127, that have been determined to be excess to the Lab's needs. This list includes buildings which are no longer able to support the Lab's mission. Buildings are placed on the list after FWO - S2CM has processed the buildings into a safe shut down mode in accordance with LIR 230-01-01.0. All buildings on the list will eventually be transferred to the FWO DD group, FMU-85, for subsequent D&D. At present 112 of the 127 buildings on the list have been transferred to FMU-85. The buildings on the list have a defined surveillance and maintain S&M program while they await D&D. Responsibility for S&M remains with the building's cognizant FM, until such time as the building is accepted by FMU-85. FWO DD is funded for D&D activities and S&M activities through NW-IFC.

Temporary buildings, trailers, transportables and sheds, are, for the most part, removed through the salvage process of the LANL Support Services Subcontractor (JCNNM). D&D of permanent buildings involves the demolition of the building and associated infrastructure and site clean up as necessary. The buildings scheduled for demolition are prioritized by FMU-85 and by NW-IFC. The Cerro Grande fire destroyed forty buildings.

DP-10 currently accounts for approximately $1.1million annually for surveillance and maintenance of excess facilities. These surveillance and maintenance costs are necessary, but they do not support program objectives or deliverables. The postponement of D&D of excess facilities increases D&D costs much more rapidly than the rate of inflation. In addition, as these facilities deteriorate further with age, the risk to personnel and the environment increases. Excess structures also limit options in addressing future mission requirements by occupying space that could be better used for new missions.

The Land Transfer Area is a total of 3,652 acres at the northeast corner of the Laboratory. This excess land is proposed for transfer to the County of Los Alamos and the Pueblo of San Ildefonso. An agreement has been in preparation to identify which entity would recieve which parcel. It is anticipated that the entire process may take up to 10 years.

Figure III-14: Facility Awaiting Disposal

Initiatives for D&D / Excess Facilities / Land Transfer

- A number of structures were destroyed during the Cerro Grande Fire (see section IV. B.), resulting in the program focusing on those facilities during FY00. The program spent $1.5 million on fire cleanup in 2000, and an additional $18 million in funds are proposed for fire cleanup in 2001.
- During FY00, the Laboratory demolished more than 35 structures. The FY01 D&D budget is $3 million.

d. Sustainable Design

To reduce consumption of energy and long-term maintenance costs, the Laboratory is developing strategies to incorporate energy conservation and sustainable standards in the construction of new and renovated facilities. A well-developed institutional design review process and established design quality standards are important tools in meeting energy conservation and sustainable goals.

Design 2001 - Site and Architectural Guidelines

Design 2001 is a major component of implementing consistent design quality and functionality in future new and renovated facilities and sites. See Figures at right.

The guidelines address:

- land development and siting
- vehicular and parking,
- pedestrian environments,
- security elements,
- safety standards,
- utility corridors,
- signage,
- lighting,
- buffers,
- gates, fences, paving,
- site furnishings,
- landscape, and
- architecture.

The architectural guidelines include Leadership in Energy and Environmental Design (LEED™) standards for energy efficiency, sustainable technologies, and standards to unify scale, form, materials, and color of architecture.

The guidelines are currently being updated, with completion expected in the spring of 2001. After approval by the SPCC and SET the guidelines will be placed on the Laboratory Web site as a resource for staff, consultants, developers, and contractors.

Figure III-15: Design 2001 Image

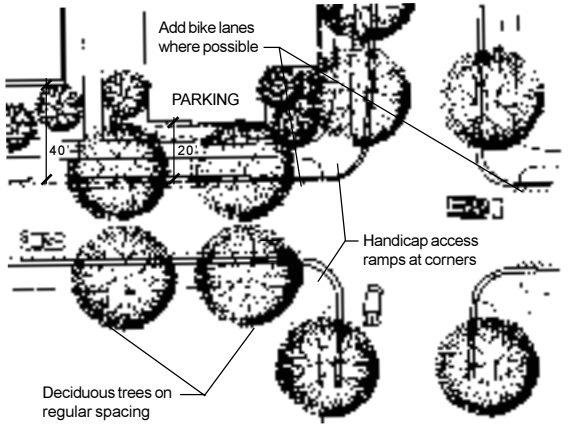


Figure III-16: Design 2001 Image

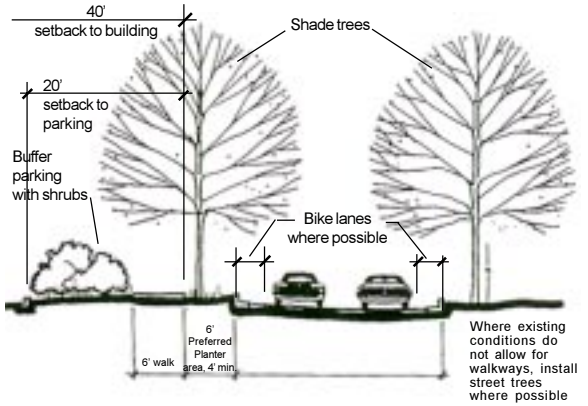


Figure III-17: Design 2001 Image - Native Plants

e. Utility Capacity and Usage

Of all the Laboratory utilities, the electrical system is most at risk for not meeting future demands and not having a reliable power transmission system. Demand has increased significantly with the addition of new facilities, such as the Strategic Computing Complex and Dual Axis Radiographic Hydro-dynamic Test. Future projects such as the Advanced Hydrodynamic Facility will continue to increase the utility needs. The Laboratory's ability to develop experimental programs and computing facilities relies heavily on access to adequate, reliable power supplies. The *SWEIS Record of Decision* issued by the DOE in 1999, requires the Laboratory to prepare a mitigation action plan for assuring electrical power is available to carry out the mission requirements of the preferred (expanded operations) alternative.

Regional and national power supply problems are exacerbating the Laboratory's situation. The northern New Mexico power grid is operating at near capacity. Some load shedding may be required if demand increases much beyond current levels. If this occurs, the Laboratory might have to curtail electrical use and suspend operation of one or more facilities. Nationally generating capacity also lags behind demand, leading to dramatic increases in energy costs. The Laboratory has three ways to improve its energy supply and transmission reliablility--1) increasing energy import or generation capability, 2) building new transmission line, and 3) conservation. Conservation is easier to implement, has more immediate results, and minimizes impacts on the environment.

Initiatives for Utility Capacity and Usage

- The Laboratory is conducting a studyto construct a new transmission line and a study to determine the feasibility and costs of replacing or supplementing the TA-03 power plant for on-site generation of electricity. The feasibility study will determine the required size and operating parameters of the potential replacement generator. A modern plant is desirable to increase efficiency, and a new transmission line will provide reliable power transmission.
- Another increase in efficiency will be realized when the older chillers around the Laboratory are replaced with modern, more efficient chillers. Some of the chillers at TA-03 already have been replaced. The replacement program will continue in the future. The site-wide chiller upgrade will save up to 1.5 MW of power per year.

Figure III-18: Electrical Substation

Figure III-19: Electrical Substation

C. SUMMARY MISSIONS/ ALTERNATIVES/REQUIREMENTS TABLES (SMART)

The table on the following pages relates program missions to facility alternatives and requirements. The table is called Summary Missions/Alternatives/Requirements Table (SMART).

The SMART captures the forecasted 10-year program mission activities and links the activities to facilities required to accomplish the mission. Related high priority projects (See Section VII-Prioritized Project List) are referenced when appropriate to link mission requirements with needed facilities. In many cases, the SMART shows that projects have yet to be defined or funded that will address the mission requirement.

The SMART has been updated from the *CSP 2000* Through the input of planning PoCs representing each division and program office throughout the Laboratory. The additions and changes are denoted with **blue text**. Please see appendix for list of acronym definitions.

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Stockpile Stewardship and Management					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Manufacturing					
<10 pits/year	Fabrication of plutonium components and assembly of pits.	Plutonium Facility (TA-55)	**Glove box atmosphere, transportation over public roads, and SNM storage.**	Support stockpile requirements (something less, maybe much less, than 50 pits/year)	Fabrication and assembly of plutonium components.
	Analytical chemistry & materials characterization.	CMR (TA-03)	By 2010 nuclear weapon missions are to be out of CMR due to facility age & condition.		Optimized analytical chemistry & materials characterization for Manufacturing Facility should support all aspects of the nuclear weapons missions including waste management activities
	Limited HEU processing and manufacture.	**CMR/SM66 SM39**			
	Non-nuclear component fabrication & JTA support. Materials characterization and process development. Material could include depleted uranium.	Sigma (TA-03)	Fully qualified capability to perform WR machining exists. Need support facility/ capabilities. Need to upgrade dimensional inspection.		Non-nuclear component fabrication & JTA support. Material could include depleted uranium.
1 Neutron Tube Target Loader, <1000 targets/yr		WETF (TA-16) & TA-21 support	TA-21 is being closed.	2–3 neutron tube target loaders, 3500–4500 targets/yr.	

Alternatives/Options	*Facility Strategies*	*Related Projects*
Facility Upgrades to TA-55. Facility upgrades include refurbishment of existing facilities for plutonium component manufacturing and construction of new space. Additional capabilities include a high energy x-radiography capability and other complimentary NDE techniques as well as cold support laboratory space and changing rooms and offices.	Prepare Pajarito Corridor West Area Master Plan to establish program space requirements and identify suitable sites for facility upgrades.	
Replacement of CMR building functions commensurate with support to future DOE program missions.	Define the requirements of the replacement facility, including location and floor space. Facility should be sized to support all Laboratory analytical chemistry needs (e.g., waste mgmt, non-nuclear components, etc.) Design, build, and operate as a nuclear Cat III, or less, facility. Identify the reuse potential for CMR building. Absent a suitable reuse, estimate cost for D&D and removal.	CMR replacement
Upgraded Sigma building or a new facility to support non-nuclear component manufacturing. A new facility, the Non-nuclear Pit Component Facility (NPCF) has been proposed for construction adjacent to the Sigma building. This facility will include aspects of SM-39, the Laboratory machine shop, and manufacturing capabilities commensurate with limited WR pit production. Potential reuse of the Antares Hall and surrounding facilities at TA-35 for potential manufacturing facilities.	Identify the location, space, and capability requirements for the new NPCF. Determine the affect of new construction on necessary ongoing operations in existing facilities. Can existing buildings at TA-35 currently used for Atlas be reconfigured for NPCF?	
Consolidation of TA-21 capabilities to WETF.	Establish relocation space for TA-21 functions to WETF and define the cost for D&D and removal of TA-21 buildings. Transfer of capability from TA-21 to building 16-450, an addition to the WETF facility. Installation of a third NTT loader in building 450. Reconfigure the basement of building 450 for R&D space.	WETF - roof upgrades **TSE office building**

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Stockpile Stewardship and Management					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Manufacturing (cont.)					
Detonator production capable of <3000/yr	Manufacture of detonators	High-explosives facilities		Detonator production capable of 6000–8000/yr.	Manufacture of detonators
Fabrication of JTAs & other non-nuclear pit components	Manufacturing	Administrative support facilities at TA-03, TA-08, TA-16, & TA-55			Consolidated facilities based upon manufacturing activity
Support of manufacturing processes	Static radiography & nondestructive examinations	Radiography capabilities		Support of manufacturing processes	Weapons component radiography & nondestructive analysis
	Machine shop support	Main shops (TA-03)			Machine shop support

Alternatives/Options	*Facility Strategies*	*Related Projects*
Based upon the directive schedule for fabrication of detonators, there is a forecasted minimum need to double the existing space (43,000 sq ft).	New detonator facilities and office space at TA-22. Expand the existing explosives detonator facility space at TA-22, bldgs 91 and 93.	
Additional space at manufacturing technical areas, including TA-03 and TA-55, TA-35.		
Perform nondestructive evaluations on all assemblies in all stages of manufacturing and development.	Upgraded capabilities or new radiography facility located near DARHT.	DARHT
Upgraded shops and/or relocation to the NPCF. Potential sites are TA-03, TA-35. Facilities need to be upgraded.	Potential use of Antares Hall at TA-35 for non-nuclear manufacturing.	

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Stockpile Stewardship and Management					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Surveillance					
20 pits per year	Disassembly of pits and recovery of SNM	Plutonium Facility (TA-55)	**Disposition of contaminated HEU.**	40 pits per year	Disassembly of pits and recovery of SNM
	Analytical chemistry & materials characterization	CMR (TA-03)	By 2010, nuclear weapon missions are to be out of CMR.		Analytical chemistry & materials characterization
	Non-nuclear component surveillance	Sigma (TA-03)			Non-nuclear component surveillance
	Limited neutron tube target surveillance	WETF (TA-16) & TA-21 Support	TA-21 is being closed.		Robust neutron tube target surveillance
	Limited weapons surveillance (valves), polymer aging, weapons component aging	Engineering facilities			Multiple weapons surveillance, polymer aging, multiple weapons component aging
Surveillance of 10–12 detonator sets/yr	Perform surveillance on detonators 800-MeV neutron source	High - explosives facilities, and accelerator facilities		Surveillance of 75–150 detonator sets/yr	Perform surveillance on detonators 800-MeV neutron source

Alternatives/Options	*Facility Strategies*	*Related Projects*
Additional cold laboratory and office space. Increased numbers of retired weapons and increased component age will necessitate the additional diagnostic capabilities in the "hot" laboratory space.	Identify capability and space needs to conduct surveillance program that integrates the Stockpile Stewardship needs with stockpile maintenance (e.g., connect to the AHF program).	
Transfer the activities to the facility that replaces the functional capability currently at CMR.	Define the requirements of the replacement facility, including location and floor space. Identify the reuse potential for CMR building. Absent a suitable reuse, estimate cost for D&D and removal.	CMR replacement
Transfer of the surveillance activities to an upgraded Sigma building to support non-nuclear manufacturing, or a new facility. The proposed NPCF could/would serve this function.	Determine the projected requirements for non-nuclear component manufacture and surveillance and determine exact facilities/capabilities and location requirements.	
Transfer of the capabilities to WETF.	Prepare plan for disposition of facilities at TA-21 Establish relocation space for TA-21 functions to TA-16 (WETF) and define the cost for D&D and removal of TA-21 buildings.	
Consolidate facilities and add space at TA-16.		
High explosive facility consolidation and additional facilities.	Prepare LANSCE Mesa Area Master Plan.	
Maintain LANSCE for hydrodynamic testing and source of protons for radiography cinematography.		AHF

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Stockpile Stewardship and Management					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Surveillance (cont.)					
Surveillance of 10–12 detonator sets/yr	Non-nuclear component surveillance	Administrative support facilities at TA-03, TA-8, TA-16		Surveillance of 75–150 detonator sets/yr	Consolidated facilities based upon manufacturing activity
Surveillance of 100 RTGs/yr	Recover Pu-238	Facilities at TA-55		Similar as current	Continue as current
	Analytical chemistry & materials characterization	CMR (TA-03)	By 2010, nuclear weapons missions are to be out of CMR.		Continue as current
Two-dimensional radiography, 5–10 experiments/yr	Weapons component radiography & nondestructive analysis	Radiographic facilities		Three-dimensional radiography, 10–20 experiments/yr	Weapons component radiography, nondestructive analysis, heavy assembly facilities for containment /confinement tests at DARHT and AHF
	800-MeV neutron source	Accelerator facilities			800-MeV neutron source
Two dimensional hydrodynamic calculation support	Pulse-power drives ICF experiment	Pulsed-power facilities		Three-dimensional hydrodynamic calculation support	

Alternatives/Options	*Facility Strategies*	*Related Projects*
Additional space at surveillance technical areas.		
AHF as embodied in proton radiography techniques and DARHT/Diagnostic "X" capabilities for advanced hydrotesting upgraded capabilities or new radiography facility.	Complete second axis of DARHT and build additional support laboratories.	DARHT AHF
Maintenance of the LANSCE facility and capability		TA-53 Cooling Tower TA-53 RLW
Relocation of the Atlas pulse-power machine to NTS and relocation of Pegasus to UNLV.	Facilities are necessary to conduct high-energy density-physics experiments necessary to understanding phenomena occurring in nuclear weapons.	Atlas

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Stockpile Stewardship and Management					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Surveillance (cont.)					
Limited weapons certification / surveillance and sub-critical experiment support (<1/ month).	Visual examination and measurements	Engineering Facilities		Multiple weapons certification/ surveillance for manufacturing and multiple subcritical experiment support (2–3 month).	Visual examination and measurements
Certification					
Annual weapons certification to the nation	In Progress: pit manufacturing process certification	Plutonium Facility (TA-55)		Similar as current	Robust certification program for pit manufacturing
	In Progress: analytical chemistry and materials characterization process certification	CMR (TA-03)	By 2010, nuclear weapons missions are to be out of CMR.		Certified analytical chemistry and materials characterization processes
	In Progress: non-nuclear manufacturing process certification	Sigma (TA-03)			Certified non-nuclear manufacturing processes
	Limited neutron tube target certification	WETF (TA-16) & TA-21 support	TA-21 is being closed.		Robust neutron tube target certification

Alternatives/Options	*Facility Strategies*	*Related Projects*
Consolidate engineering facilities at TA-16, build additional manufacturing support facilities, including enhanced non-destructive evaluation (NDE) capability.	Prepare Experimental Engineering Area Master Plan to refine program space requirements and select suitable sites for required facilities.	
Additional cold laboratory and office space.	Identify program space and capability requirements. Select a location within the proposed nuclear campus. Prepare Pajarito West Area Master Plan.	
Transfer certified processes to the replacement facilities for the CMR building.	Define the requirements of the replacement facility, including location and floor space. Identify the reuse potential for CMR building. Absent a suitable reuse, estimate cost for D&D and removal.	CMR replacement
Transfer the certification activities to an upgraded Sigma building to support non-nuclear manufacturing or to a new facility.	Incorporate the Sigma building into program for upgrading , or define a new facility.	
Transfer the certification activities to WETF.	Establish relocation space for TA-21 functions at TA-16 (WETF) and define the cost for D&D and removal of TA-21 buildings.	

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Stockpile Stewardship and Management					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Certification (cont.)					
Annual weapons certification to the nation	Weapons certification facility infrastructure	Administrative support facilities		Similar as current	Weapons certification facility infrastructure
Certification of 1000 detonators/yr		High-explosives facilities		Certification of 2000–3000 detonators/yr	
		Supercomputing facilities			
Nuclear Materials					
Pit and plutonium/ uranium storage	Constrained pit and plutonium/enriched uranium storage	Plutonium facility (TA-55) TA-18	**Plutonium contaminated HEU storage**	Pit and plutonium/ uranium storage	Robust pit storage and reduced uranium and plutonium inventories
Plutonium/ uranium storage	Constrained -plutonium and enriched uranium storage	CMR (TA-03)		Plutonium/ uranium storage	Reduced uranium and plutonium inventories
Depleted-uranium storage	Constrained/depleted uranium storage	Sigma (TA-03)		Materials for non-nuclear components and hydro tests	Reduced/depleted uranium inventory
Tritium storage and handling	Suboptimized tritium storage and handling	WETF, TA-21 support	TA-21 is being closed	Boost systems, tritium R&D.	Optimized tritium operations

Alternatives/Options	*Facility Strategies*	*Related Projects*
Certification facilities at various technical areas		
New detonator facility and support space		
Strategic Computing Complex at TA-03	Under construction	SCC
Additional vault space at TA-55 and disposition of excess nuclear materials offsite —disposition of all nuclear materials from TA-18.	The Laboratory and DOE must work together to identify a site for the disposition of SNM residues and legacy waste. A site should be chosen that already incurs large security costs and that will feel minimal impact by a larger volume of SNM. Identify a site, either at another location or within the Laboratory, where critical experiments can be performed.	
Disposition of all nuclear materials out of CMR and TA-03. Should move to have material out of TA-03 within 12–18 months.	Removal of SNM from TA-03 will reduce security costs at CMR, thus making the CMR building more attractive for other occupants. Potential rehab could lead to reuse by the Biosciences Division or others.	
Disposition of excess nuclear materials offsite, or relocation into a new facility located at Pajarito West, i.e., TA-35 Atlas facility.	Laboratory must identify capability needs and facility and site location.	
Ensures the capability maintenance necessary to have a strong R&D base in tritium technology.	Identify capabilities and facility requirements at existing WETF site.	

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Research and Technology Development					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Basic/Applied Research and Technology Development					
Maintain core competencies in design, test, & manufacture of nuclear weapons.	Pit manufacturing process development	Plutonium facility (TA-55) Sigma complex (TA-03) Machining and inspection TA-03, TA-16		Maintain core competencies in design, test, & manufacture of nuclear weapons.	Pit manufacturing process development
	Analytical chemistry and materials characterization process development	CMR (TA-03)			Analytical chemistry and materials characterization process development
	Non-nuclear materials and manufacturing process development	Sigma (TA-03)			Non-nuclear materials and manufacturing process development
	Tritium process development	WETF (TA-16) & TA-21 support	TA-21 is being closed		Tritium process development
	Criticality experiments	TA-18			Criticality experiments

Alternatives/Options	*Facility Strategies*	*Related Projects*
Additional cold laboratory and office space.	Laboratory capabilities and additional facility space must be defined and appropriate siting must be selected. Support for hydro testing and surveillance activities will require new space. Prepare Pajarito West Area Master Plan.	
Transfer of activities to the replacement facilities, for the analytical chemistry and characterization facilities currently located in CMR building.	Identify the facility and capabilities necessary to support the total NWP.	CMR replacement
Transfer R&D activities in materials and processes to an upgraded Sigma building to support manufacturing and process development for all aspects of the nuclear weapons program.	Conduct trade studies to determine cost-effectiveness of buying components from other DOE sites or commercial suppliers or establishing new capabilities at the Lab. Investigate the cost-effectiveness of reuse of facilities, such as the Atlas facility at TA-35, for a manufacturing laboratory for the NWP.	
Transfer of the R&D activities currently done at TA-21 to WETF.	Identify capabilities and facility requirements at existing WETF site. Capabilities should include both the advanced engineering and research aspects of tritium science.	
Relocate to another site. The DAF at NTS has been identified as a potential location. Some functions could be retained in the Pajarito West Planning Area, while other criticality machines could be relocated to NTS. One critical assembly machine may be retained at Los Alamos.	Identify a site, either at another location or within the Laboratory, where nuclear criticality experiments can be performed. Identify new location and physical space requirements for resulting buildings. Identify impact upon the new site, arrange for disposition of the existing site, and physical space requirements for resulting facilities.	

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Research and Technology Development					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Basic/Applied Research and Technology Development (cont.)					
Maintain core competencies in design, test, & manufacture of nuclear weapons.	Engineering science	Engineering facilities		Maintain core competencies in design, test, & manufacture of nuclear weapons.	Engineering science
	Stockpile explosives evaluation & R&D	Stockpile explosives Evaluation & R&D			Advanced explosives development & R&D
	Stockpile Weapons Code development	Supercomputing facilities			Advanced computing & architecture, weapons code design & development
	Administrative, FIS	Administrative support facilities			Administrative, FIS
	Machine shop support	Main shops (TA-03)			Machine shop support
	Actinide Science & Seaborg Institute	Plutonium facility at (TA-55) CMR(TA-03)			Actinide Science & Seaborg Institute
	Materials science	Sigma (TA-03)			Materials science
	Tritium science	WETF (TA-16) & TA-21 support	TA-21 closing		Tritium science

Alternatives/Options	*Facility Strategies*	*Related Projects*
Additional R&D space and office space.	Activities related to all aspects of surveillance and certification must be used to justify enhanced capabilities.	
Additional high explosive R&D space and heavy assembly facilities are required to conduct the Advanced Hydro Program.		
New SCC. Activities in the SCC must be supported by benchmarking experiments in upgraded facilities.	Enhance the "collision probability" between scientists in all areas of science-based stewardship to improve predictive capabilities without nuclear testing.	SCC
Revitalization of TA-03 and other administrative support facilities at the Laboratory.		
Potential sites include the Atlas facility in TA-35, **TA-16, and the Sigma Complex.**	Upgraded shops and/or relocation.	
Additional cold laboratory and office space located atTA-55. Transfer of activities to the replacement facilities for the CMR building.	Laboratory capabilities and additional facility space must be defined and appropriate sites selected.	CMR replacement
Transfer of the S&T activities to an upgraded Sigma building to support non-nuclear manufacturing or a to new facility.	Define the capabilities required and identify the facilities and siting requirements that are consistent with the trade studies performed for NWP support.	
Transfer of the S&T activities to WETF.	Identify capabilities and facility requirements at existing TA-16 site.	

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Research and Technology Development					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Basic/Applied Research and Technology Development (cont.)					
Maintain core competencies in design, test, & manufacture of nuclear weapons.	Criticality experiments	TA-18	**IAEA interactions and training**	Maintain core competencies to design, test, & manufacture nuclear weapons.	Criticality experiments
	International Atomic Energy Agency (IAEA) interactions	Nonproliferation & arms control facilities International technology & security facilities			IAEA Interactions
Advanced Hydrodynamic Testing					
Hydrotesting of simulated nuclear weapons components	Hydrotesting is the most important diagnostic for nuclear weapons performance short of nuclear testing	PHERMEX	Scheduled for closure		
	Two-dimensional radiography, 5–10 experiments/yr	DARHT facilities		Dual-axis motion picture flash x-rays	Three-dimensional radiography, 10–20 experiments/yr
	Two-dimensional hydrodynamic testing and calculation support	LANSCE		Multiple-axis Proton radiography for full 4π assemblies	Three-dimensional hydrodynamic testing and calculation support Proton radiography cinematography

Alternatives/Options	*Facility Strategies*	*Related Projects*
Relocation to another site.	Identify a site, either at another location or within the Laboratory, where critical experiments can be performed.	
		NISC
	PHERMEX is scheduled for mothballing	
The completion of DARHT and its supporting facilities is at the heart of the Laboratory's hydrotest program. There are no viable options. AHF and advanced proton radiography techniques. Upgraded capabilities or new radiography facility.	Completion of 2nd axis of DARHT. Diagnostic "X". Completion of assembly support facilities to utilize this facility.	AHF
Proton radiography using LANSCE as the source of diagnostic protons	Use LANSCE accelerator at TA-53. Consider relocation to NTS.	AHF

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Nuclear Weapons Research and Technology Development					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Advanced Hydrodynamic Testing (cont.)					
Hydrotesting of simulated nuclear weapons components.	Flyer plates, pin shots, etc.	Multiple specialized firing sites for experiments of various types	Maintaining integrity of buffer zones is an issue. Protection of wildlife and environment.		Flyer plate, EOS, specialized testing of explosives and materials
Nuclear Weapons Simulation and Computing					
Improve data representation of 3-D simulation codes	Develop and deploy tera-scale technology for visualization and large-scale simulations.	LDCC		Improve data representation of 3-D simulation codes.	Develop and deploy tera-scale technology for visualization and large-scale simulations.
1–5 TeraOp Regime	Computing	Supercomputing Facilities		250–500 TeraOp Regime	Computing
Intertial Confinement Fusion and Radiation Physics (ICF & RP)					
Fundamental understanding of weapons physics	Supplies basic data on ignition and TN burn.	Pulsed-power facilities Pegasus & Atlas		Similar as current	Continue as current
Accelerator Production of Tritium					
Tritium supply R&D	Formerly produced in production reactor	None	New tritium supply needed in next 6–10 years.		Continue as current

Alternatives/Options	*Facility Strategies*	*Related Projects*
Potential to create new contained firing facilities.		
Continue to develop networked systems. Develop higher-speed platforms.	Continue development of 30-TeraOps and 100-TeraOps computer platforms. Build the SCC. Construct the SCC as the lynch pin (along with NISC) of TA-3 revitalization	SCC NISC
SCC at TA-03	Under construction	SCC
Atlas facility move to NTS. Pegasus move to UNLV.	How to prepare Los Alamos experiments to be conducted in Nevada?	Atlas
Two commercial light-water reactors in TN by TVA. APT is designated backup technology for tritium supply.	Continue APT engineering development and demonstration activities.	APT

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Threat Reduction					
Current Requirements	***Current Functions/Capabilities***	***Current Facilities***	***Current Issues/Concerns***	***Forecasted Requirements***	***Forecasted Functions/Capabilities***
Non Proliferation and International Security					
Provide technology to prevent global proliferation of nuclear, chemical, and biological weapons and materials.	Detector development, JTOT	Nonproliferation & arms control facilities		Provide technology to prevent global proliferation of nuclear, chemical, and biological weapons and materials.	Detector development, JTOT
	Analytical chemistry and characterization	CMR (TA-03)	Current state of the facility		
	Nuclear nonproliferation training	Sigma (TA-03)			Nuclear nonproliferation training
	Critical Experiments, JTOT activities	Critical experiments (TA-18)			Critical experiments, JTOT activities
	Detector development and international security	International technology & security facilities			Detector development and international security
	Nuclear threat reduction	Nonproliferation & arms control facilities. International technology & security facilities.			Nuclear, biological, and chemical threat reduction
	Nonproliferation surveillance				Nonproliferation surveillance
	Nuclear, chemical, and biological surveillance				Nuclear, chemical, and biological surveillance

Alternatives/Options	*Facility Strategies*	*Related Projects*
Nonproliferation and International Security Center, upgraded and possibly relocate JTOT facilities.		NISC
		CMR replacement
Relocation of training activity to another site.		
Relocation to more secure location. Suggested siting at DAF/NTS.		
NISC	Construction of NISC as part of TA-03 revitalization	NISC
New NISC and supporting facilities. Definition of facility needs for controlling weapons of mass destruction, (i.e., nuclear, biological, chemical).	Potential reuse application of the CMR building. Can this building be retrofitted for some of this work?	
New NISC and supporting facilities		NISC
New NISC and supporting facilities		NISC

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Current Requirements	*Current Functions/Capabilities*	*Current Facilities*	*Current Issues/Concerns*	*Forecasted Requirements*	*Forecasted Functions/Capabilities*
Threat Reduction					
Materials Disposition					
	The Laboratory has the nation's only mixed oxide fuel production capability.	ARIES glove-box line at TA-55	Increases in stockpiles of surplus fissile materials due to US and Russian arms-control implementation. **There is no nationally designated site and strategy for disposition.**	Training center and fuel fabrication demonstrations.	Demonstrate technology for pit dismantlement and plutonium conversion.
Nuclear Weapons Research and Technology Development					
Basic/Applied Research and Technology Development					
Maintain core competencies in design, test, & manufacture of nuclear weapons.	**Turbulence eperimental testbed**				**Develop capability to coordinate and conduct mix and turbulence experiments.**
High Energy Density Hydrodynamics					
Fundamental understanding of weapons physics.	**Supplies basic data on ignition and TN burn and rad-hydro of secondaries.**	**Trident, ATLAS**	**Move to Nevada Test Site.**	**Similar as current.**	**Continue as current.**
Advanced Hydrodynamic Testing					
Hydrotesting of simulated nuclear weapons components.	**Low-and intermediate-energy x-ray radiographic source and detector management.**		**Inadequate facilities**	**Adequate shielded high-bay space for low- and intermediate- energy x-ray radiographic development.**	**Source and detector development**

Alternatives/Options	*Facility Strategies*	*Related Projects*
Storage and disposal of surplus weapons-usable fissile materials, including plutonium ceramic vitrification and burning in reactors.	Use ARIES at TA-55 as training center for operators of future Pit Disassembly and Conversion Facility. **Must include Defense Nuclear Facility Safety Board Recommendations 94-1 and 97-2.**	
Additional lab and office space and materials handling capabilities.	**Identify the facility and capabilities necessary to export a wide array of ongoing and future turbulence and mix activities.**	
ATLAS moved to Nevada Test Site.	**Enhancements as needed to support program requirements.**	
Refurbish an existing high-bay facility.	**Should look at all existing high-bay capabilities throughout the Laboratory.**	

Summary Missions/Alternatives/Requirements Table

*Updates from CSP 2000 are denoted in **blue text**.*

Current Requirements	*Current Functions/Capabilities*	*Current Facilities*	*Current Issues/Concerns*	*Forecasted Requirements*	*Forecasted Functions/Capabilities*
Nuclear Weapons Research and Technology Development					
Basic Applied Research & Technology Development					
Maintain core competencies in design, test, & manufacture of nuclear weapons.	**High-speed time measurement for nuclear diagnostics.**	**High-frequency laboratory SM-40**	**Aging facility**	**Existing**	**High-speed time measurements for nuclear diagnostics**
Strategic and Supporting Research and Technology					
Office of Science					
Neutrino, heavy-ion, and neutron experiments	**Construction of a large detector system.**	**High-bay labs, light labs**	**Space changes**	**More neutron experiments, new detectors, and WIPP basic science issues.**	**Increase number of cryogenic systems, and provide user interface for experiments at WIPP.**
Fusion energy science	**Basic research in plasma physics**	**FRX-L**		**MTF proof-of-principle research**	**Growth in research scope.**
Health and Environmental Research (Bio-Science)					
Develop new brain-imaging capabilities.	**Functional MRI**	**SM-218**	**Aging building**		**Develop new capabilities for program growth.**
	Magneto encephalography	**SM-40**	**Aging building with high electrical noise and lack of space.**		
	Optical imaging	**SM-40**	**Aging building**		

Alternatives/Options	*Facility Strategies*	*Related Projects*
Upgrade existing facilities.	Define future requirements.	Upgrade SM-40 or move to new physics complex.
New labs at TA-53 matched to cryogenics, and clean rooms. Offices for scientists at Carlsbad.	Look for labs away from TA-53. Space near the nuclear experiments.	
Upgrade in light lab and staff offices.	ATLAS at NTS	
Upgrade current facility.	Define future requirements and locate suitable space.	Upgrade current space or move to new physics complex.
Move to another location in SM-40.		Build GPP building to house MEG research instruments.
Upgrade current facility.		Upgrade current space or move to new physics complex.

IV. PLANNING FOR RISK REDUCTION

A. SAFETY AND SECURITY PLANNING

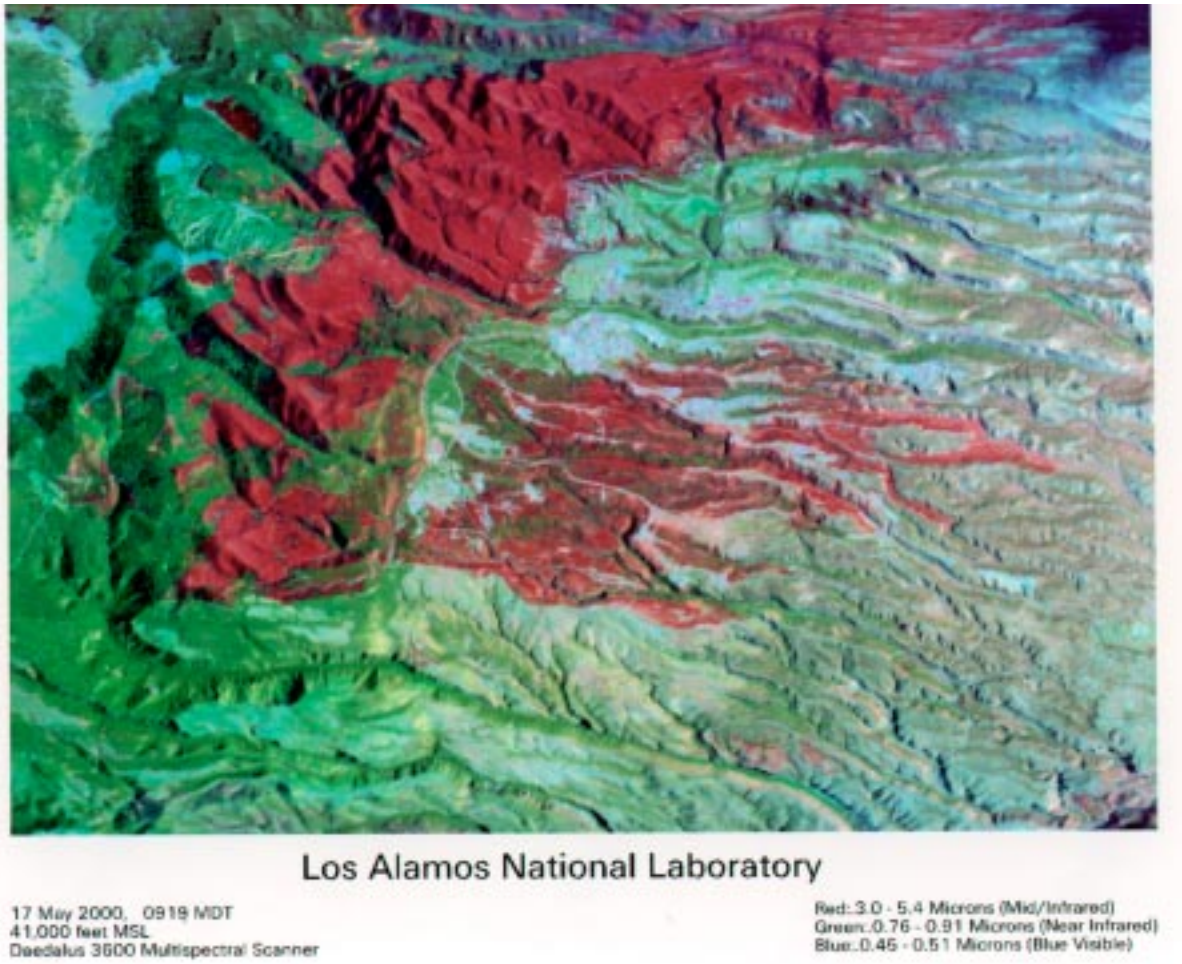
Planning for risk reduction is an ongoing activity at Los Alamos National Laboratory. The effectiveness of the Laboratory's comprehensive safety and security planning approach was demonstrated during the recent Cerro Grande Fire event, see *Figure IV-1*.

After the 1996 Dome Fire, Los Alamos National Laboratory planned and implemented a variety of activities to reduce the threat of fire to Laboratory facilities. An initial post-fire analysis of the Cerro Grande Fire conducted by the Laboratory's Environmental Safety and Health Division concluded that the relatively minimal damage at the Laboratory was in large part due to those previous mitigation efforts.

It is noteworthy that the major risk-reduction issues highlighted by the Cerro Grande Fire are part of the Laboratory's long-range planning efforts and have been for many years before the fire. The most important lesson is the continued need to plan for and implement risk-reduction improvements for the Laboratory's future safety and security.

The following section explores the success of previous safety and security efforts and identifies areas for continued focused planning.

Figure IV-1: Cerro Grande Fire Satellite Image



B. THE CERRO GRANDE FIRE

On May 5, 2000, as northern New Mexico entered into the third year of a drought, Bandelier National Monument employees started a routine prescribed burn to reduce the danger of wildfire. That windy Friday afternoon, the fire sent dark smoke rising over an area of the mountain known locally as Cerro Grande.

The Cerro Grande Fire eventually consumed nearly 48,000 forested acres of the Pajarito Plateau and the Jemez Mountains, and forced the unprecedented closure of the Laboratory for over two weeks, see *Figures IV-3, and IV-4.* Over one-third of the Laboratory's 43-square-mile site or approximately 7500 acres was affected.

One hundred and twelve Laboratory structures of various types were destroyed or damaged. No major facilities or facilities containing radioactive materials or chemical inventories were significantly damaged.

The entire population of Los Alamos County evacuated without injury and upon returning found that the fire had destroyed approximately 400 homes in the townsite. Together, the community and the Laboratory have begun the process of rebuilding with a renewed focus on planning wisely to minimize future conflagrations and other large-scale emergencies. Lessons from the Cerro Grande Fire will continue to influence Laboratory risk-reduction planning for many years.

Figure IV-3: Extent of the Cerro Grande Fire

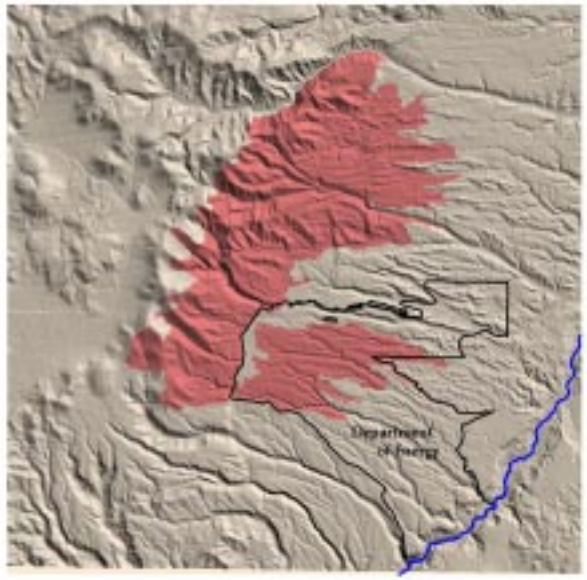


Figure IV-2: Cerro Grande Fire Progression Series

C. SAFETY ISSUES AND INITIATIVES

1. Fire Prevention Programs

After the 1996 Dome Fire, the Laboratory expedited its routine maintenance of fire roads and improvements to enhance forest accessibility. A regional Interagency Wildfire Management Team (IWMT) was formed in that same year to provide fire control advice and a forum to exchange expertise and information among East Jemez regional land stewards. The IWMT collaborated on creating a fire-fuel break along State Road 501, and an interagency fire cache facility with a heliport was constructed near Bandelier National Monument.

In 1999, the Laboratory undertook other more specific mitigation activities in response to the January 1999 Site-Wide Environmental Impact Statement (SWEIS). The SWEIS identified wildfire to be the most likely recurring threat to the Laboratory. In response, the Laboratory took active measures to reduce fire-fuel loads at specific facilities. In particular, the low-level waste disposal site at TA-54 (Area G) and the Weapons Engineering Tritium Facility (WETF) were given special attention. As a result of these mitigations, no major buildings and no facilities with a nuclear hazard classification were significantly affected by the Cerro Grande Fire.

Initiatives for Fire Prevention

- Wise fire-prevention practices are being integrated into the Laboratory's *Design 2001– Site and Architectural Guidelines*.

  The following fire-prevention standards are included:

  - Setbacks for facilities from mesa edges. Canyons between the mesas act similar to chimneys and spread fire to structures that are too close to the mesa edge.
  - Fire-resistant materials to be used on new and renovated facilities.
  - Maintenance procedures to reduce potentially hazardous fire-fuel conditions.
  - An updated siting process to incorporate fire-prevention site design principles during the initial project planning.

2. Fuel Load Mitigation

The Laboratory's concerted tree-thinning and fire-fuel reduction strategies were critical in minimizing damage to Laboratory land and facilities during the recent Cerro Grande Fire. Key facilities were saved, and the Laboratory opened sooner than otherwise would have been the case.

Since the Cerro Grande Fire, there have been extensive and intensive slope and soil stabilization and reseeding efforts, but 60% of potential fire-fuel load still remains. It is imperative that all reasonable mitigation efforts and best practices be employed in the future in order to avoid a similar fate again.

The Laboratory's forest management objective is to maintain a diverse forest structure similar in tree species, sizes, age classes, and densities typically found in a natural forest pattern with a herbaceous and grass understory. This results in a forest that is more resistant to high-intensity wildfires. This mosaic pattern emulates conditions that would exist under a natural fire regime in which higher-frequency, low-intensity surface fires would keep the fuel load and tree density low.

Initiatives for Fuel Mitigation

- A major initiative to reduce the fire-fuel load in the remaining forests surrounding Los Alamos National Laboratory has been recently funded by the federal government.

- Implementation of a waste generation tax that funded a $20,000 downed-wood-chipping program. Accomplishments of that program include:
  - preventing 95 tons of air pollutants from entering the skies,
  - preventing 600 tons of wood chips from becoming landfill and redirecting the wood chips for use as landscape mulch at a savings of nearly $81,000 in landfill costs.
  - providing wood for home heating.

3. Floods as a Result of the Fire

After the Cerro Grande Fire was controlled, flooding became a dominant threat. With the severe burning of trees, understory, grass cover, and soils, the normal coefficient of water runoff shifted to a coefficient similar to a hard-surface parking lot. The damage to the surrounding ecosystem left some Laboratory facilities susceptible to major damage and destruction from flooding.

Flooding will continue to be a concern at the Laboratory for years to come. Fortunately, the risk of severe flooding will diminish as the landscape restores itself on Laboratory property and upstream in the mountains.

Figure IV-4: New Water Retention Structure

Initiatives for Flood Mitigation

- Future placement of new facilities within flood areas will be discouraged by the updated siting process contained in the *Design 2001–Site and Architectural Guidelines*.

- Protection of key facilities from flood, including a flood retention structure above TA-18.

- Construction of retention and water diversion structures to prevent flooding of important transportation routes, see *Figures IV-4, and IV-5*.

- Implementation of flood prevention treatments including extensive reseeding, downing burned-trees, and placing straw waddles across minor drainage paths.

5. Evacuation Routes

Figure IV-5: Flooding Control Structure

4. Emergency Communications Systems

The Cerro Grande Fire emphasized the importance of emergency communications systems. Updating and maintaining a high-quality emergency communications system is an integral component of risk reduction at the Laboratory.

The need for a new joint Emergency Operations Center (EOC) to accommodate the various entities involved in an emergency action was highlighted by the Cerro Grande Fire, see *Figure IV-6*. The existing center at TA-59 showed its age and inadequacy during the event. The facility had to be evacuated twice, and the facility had difficulty accommodating all of the emergency personnel who needed access to it. Current alternate command locations in White Rock and TA-49 proved too remote to effectively manage emergency activities.

Other communication systems needing updating are the multi-channel communication system and the site-wide fire alarm system. These communications improvement activities are also being coordinated with the Nuclear Materials Safeguard and Security Upgrade Project (NMSSUP). Refer to the *CSP 2001* sections on Infrastructure Security for a description of NMSSUP.

Initiatives for Emergency Communications Systems

- A location for a new EOC has been proposed along the western edge of TA-58. The location is near TA-03 and provides quick, safe access for key Laboratory decision makers during an emergency event. Funding has been identified, and development is expected to occur soon.

- The Multi-channel Communications project will provide a comprehensive communication infrastructure for 1) emergency radio communications, 2) emergency egress evacuation communications, 3) emergency visual communications, 4) emergency monitoring, and 5) emergency data communications. Critical communications channels will be assured by providing several levels of redundancy. This project will purchase new communications equipment that will have the capability and flexibility to allow the Laboratory to communicate with the multiple local, DOE and other federal agencies. Additionally, the project will build a data mirror in the EOC that will integrate critical LANL stand-alone electronic data sources into a single seamless application, allowing safer and faster emergency response.

- The Site-Wide Fire Alarm System Replacement Project (FARP) will separate the fire alarm system from the Basic Rapid Alarm Security System (BRASS). A star configuration communications system will be set up to accomplish the separation. A number of dedicated telephone lines will also need to be added to the Laboratory communications system for this project.

Figure IV-6: Existing EOC

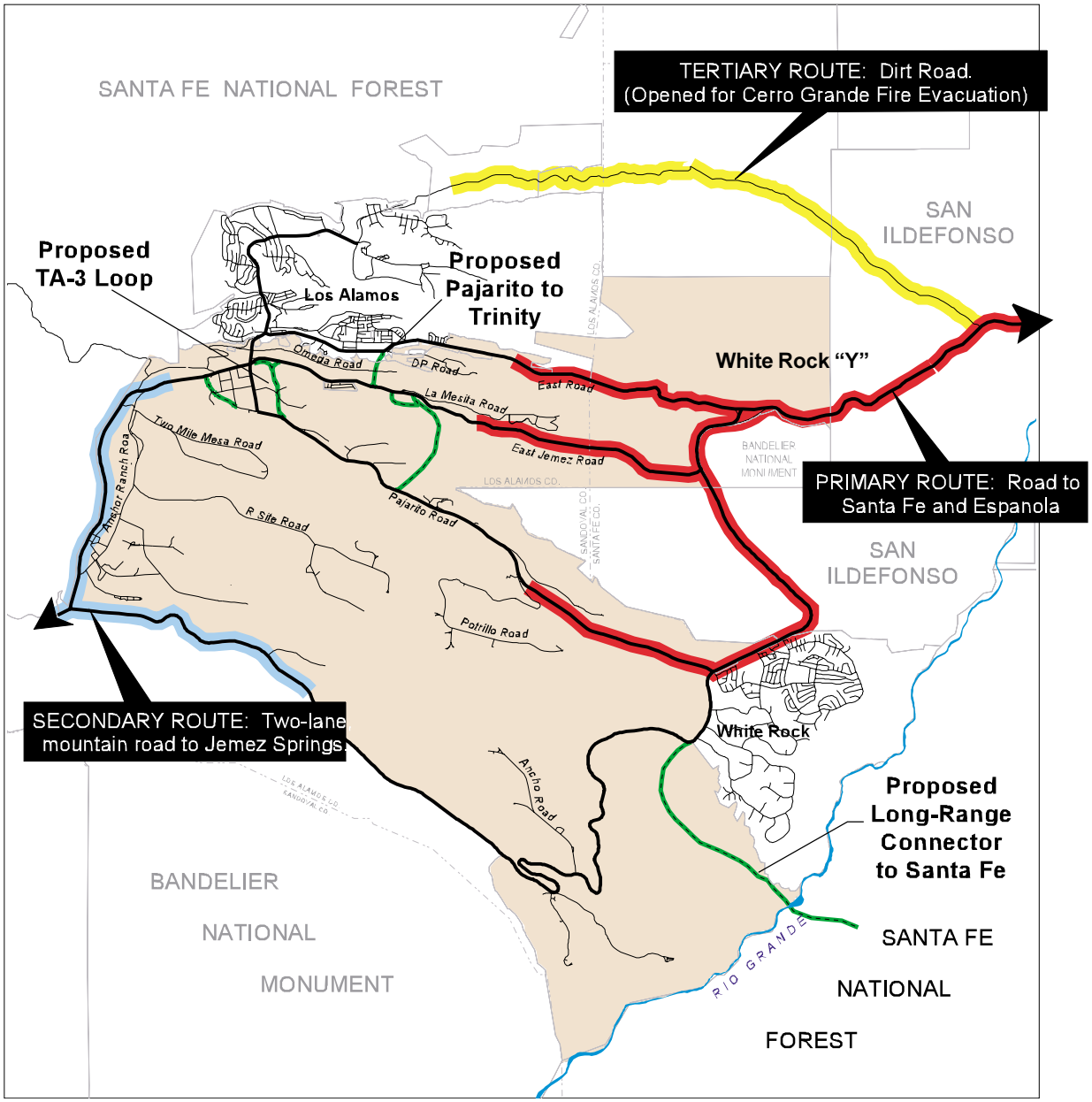
The Cerro Grande Fire emphasized the fact that the Laboratory and the Los Alamos townsite have only one reliable evacuation route to and from the surrounding region, see *Figure IV-7*.

The Laboratory is located on a series of mesas on the eastern slope of the Jemez Mountains. Deep canyons separate the mesas and restrict transportation systems. Thus, only two regional access routes exist to Los Alamos National Laboratory. One is a narrow two-lane mountain highway that runs west through the Jemez Mountains. It is not considered an appropriate emergency egress route. The second route, State Route 502, is the only viable emergency route. This road links Los Alamos National Laboratory, the County of Los Alamos and Bandelier National Monument with the communities in the Rio Grande Valley. The Laboratory's major egress routes are depicted in *Figure IV.7*.

Three major arterial roads leave the Laboratory property to the east, but they all converge at one interchange on State Route 502 referred to as the White Rock "Y". During a normal Laboratory closure, only about one-third of the Laboratory's traffic leaves the Los Alamos area. A total evacuation of the Laboratory, the County of Los Alamos, and Bandelier National Monument could involve between 23,000 to 25,000 people on an average workday which would strain the capacity of the sole emergency route.

Fortunately, the Cerro Grande Fire evacuation

Figure IV.7: Evacuation Routes



occurred during a period when the Laboratory was closed, thus, the evacuation traffic was lighter than would be expected in a full-emergency evacuation. The evacuation of the townsite took over 4 hours but was aided by the opening of a dirt road that traverses the San Ildefonso Indian Reservation. Many residents initially sought refuge in White Rock, which affected the later evacuation of that area. The evacuation of White Rock required over 6 hours and relied on a single open road. Luckily, no accidents occurred that could have blocked that egress route.

Another major concern is that many Laboratory facilities are sited on mesas accessible by only one road, which could trap hundreds or thousands of people during an emergency. This situation endangers the lives of people, and also affects the ability of fire and emergency services to reach those locations.

Initiatives for Evacuation Routes

- A second route out of Los Alamos was proposed for in the *CSP 2000*. This route provides a viable second large-scale egress route. Its proposed alignment is south of White Rock through TA-70 and TA-71. Construction would be costly, but the new road would alleviate the single-evacuation-route problem. Planning for implementation is still required.

- Other major proposed road improvements that benefit safety and evacuation planning include the TA-03 Loop Road, and a new road and bridge linking East Jemez Road to Trinity Drive. Both of these projects would increase emergency route options should a blockage occur on any portion of the Laboratory road network. The TA-03 Loop Road is on the project list for the Infrastructure Investment Revitalization Fund (IIRF) .

- Secondary emergency access roads are the last major category of road planning initiatives. These roads would provide a second egress for Laboratory areas that have only a single access. The secondary roads are being planned through ADPs and will be incorporated into projects by the updated Laboratory Siting Committee process.

6. Traffic Safety

During the Cerro Grande Fire evacuation, no traffic accidents occurred that caused blockage on the main evacuation route. However, in the future this possible event must be planned for and mitigating measures implemented.

An evaluation of traffic safety considers the rate, locations, and pattern of vehicular accidents. The Laboratory's transportation system is closely linked to Los Alamos County's in circulation, events, patterns, and counts. Recently the County's accident rate has shown a decline. In 1996, there were 18 incidents per one thousand population; in 1998, the rate was 14 incidents per one thousand population.

Accidents consistently occur at both ends of the Omega Bridge on Diamond Drive. The most frequent accident locations on the New Mexico State Traffic Safety Bureau reports for Los Alamos County are the Diamond Drive/West Jemez Road intersection and Diamond Drive/ West Road intersection. Should an accident occur at either intersection during an emergency evacuation, problems in routing traffic off the Laboratory site would result.

The actual "worst" accident location on Laboratory property is the Diamond drive and Eniwetok intersection, which is not tracked on Traffic Safety Bureau reports. The most dangerous time for accidents has consistently been around the 5:00 pm peak traffic hour.

Initiatives for Traffic Safety

- Major roads and intersections are being identified that need safety improvements based on accident rates adn compliance with traffic standards. The intersections identified in this process will then be prioritized for road improvements.
- Specific improvements and corrective actions are planned to include Diamond Drive corridor from the bridge to Pajarito Road. Portions of the needed improvements will be implemented in the TA-03 Loop road project. The TA-03 Loop road is on the IIRF project list.
- Transportation planning will continue to utilize the principles in national traffic and safety codes and standards.

7. Wayfinding

Clear identification of roads, on-site locations, and specific structures during emergencies can mean the difference between saving or losing personnel and facilities. A systematic and consistent wayfinding system is critical under such circumstances. On a daily basis, a well-designed wayfinding system also contributes to a safer, more attractive, and more efficient work environment, see *Figures IV-8, IV-9, and IV-10*.

Initiatives for Wayfinding

- A uniform wayfinding signage system is proposed for the Laboratory. The wayfinding system includes: signage standards for secure and hazardous areas, major entry features, information kiosks, and a sign hierarchy for technical areas, building compounds, and individual buildings. The wayfinding system is currently undergoing an institutional review and approval process.
- A major study to revise regulatory street signage has been completed. The street and regulatory signage system is being evaluated to improve traffic safety and to reduce redundant signage.

Figure IV-8: Proposed Security Area Signage

Figure IV-9: Proposed Safety Signage

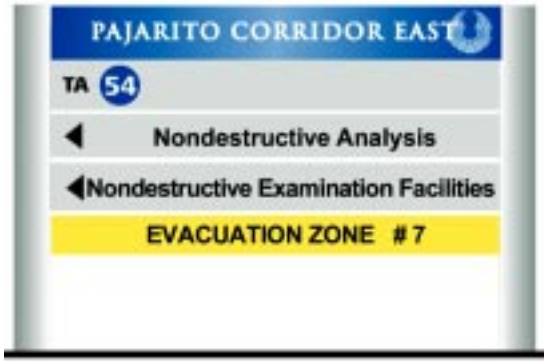


Figure IV-10: Proposed Building Sign

8. Pedestrian and Bicycle Safety

The Cerro Grande Fire fortunately began on a day when the Laboratory was closed; thus, pedestrian and bicycle networks were not tested during an emergency situation. In previous planning efforts, the Laboratory has assessed the sitewide pedestrian and bicycle circulation systems, and highlighted the inconsistent, incomplete, and in some locations, unsafe nature of these networks. Development of a comprehensive pedestrian and bicycle network is proposed as part of Laboratory risk-reduction activities.

Pedestrian and bicycle circulation systems need to be well-defined and separated from automotive systems as conflicts with automotive traffic can be deadly. A clear hierarchy between vehicular, bicycle and pedestrian systems is a fundamental traffic safety need.

Pedestrian and bicycle improvements can also support other safety functions. Linear trails between development at the Laboratory can serve as unpaved secondary access for emergency vehicles, and jogging/walking trails can be part of an effective firebreak system surrounding facilities. Dedicated bicycle lanes on roads can be used as emergency pull-off lanes as well as increasing bicycle safety. Bicycle lanes premit vehicles and people to clear out of drive lanes when a blocked road would be dangerous.

Initiatives for Pedestrian and Bicycle Safety

- ADPs are beginning to integrate planning for pedestrian and bicycle improvements in each plan.
- Implementation planning needs to begin for the comprehensive pedestrian and bicycle circulation system recommended in the *CPS 2000*.
- The *Design 2001–Site and Architectural Design Guidelines* will include:
  - standards for pedestrian systems and improvements,
  - standards for bicycle systems and improvements, and
  - road design cross-sections that incorporate modern standards for bicycle lanes and related sidewalks.

9. Airport Retention

During and after the Cerro Grande Fire, the Los Alamos Airport served as a staging area for both firefighting and environmental restoration efforts, see *Figure IV-11*. It is important to both the Laboratory and the community that the airport remain open for public access and emergency needs.

The Atomic Energy Commission built the Los Alamos Airport to support the original Laboratory missions. Those needs have since diminished, but the airport continues to play an important role in supporting the Los Alamos community, the Laboratory, and the high-tech industries being developed in the area. As the community continues to diversify its economy, the airport will continue to grow in its support role.

Owned by DOE, the airport is managed by the County of Los Alamos through a lease agreement. The airport is included in lands being considered for transfer from DOE to the County.

Initiatives for Airport Retention

- The Los Alamos Airport Master Plan (1994-2013) should be reviewed and activities for implementation identified.

10. Replacement of Damaged and Destroyed Structures

After the Cerro Grande Fire, an intensive effort was begun to remove and replace many of the fire damaged and destroyed Laboratory structures, see *Figure IV-12*. This effort will continue during 2001 and for several years beyond.

The Cerro Grande Fire affected the operational readiness of 237 Laboratory structures, of which 112 were either damaged or destroyed beyond repair. Many other Laboratory facilities required some level of cleanup of ash deposits which damaged both facilities and equipment.

It is noteworthy that the majority of destroyed structures were either trailers, transportables, transportainers, or sheds confirming the need to remove temporary structures as a safety measure.

Initiatives for Replacement of Damaged and Destroyed Structures

- Three General Plant Project (GPP) buildings have been funded and will directly replace lost office space from destroyed trailers and transportables.
- Over 30 requests for new GPP office facilities, see *Figure IV-13*. have been identified to replace existing trailers and transportables. Existing trailers and transportables near mesa edges are considered more vulnerable to fire.
- Damaged facilities in TA-41 have been abandoned due to potential flooding resulting from the fire.

Figure IV-11: Los Alamos Airport

Figure IV-12: Damaged Building

Figure IV-13: Replacement GPP Building

11. Specific Area Fire Resistance Improvements

During any emergency event, nuclear materials facilities create heightened concern for the Laboratory. Part of the long-range planning for the Laboratory is to continue to reduce the safety risks to these facilities.

For a number of years, the Laboratory has been planning for consolidation of SNM facilities. This consolidation into a integrated nuclear plan would make protection from emergencies such as the Cerro Grande Fire more efficient and effective.

ADPs for technical areas with SNM facilities include improvements to increase fire resistance in facilities and on the sites. Two areas with specific plans are TA-50 and TA-54.

Initiatives for Specific Ares Fire Resistance Improvements

Waste Management Risk Mitigation Project (WMRMP) This project includes the following potential subprojects:

TA-50 Sub-Projects. The following summarizes the potential sub-projects at TA-50 that may best mitigate Radioactive Liquid Waste (RLW) associated risks during a fire or other related natural disaster. The seven projects being evaluated represent upgrades to the existing RLW treatment facility (TA-50-01). This is not baselined as of April 15, 2001.

1. Fire-Resistant Surfaces. This potential subproject adds fire-resistant surfaces (e.g., asphalt, concrete, etc.) around the existing RLW treatment facility. The addition of fire-resistant surfaces reduces a fire ground-path to the facility.
2. Remote RLW Monitors and Controls. This potential subproject adds remote monitoring and control equipment that will measure flows and/or incoming waste characteristics.
3. Membrane Process Unit. This potential subproject provides redundancy to the existing RLW facility ultrafiltration membrane process unit. The existing unit has no redundancy. It is a critical single point of failure in the overall RLW treatment process.
4. RLW Holding Tankage. This potential subproject adds RLW storage capability. The additional capacity is intended to allow RLW to be stored for an extended period without the need for on-site operation.
5. HVAC Upgrades. This potential subproject upgrades the existing RLW HVAC system to increase its overall reliability and to allow remote monitoring in the event of a fire or other fire-related disaster.
6. RLW Pump Station. This potential subproject replaces the existing RLW pump station with a new pump station. The existing station does not accommodate flows that may be realized during a fire (e.g., flows from fire sprinklers at remote locations). The pumps, critical to the overall facility operation, have no redundancy and have exceeded their useful life.
7. Replace Single-Wall RLW Piping. This potential subproject replaces existing single-wall piping at the RLW facility. Replacement of such piping will decrease the risk of untreated RLW release during a fire or other natural disaster.

Initiatives for Specific Areas Fire Resistance Improvements (cont.)

TA-54 Projects. The potential TA-54 projects being evaluated are listed below and not baselined as of April 15, 2001:

1. Over-Package Containers. This potential project repackages radioactive solid waste (RSW) to minimize adverse impacts from a fire.
2. Fire-Resistant Surfaces. This potential project adds fire-resistant surfaces around the existing RSW storage domes and other facilities at TA-54.
3. Fire-Rated Dome Fabric. This potential project replaces the existing fabric on the TA-54 waste storage domes with fabric with a National Fire Protection Association (NFPA) minimum 1-hour fire rating. The existing fabric is fire-resistant but not fire-rated.
4. Upgrade Drum Vents. This potential project replaces existing RSW drum vents with new vents that will ensure ventilation during a fire or other high-thermal event.
5. Extended Decontamination Volume Reduction System (DVRS) Operations. This potential project extends the operation time of the existing DVRS. By extending the DVRS operation to multiple shifts, it rapidly decreases on-site waste volumes and reduces the potential for radiological emissions.

12. Water resources

Water is a critical resource during a fire event. On a daily basis, water plays an important role in the operation of the Laboratory. Located in a dry, high desert environment, the Laboratory is conscientious of the need to be good stewards of water resources as future growth will be limited by existing resources.

Groundwater is the current source of potable water for the Laboratory, Los Alamos County and other surrounding public entities. This source is in jeopardy, and most large water consumers in the region are planning to convert to surface water sources.

Groundwater rights provide sufficient supply to Los Alamos County and the Laboratory for existing uses. The potential to increase regional water supplies through the San Juan – Chama sources is not easily done due to legal water rights constraints and technical issues. Other entities also participate in the use of this water, and it has been recommended that Los Alamos join in developing water retention techniques. The Laboratory's participation could bring strong credibility to the resolution of regional water rights issues.

Initiatives for Water Resources

- The Laboratory should explore cooperation in creating a regional water plan with other local agencies.
- ESH-20 is developing an integrated resource management plan for the Laboratory.
- Laboratory planning should evaluate existing water reserves for fire fighting capacity and identify strategies to improve resources as needed, see *Figure IV-14*.

Figure IV-14: Water Reservior, after Cerro Grande Fire

13. Seismic Issues

Fire is not the only natural disaster that could affect Los Alamos National Laboratory. Seismic events are another type of natural event that is planned for and integrated into the Laboratory's comprehensive site planning.

A common characteristic of aged facilities is a lack of resistance to seismic loads and motion. The Laboratory's older facilities are no exception. Conventional construction methods of the 1940s through the 1960s did not incorporate designs to resist lateral forces or to minimize hazards to building occupants during and after a seismic event. The lack of seismic design in older Laboratory facilities is profound throughout the site and represents the greatest hazard to workplace safety in the TA-03 area. This is primarily because the greatest number of aged facilities and highest population density exists there.

Nearly half of the TA-03 population occupies just over 50% of the seismically unqualified buildings at the Laboratory. The best, most economical way to bring the risk of seismic hazards down to acceptable modern levels is to replace those unqualified facilities.

Initiatives for Seismic Issues

- ADPs are evaluating the potential seismic risk for each structure within each planning area and recommending management strategies for each.
- Guidelines for siting facilities with respect to faults are being developed.
- A Laboratory priority is to replace, decommission, and demolish existing seismically vulnerable facilities on as timely a basis as possible.

D. SECURITY ISSUES

In an October, 2000 presentation, Laboratory Director John Browne noted that since the days of the Manhattan Project, "Security, and its relationship to science, has always been part of the organizational culture of the Laboratory." In the early days, the Laboratory's work was a national secret, and the site was definitely isolated. Today, the Laboratory is linked globally by instant communications and the World Wide Web, and Los Alamos is now somewhat of a destination for the scientifically curious traveler. Clearly, the security environment is different in the post-Cold War era.

Former Senator Howard H. Baker, Jr. and former Representative Lee H. Hamilton made the following five primary findings in *Science and Security in the Service of the Nation: A review of the security incident involving classified hard drives at Los Alamos National Laboratory* (September 25, 2000):

- It is clear that there was a security lapse and that the consequences of the loss of the data on the hard drives would have been extremely damaging to the national security.
- Among the known consequences of the hard-drive incident, the most worrisome is the devastating effect on the morale and productivity of Laboratory person which plays a critical national-security role for the Nation.
- The current negative climate is incompatible with the performance of good science. A perfect security system at a national laboratory is of no use if the laboratory can no longer generate the cutting-edge technology that needs to be protected from improper disclosure.
- It is critical to reverse the demoralization at the Laboratory before it further undermines the ability of that institution both to continue to make its vital contributions to our national security, and to protect the sensitive national-security information that is critical to the fulfillment of its responsibilities.
- Urgent action should be taken to ensure that Los Alamos National Laboratory gets back to work in a reformed security structure that will allow the work there to be successfully sustained over the long-term.

1. National Nuclear Security Agency

The Department of Energy established the National Nuclear Security Administration (NNSA) on March 1, 2000. The NNSA is accountable directly to the Secretary of Energy and is responsible for carrying out the national nuclear security responsibilities of DOE. Those responsibilities include: maintaining a safe, secure, and reliable stockpile of nuclear weapons and associated materials capabilities and technologies; promotion of international nuclear safety and nonproliferation; and administration and management of the naval nuclear propulsion program.

Within the NNSA, the Laboratory reports to and is accountable to the Deputy Administrator for Defense Programs through the Albuquerque Operations Office. The Laboratory's roles and responsibilities remain essentially unchanged and continue to focus on its current missions. The NNSA is presently reviewing operations at Los Alamos, Lawrence Livermore National Laboratory, and Sandia National Laboratories.

2. Integrated Safeguards and Security Management (ISSM)

The Laboratory's highly successful Integrated Safety Management (ISM) model has been expanded to incorporate security because its basic tenets are vital to both safety and security. The new initiative, called Integrated Safeguards and Security Management (ISSM), was launched in early 2000. ISSM offers not only a stronger Laboratory-wide security culture and enhanced security performance, but a unified management model for achieving cost-effective operational excellence. The goal of ISSM is to achieve excellence in safety, health and environmental performance, and to meet business imperatives with zero violations in safeguards and security.

3. Physical Security Goals and Concepts

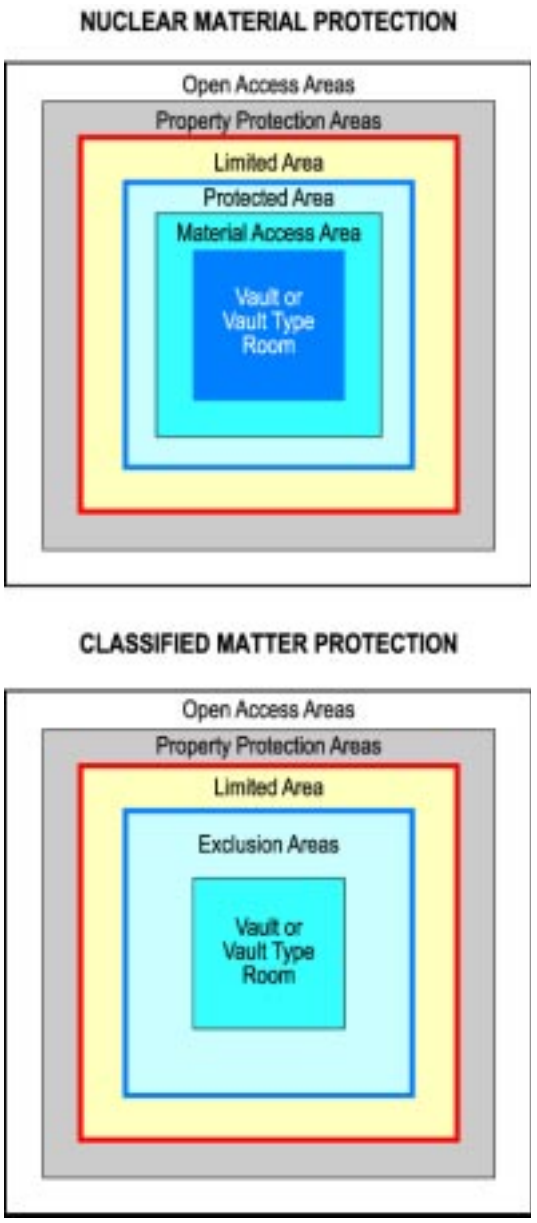
The Laboratory's physical security and safeguards goal is to maintain and strengthen security protection through long-term site planning and development. This goal will be accomplished through the following objectives:

- consolidation of secure functions and interests;
- limitation of public access and visibility to secure interests;
- minimization of public proximity to secure interests;
- enhancement of awareness of physical security threats through education of all Laboratory personnel; and
- close scrutiny of all cyber-requirements to include secure processing and connectivity.

Of these five objectives, the first three relate directly to site planning and architectural design.

Physical layout and design for security is based on the "protection in-depth/graded protection" concept. This concept physically places the most important data, material or persons in a highly controlled center surrounded by areas of decreasing levels of security. *Figure IV.15* illustrates the concept.

Figure IV-15: Security Zones

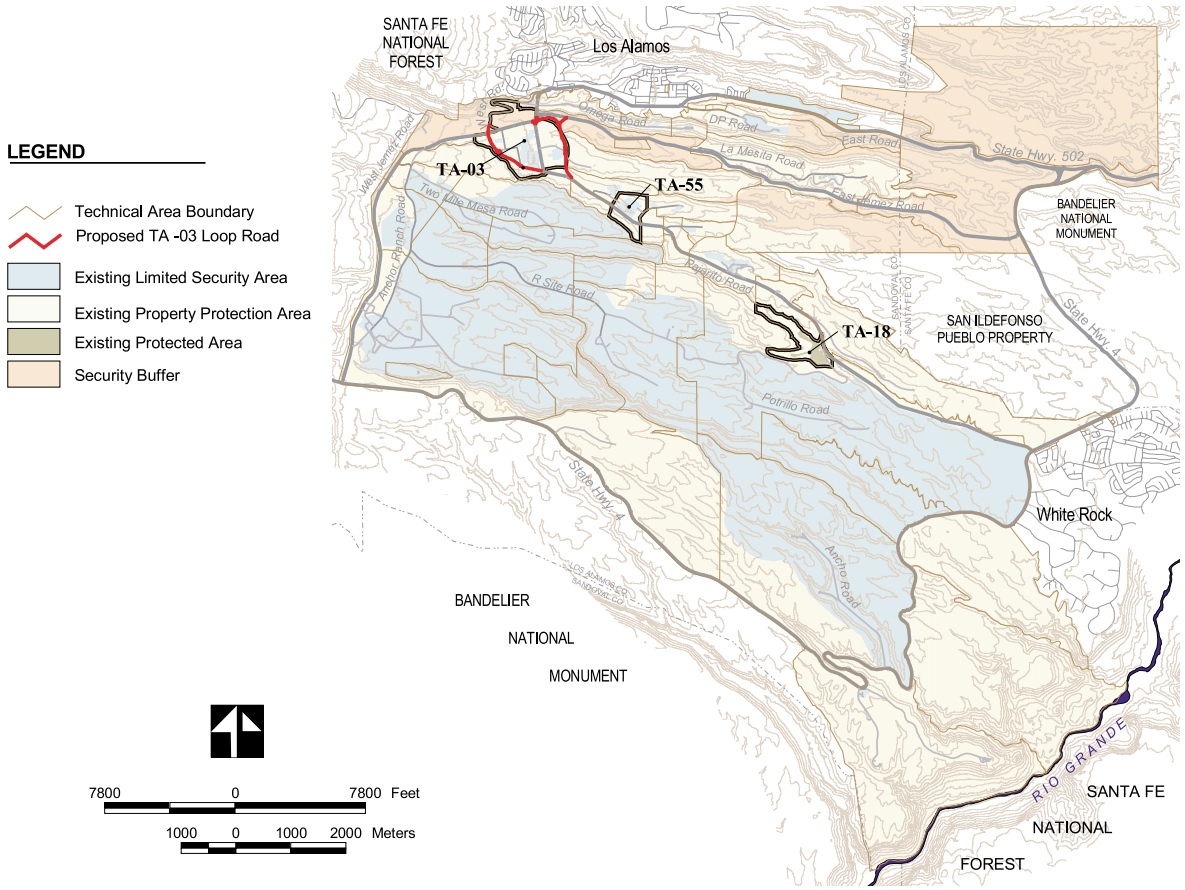


4. Consolidation of Secure Facilities

A major security goal for Los Alamos National Laboratory is the consolidation of special nuclear facilities into specific locations, see *Map IV-1*.

The Site Wide Security Plan is based on achieving the most from security infrastructure, personnel, and facilities. The current pattern of dispersed facilities causes redundancy and requires multiple security improvements to ensure proper security is provided. Security will gain efficiencies by proper collocation of facilities based on security requirements.

Map IV-1: Site Wide Security



Initiatives for Consolidation of Secure Facilities

- Integrated Nuclear Planning (INP).
  INP provides a framework for physical consolidation of facilities that handle and support the processing of actinide materials for stockpile stewardship and limited pit manufacturing and assembly.

  The plan proposes the location of principal capability facilities based on functional adjacencies and locations for various other support operations. Central to the plan is the removal by 2010 of nuclear operations now located in the CMR building and relocation of TA-18 operations. Supporting facilities and infrastructure will be incorporated into the plan.

  This planning effort will be completed in August 2001.

- TA-18 Relocation.
  Relocating TA-18 (Critical Experimentation) is being considered because of facility age, the increased requirements for physical security, and the higher costs to maintain the aged facilities.

  The missions conducted at TA-18 help ensure that national capabilities in the areas of nuclear materials management, criticality safety, emergency response, nonproliferation and safeguards, arms control, waste assay, instrumentation development, and nuclear weapons stockpile stewardship science are preserved. TA-18 is the sole facility in the United States capable of performing general purpose nuclear materials handling experiments and training that includes the assembly and operation of criticality devices.

  Relocation of TA-18 facilities to TA-55 would accomplish primary physical security goals of consolidating secure functions, limiting public access and visibility of secure activities, and reducing public proximity to secure areas.

- CMR Replacement.
  A new facility is proposed to replace some of the current capabilities housed in the CMR building and to replace nuclear space for the DP mission. The CMR replacement project is currently going through the process of receiving Critical Decision 0 approval. The initial work on a mission need statement was done in 2000.

  The Laboratory proposes development of a project with the following scope and deliverables:

  1. A replacement capability for Analytical Chemistry and Materials Characterization (AC/MC) consistent with the capabilities currently in place at the CMR facility that support the assigned DOE missions.
  2. Additional required capabilities, including materials processing capabilities in support of the Hydrodynamic Testing program and other materials science initiatives.

  The CMR replacement facility may be located at TA-55.

5. Circulation Security

Site circulation affects the Laboratory's security planning. Circulation planning can support security goals by limiting public access, visibility, and public proximity to secure interests. Circulation plans for security intend for public traffic to be eventually removed out of the Laboratory's core development locations.

Initiatives for Circulation Security

- TA-03 Loop Road.
  The proposed TA-03 Loop Road is a major security and revitalization project for the Core Planning Area. The loop road will improve TA-03 security and increase circulation safety by moving public traffic to the outer edges of TA-03.

  The eastern section of the loop road, referred to as the Eastern Bypass Road, skirts the perimeter of TA-03 and connects the western end of Pajarito Road to the western end of East Jemez Road. It routes traffic away from the denser center of TA-03, provides access to an outer perimeter of proposed parking lots, and is a major requirement for developing Sigma Mesa. Sigma Mesa is intended for the relocation of support service facilities out of TA-03, which will increase security for new facilities such as the SCC and NISC. The proposed loop road also facilitates truck access to Sigma Mesa.

  Development of the east section of the loop road will help accomplish the needed improvements around the Diamond Drive corridor and not just focus on the Diamond/West Jemez Road intersection on the south end of the Omega Canyon Bridge.

  The western section of the loop road connects the western end of Pajarito Road to the northwest corner of TA-03. Like the eastern section of the loop road, the western section will divert traffic away from the core of TA-03, provide access to future outer parking lots, provide better access to the western half of the Core Planning Area, and open opportunities to develop Two-Mile Mesa North (TA-58). Two-Mile Mesa North is a future expansion area for the Core Planning Area.

- Pajarito Road Closure/Bypass.
  The primary objective of this project as studied was to increase the distance of public transportation away from TA-55. The feasibility of the road was determined from a security, engineering, and cost standpoint. At this time the bypass road does not contribute greatly to improved security considering the overall cost for development. No baselines have been defined for this project.

6. Infrastructure Security

Security planning includes providing secure infrastructure for Laboratory operations. Two security strategies for infrastructure are: 1) to protect infrastructure improvements from sabotage, and 2) to create redundancy in the event of service interruption.

Electric power lines are being placed underground in the more heavily developed areas of the Laboratory. Placing electrical and telecommunications distribution lines underground provides a significant security benefit by making them less vulnerable to sabotage and service interruptions. In general, higher voltage lines must remain above ground and all substations must have secure fencing.

While the threat of sabotage must be considered, the more likely cause of power interruptions would be accidental. For example, the recent Cerro Grande Fire burned electrical and communications lines and poles in Pajarito Canyon and at other locations around the Laboratory and the Los Alamos Townsite. There have also been injuries, work stoppages, and power outages caused by construction excavation that have inadvertently disrupted utilities services.

Initiatives for Infrastructure Security

- The Nuclear Materials Safeguard and Security Upgrade Project (NMSSUP) was launched in 1999 and is currently projected for completion in 2008. The NMSSUP project will upgrade surveillance, assessment, and barriers for protection of nuclear materials at the Laboratory and is a primary design consideration for comprehensive site and facility planning.
- The Laboratory issued a notice in August 2000 amending the excavation and soil disturbance permit process to require documentation of primary and secondary utilities discovered during excavation activities.
- The Laboratory is incorporating energy efficiency and sustainability design principles into construction projects pursuant to DOE draft order 430.2 (Department of Energy Utilities Management). The Laboratory intends to build energy efficient and sustainable facilities that will lessen demand for power and reduce existing waste streams. In some cases, new projects may use dual-fuel capability power systems which could lessen mission interruptions because of power disruptions.
- Laboratory project management and facilities oversight should begin to evaluate off-the grid systems such as solar photovoltaics, fuel cells, natural gas fired turbine generators, and wind power that make economic and ecologic sense.

V. AREA DEVELOPMENT PLANS

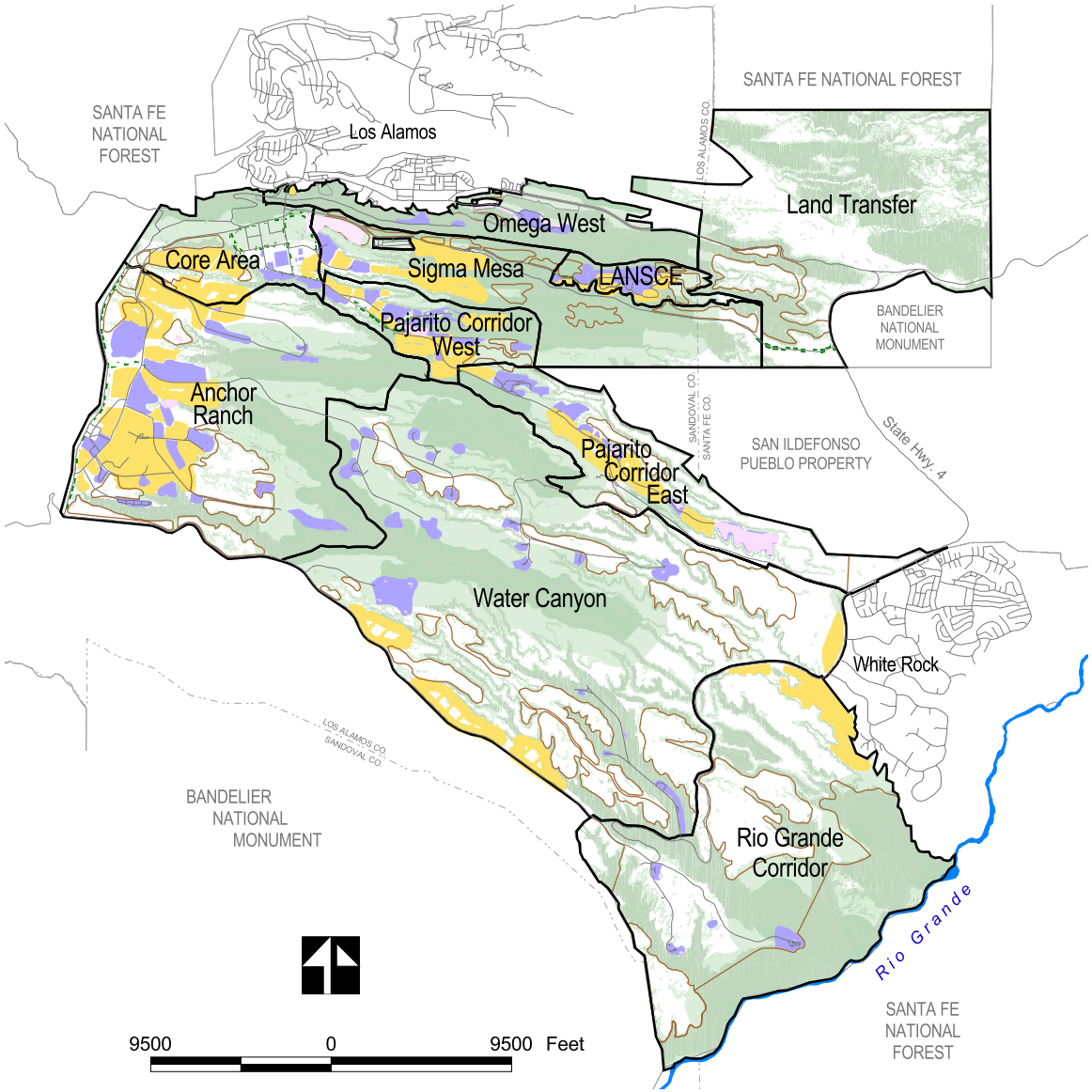
A. AREA DEVELOPMENT PLAN DESCRIPTION

An Area Development Plan (ADP) is a 5 to 10-year land use plan that emphasizes analysis and implementation. ADPs coordinate program plans and projects from a geographic perspective and support the development of the CSP. ADPs were initiated for all ten planning areas using a standard methodology for analysis and presentation.

Each ADP consists of a development unit plan that identifies redevelopment areas, prioritized development units for future development, and reserve areas. ADPs also consider population impacts, facility condition assessment, and functional adjacencies. The ADPs will be coordinated with the NEPA process. Implementation strategies and sequencing are outlined and potential projects are identified. Planning PoCs for each organization with a stake in the outcome were invited to participate and review ADP progress throughout the year.

A summary of the development scenarios for each ADP follows. Two of the planning area names have changed since the CSP2000. The Experimental Engineering Planning Area is now the Anchor Ranch Planning Area, while the Dynamic Testing Planning Area has become the Water Canyon Planning Area. The names were changed to reflect the geographic nature and location of the areas and reduce ties to particular Laboratory divisions.

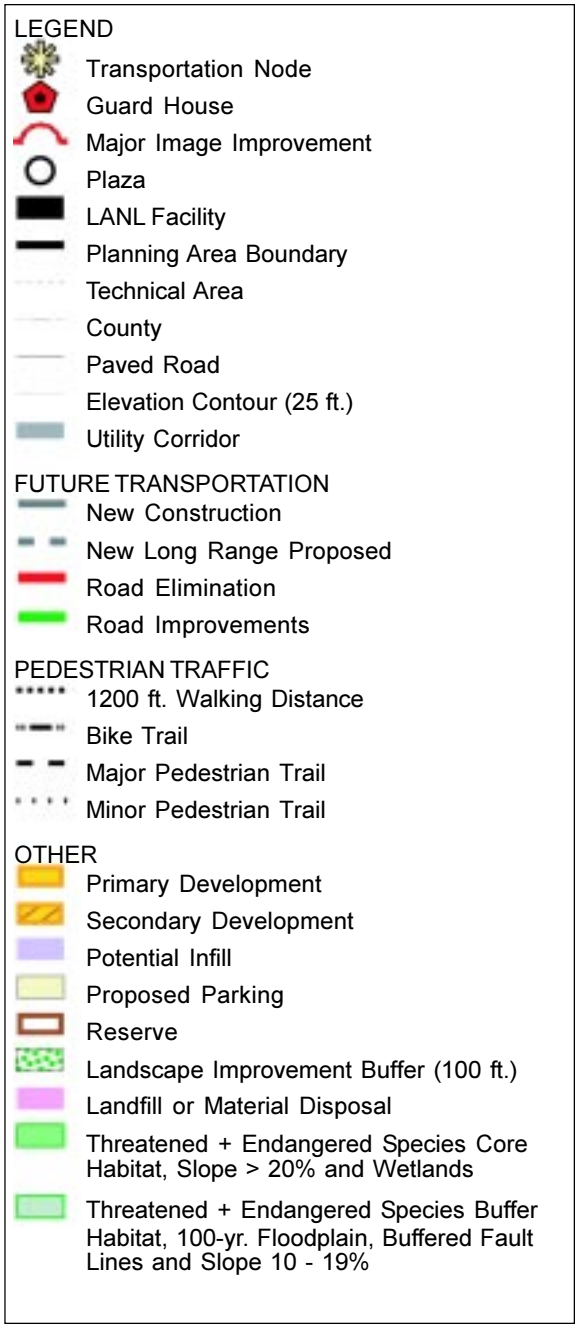
Map V-1: Sitewide Area Development Plan



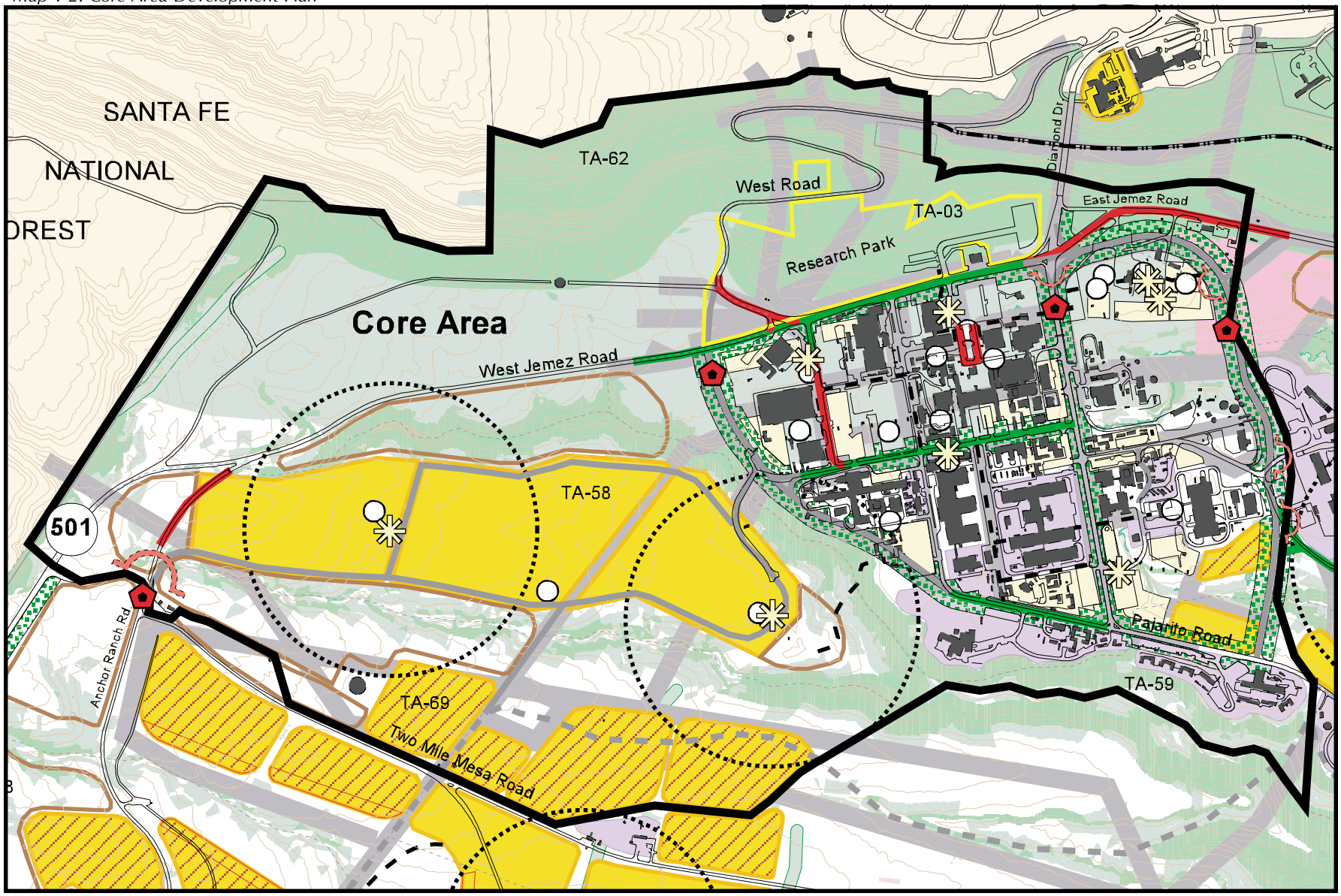
B. PLANNING AREA DEVELOPMENT SCENARIOS

1. The Core Planning Area

- The Core Planning Area consists of TA-03, TA-58, TA-59, TA-62 and portions of TA-60 and TA-61.
    - The Revitalization vision for TA-03 includes:
    - the development of a loop road around TA-03 with adjacent parking;
    - the development of large buildings within the center or "core" for Senior Management, selected science divisions, and computer facilities;
    - the development of experimental science and light laboratory facilities in the southern half of the Planning Area;
    - relocation of the heavy laboratory, SNM and support services to other planning areas;
    - incorporation of human scale design elements and amenities into the site to create a campus environment;
    - and the removal of temporary and dilapidated facilities.
- The temporary structures in TA-59 will be removed and potentially replaced with permanent structures.
- The Two-Mile Mesa North area (TA-58) will be divided into five developable units and will be designed with a lower density than TA-03. Construction of larger and taller structures will be allowed because of the natural screening that exists along the perimeter. Future land use will be similar to TA-03 with no heavy experimental, SNM, or support services. The Core Planning Area is the proposed location of the NRSC.
- TA-62 will remain undeveloped as it provides a buffer along the northwest.



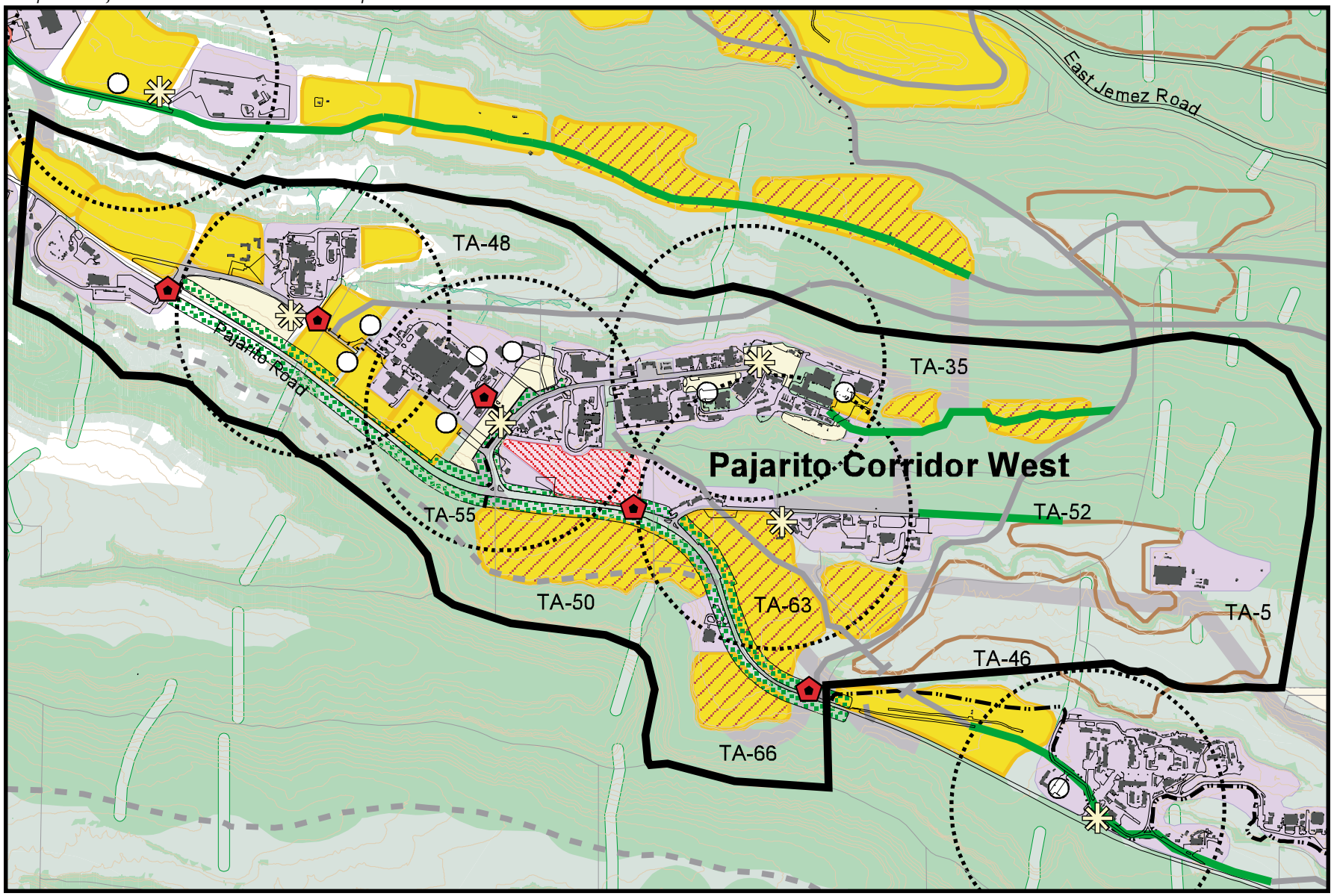
Map V-2: Core Area Development Plan



2. *The Pajarito Corridor West Planning Area*

- The Pajarito Corridor West Planning Area consists of TA-48, TA-64, TA-55, TA-50, TA-35, TA-63, TA-52, and TA-66.
- Revitalization visions will take under consideration that this planning area is the second most populated planning area and currently houses the Laboratory's core plutonium activities.
- The planning area's circulation along the narrow mesa will be evaluated to determine the best means of resolving the current safety and security problems.
- New development within TA- 35 and –50 will require some of the existing facilities to be replaced.
- Future development around TA-55 will require new circulation patterns to meet security needs and two access/egress routes to improve traffic safety.
- Revitalization for this planning area includes the development of a pedestrian campus environment; however, heavy experimental and SNM will still maintain an industrial character due to their facility needs.
- Future development in the planning area will concentrate on supporting transit options.

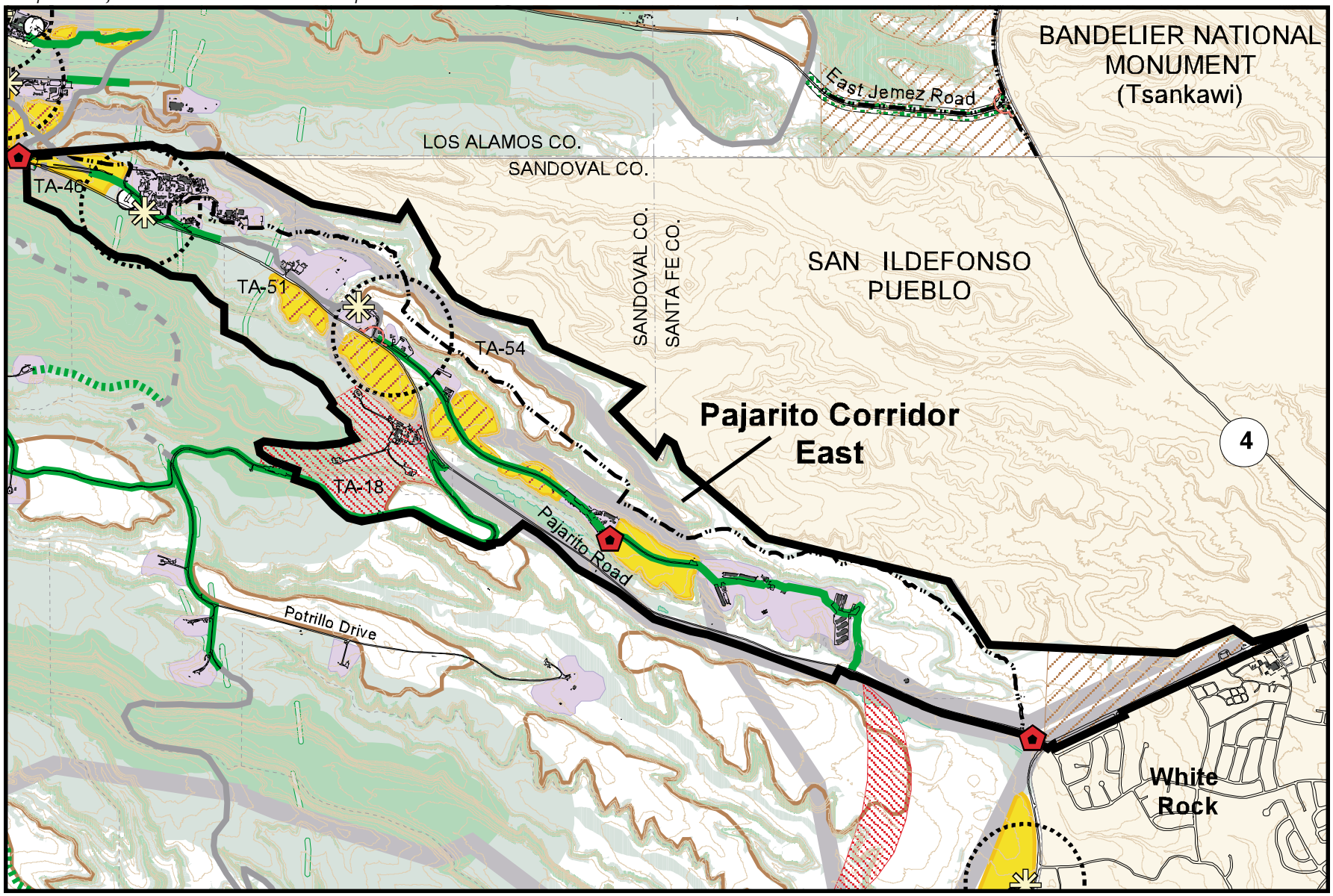
Map V-3: Pajarito Corridor West Area Development Plan



3. *The Pajarito Corridor East Planning Area*

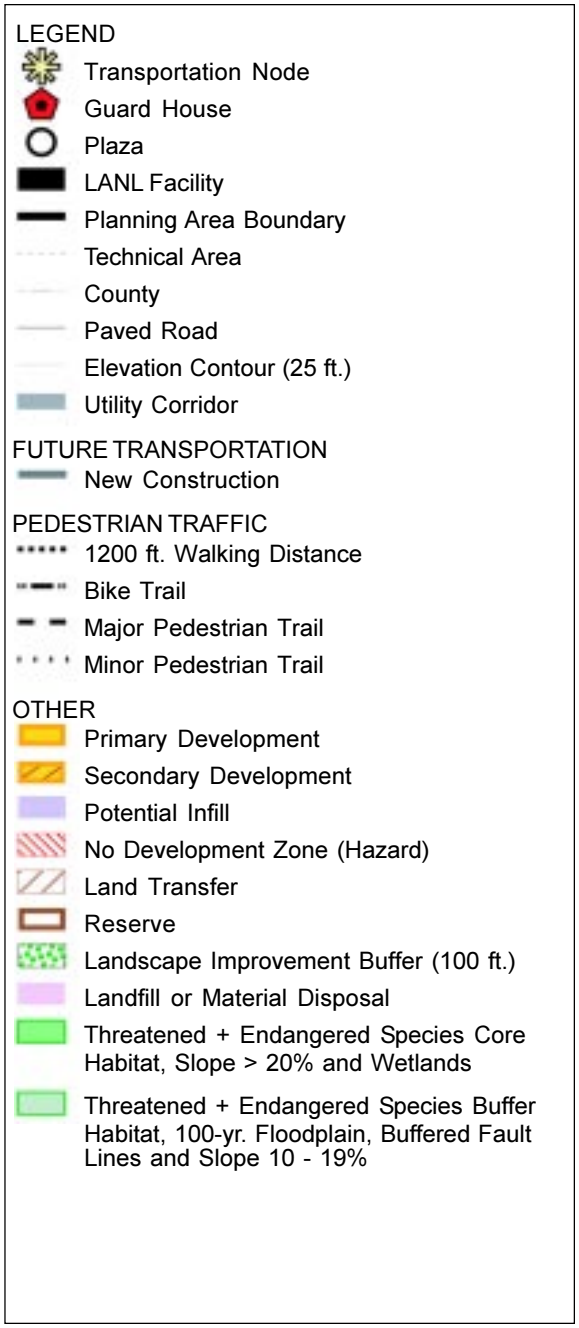
- The Pajarito Corridor East Planning Area consists of TA-46, TA-18 and TA-54.
- The development criteria for this planning area will include: low density development, the establishment of highway setbacks, and low environmental impacts.
- New developments will potentially be planned to occur adjacent to TA-46 and TA-54.
- TA-18 will be closed and its functions relocated to other Laboratory or DOE sites. Redevelopment of TA-18 is unlikely due to site contamination concerns.
- To improve circulation, the main road at TA-54 will be connected back to Pajarito road. (There are only limited opportunities for improving circulation in the other TA's in this planning area.)
- Redevelopment of TA-46 will be designed to accommodate transit and will meet a five-minute transit walking distance design criteria. (There are only limited opportunities for accommodating transit in the other TA's in this planning area.)
- Bike paths are proposed to provide access into TA-63 and the Pajarito West Planning Area via Canada del Buey Canyon.
- Sections of Pajarito Road may be closed and a new bypass road constructed between Pajarito and East Jemez Roads. Pajarito Road will remain open to the public where it passes through the Pajarito East Planning Area and connects to the new bypass road.

Map V-4: Pajarito Corridor East Area Development Plan

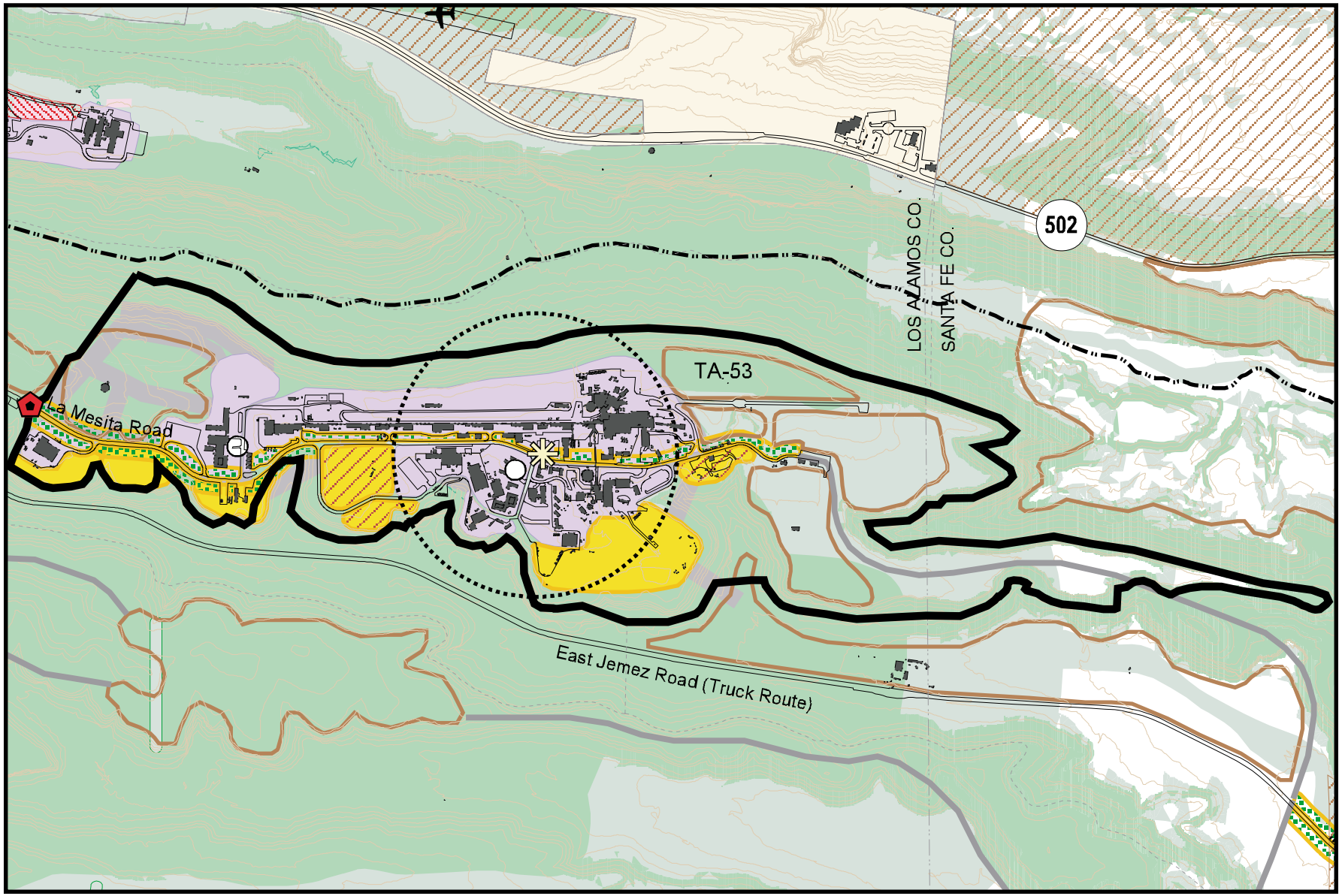


4. The LANSCE Planning Area

- The LANSCE Planning Area consists of those portions of TA-53 located on the mesa.
- Long-term plans for growth in this area will include potential infill development since the number of developable tracts limits expansion in this area.
- Revitalization for this planning area will include the development of a pedestrian friendly campus environment and will be designed with most activities located within a central 5-minute transit walking area.
- The opportunity to create a loop road will be considered, as part of the revitalization plan, to improve circulation and safety by extending the existing primary road east to connect with East Jemez Road.
- A linkage between LANSCE and TA-5 will be constructed as part of the AHF project.



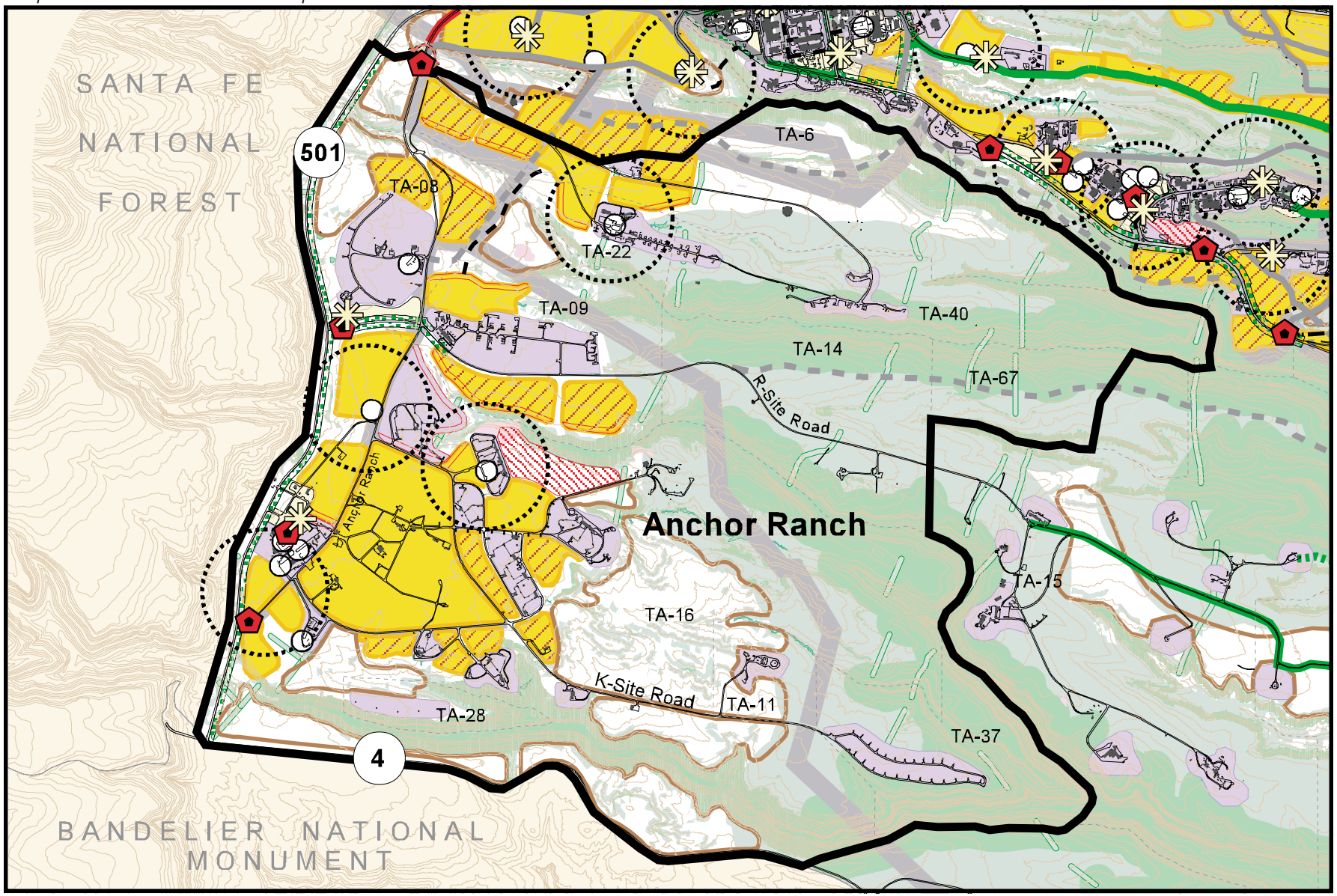
Map V-5: LANSCE Area Development Plan



5. *Anchor Ranch Planning Area*

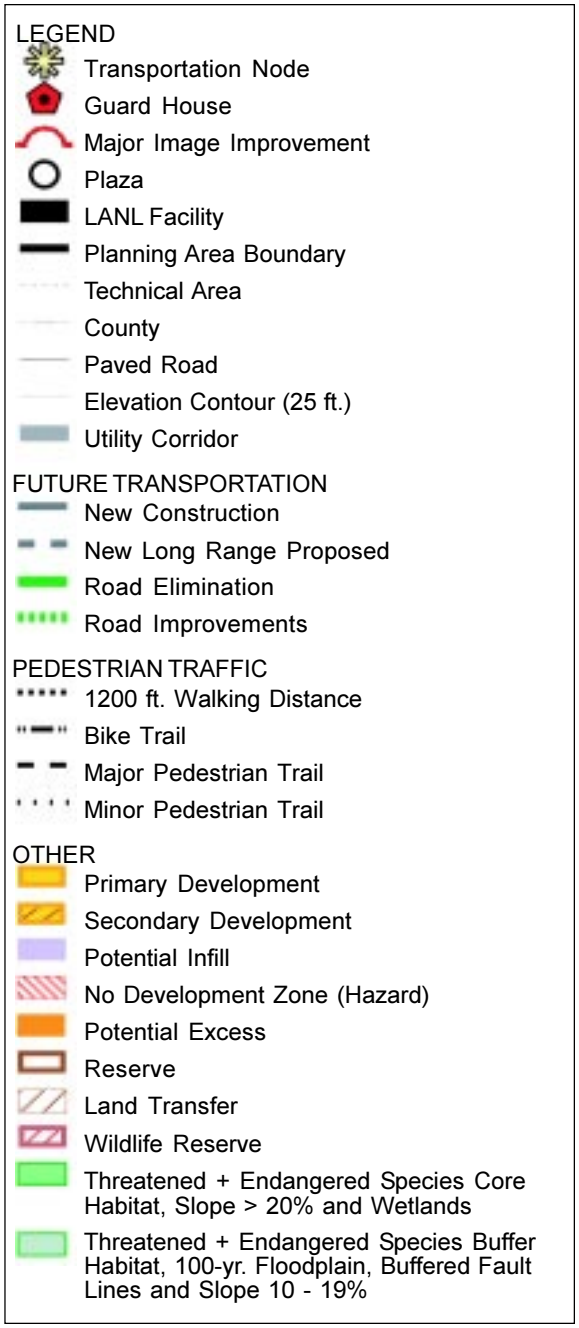
- The Anchor Ranch Planning Area consists of TA-6, TA-8, TA-9, TA-11, TA-14, TA-16, TA-22, TA-28, TA-37, TA-40, and portions of TA-67 and TA-69.
- Proposed development will be focused on the western half of the planning area. This planning area has considerable room for growth, but large land areas will be required to accommodate safety and security needs, therefore, infill development is recommended.
- The Eastern Half of the planning area is largely undeveloped and is proposed to remain undeveloped due to environmentally and physically sensitive lands.
- Low-density development will be recommended due to the nature of the scientific work.
- Two main campuses will be created, one within the existing TA-8 administrative/office area and the second within a new area proposed in TA-8.
- A new main entrance is proposed south of TA-8, as well as development outside the security fence in this area.
- Some building development areas will be designed to include a pedestrian friendly campus environment, which will exclude private vehicles from entering these areas.

Map V-6: Anchor Ranch Area Development Plan

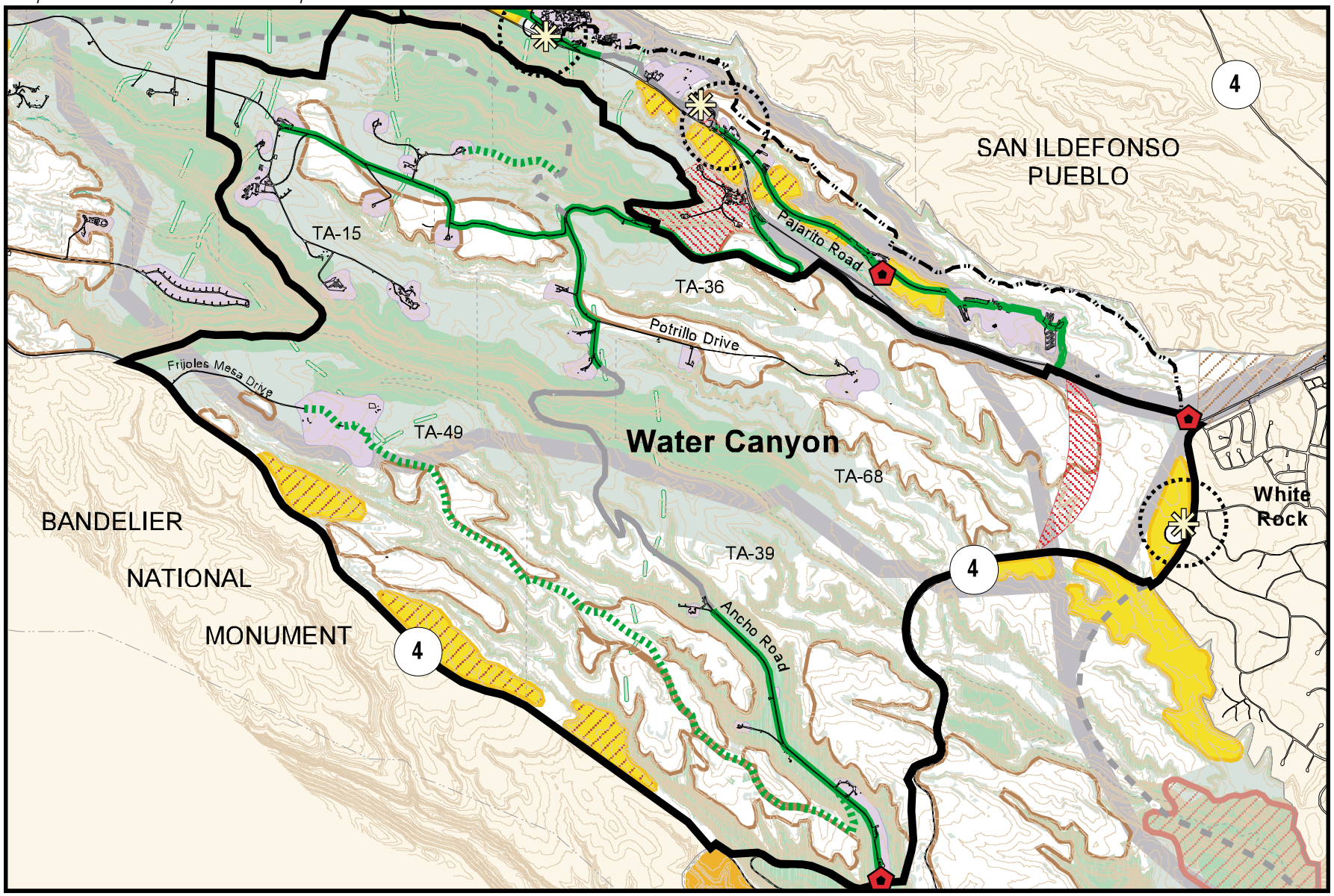


6. *Water Canyon Planning Area*

- The Water Canyon Planning Area consists of TA-15, TA-36, TA-39, TA-49, TA-68, and portions of TA-67.
- This is the largest planning area, with much of the existing development occurring in the canyon bottoms and some on the mesa tops.
- Development and design criteria's for planning in this area include low intensity development patterns, extensive buffer/open space land uses and large buffer areas for safety and security needs.
- Development will be limited in the western half of the planning area due to sensitive environmental and physical land constraints.
- The easternmost track will be developed in a manner compatible with the residential development of White Rock.
- Proposed development will focus on infill with very little new development proposed outside of the existing developed areas.



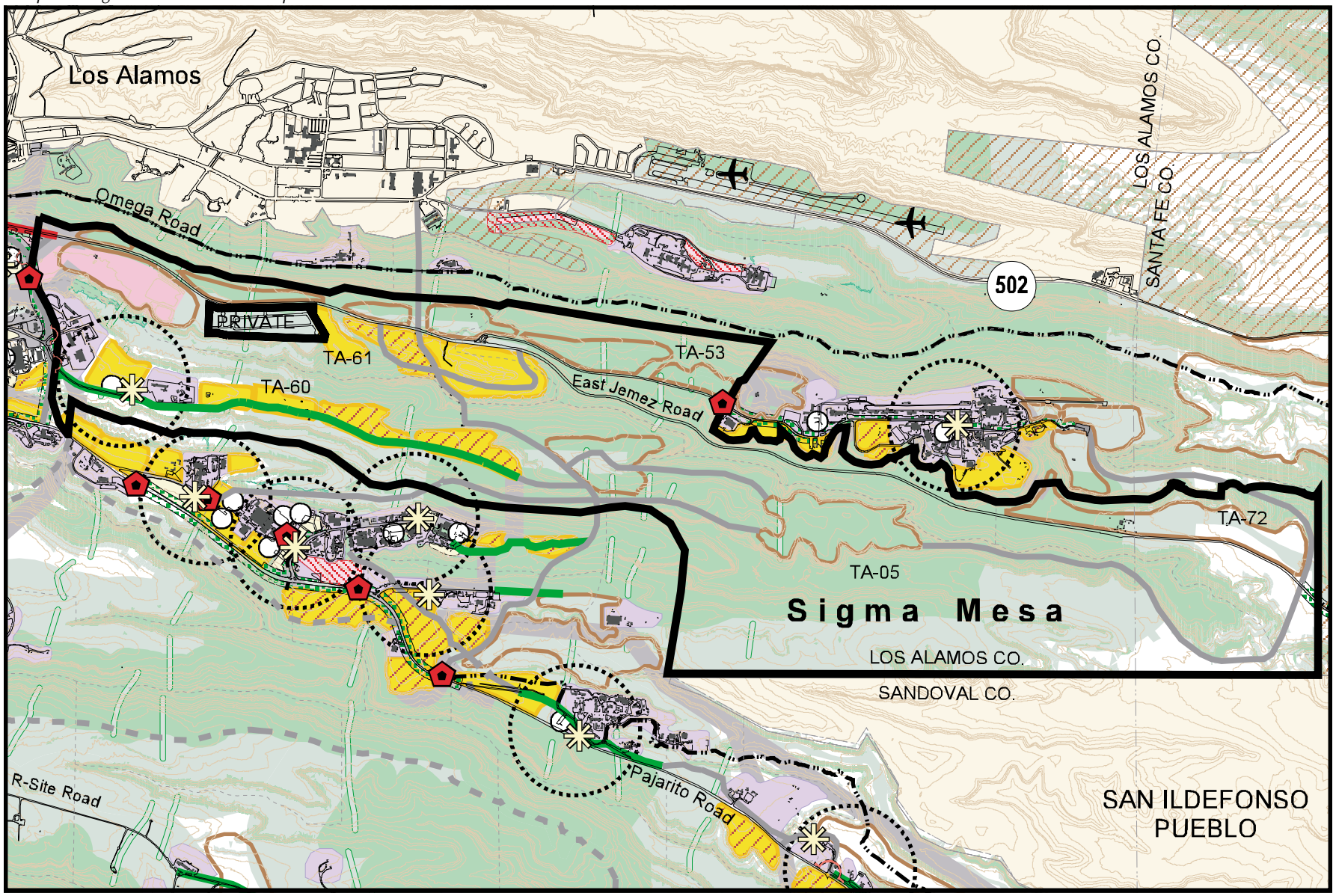
Map V-7: Water Canyon Area Development Plan



7. The Sigma Mesa Planning Area

- The Sigma Mesa Planning Area consists of TA-60, TA-61 and TA-5.
- Considerable development growth is planned for this area since it is predominantly undeveloped.
- Redevelopment will include relocating some roads, and the relocation of the grounds operations and support services to this planning area. The eastern portion of Sigma Mesa will be developed to accommodate support services related to INP.
- A TA-03 East bypass road will be constructed to provide proper truck access to Sigma Mesa.
- An eastern loop road will be constructed to connect Pajarito Road to East Jemez Road.
- A second bridge, crossing Los Alamos Canyon, will be constructed at the northern end of the eastern loop to provide access to the townsite near the intersection of DP Road and Trinity Drive.
- Land within TA-05 will be reserved for development of the AHF.

Map V-8: Sigma Mesa Area Development Plan



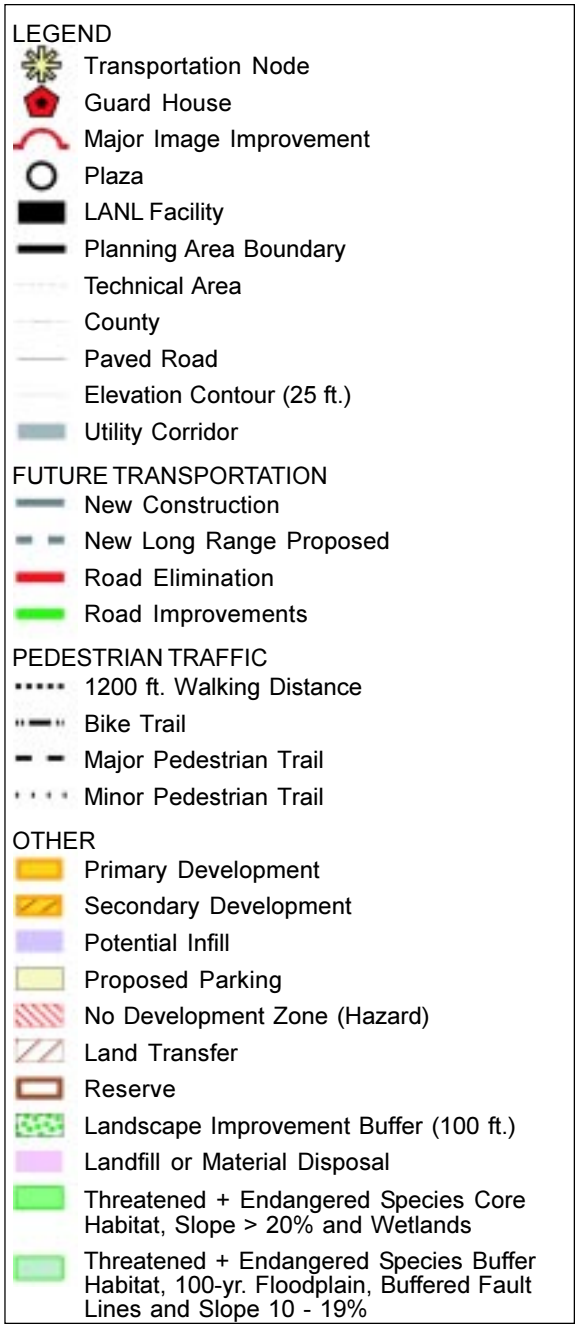
8. *The Omega West Planning Area*

- The Omega West Planning Area currently consists of TA-43, TA-41, TA-2, TA-21 and TA-73. All technical areas in this planning area will eventually be decommissioned.

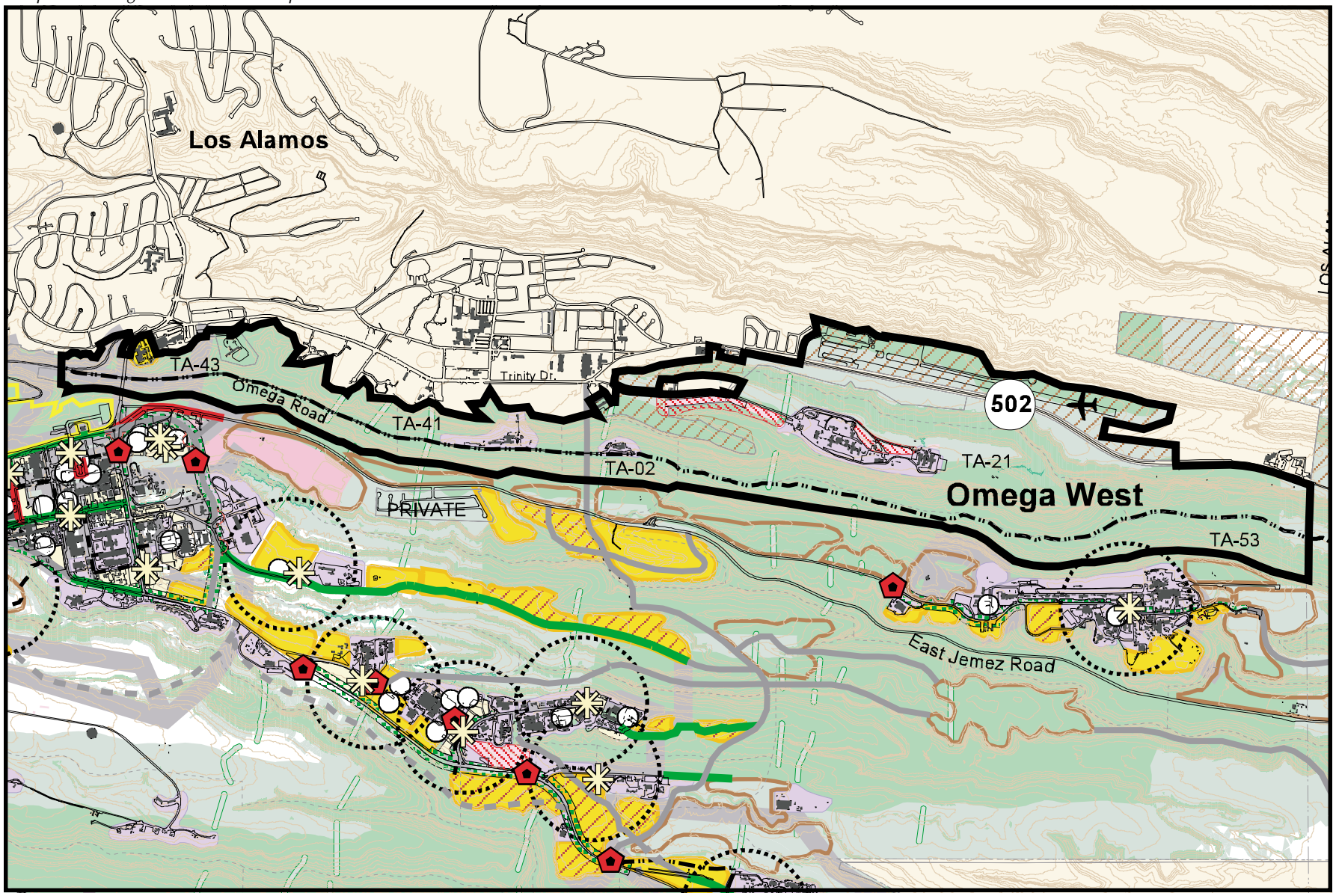
- The Airport will continue to be operated by the County of Los Alamos through a lease agreement with the Laboratory.

- The ownership of the DOE-LAAO building and TA-41 will be transferred to the County of Los Alamos.

- Hiking and biking trails will be located and planned for from the area's eastern end to the west and into the Core Planning Area.



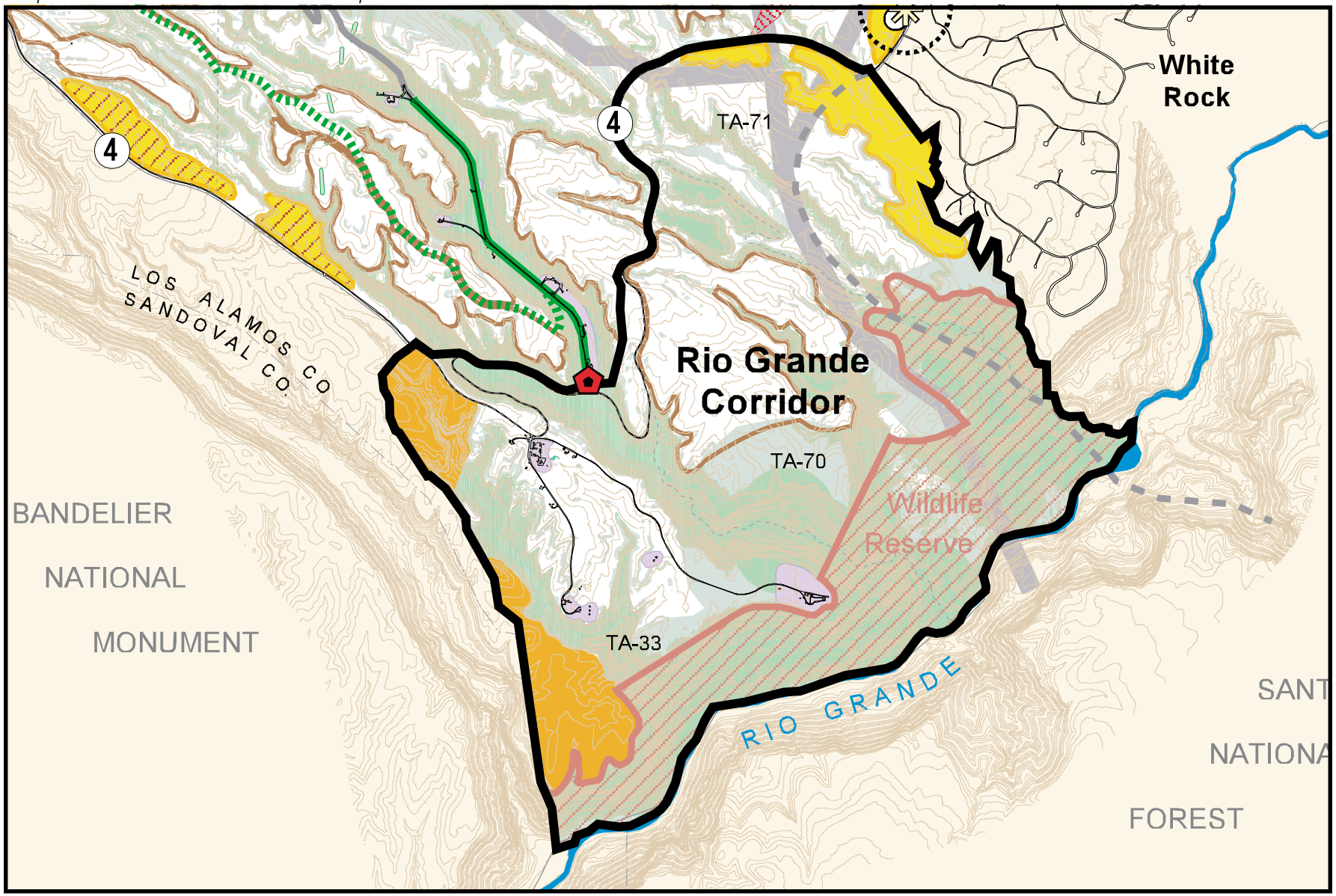
Map V-9: Omega West Area Development Plan



9. The Rio Grand Corridor Planning Area

- The Rio Grand Corridor Planning Area consists of TA-70, TA-71 and TA-33.
- TA-33 is currently the only developed technical area but it will be phased out. Two areas in TA-33 are potential excess land.
- A large portion of this planning area will remain as buffer and will support "green" environmental or open-air scientific activities.
- The newly created wildlife preserve along the Rio Grande Rive will continue to be managed by Bandelier National Monument.
- Long-term plans for growth in this area will include the construction of an additional 115kv powerline, a future road to Santa Fe, and potential development in the northernmost sections.

Map V-10: Rio Grande Corridor Area Development Plan

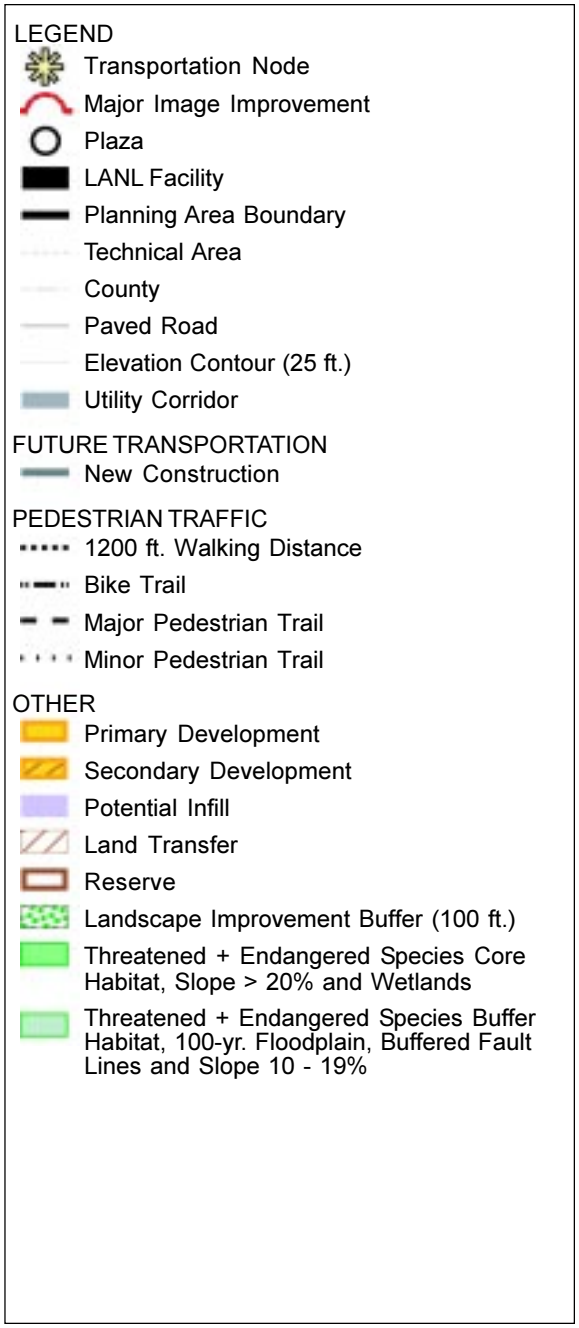


10. The Land Transfer Planning Area

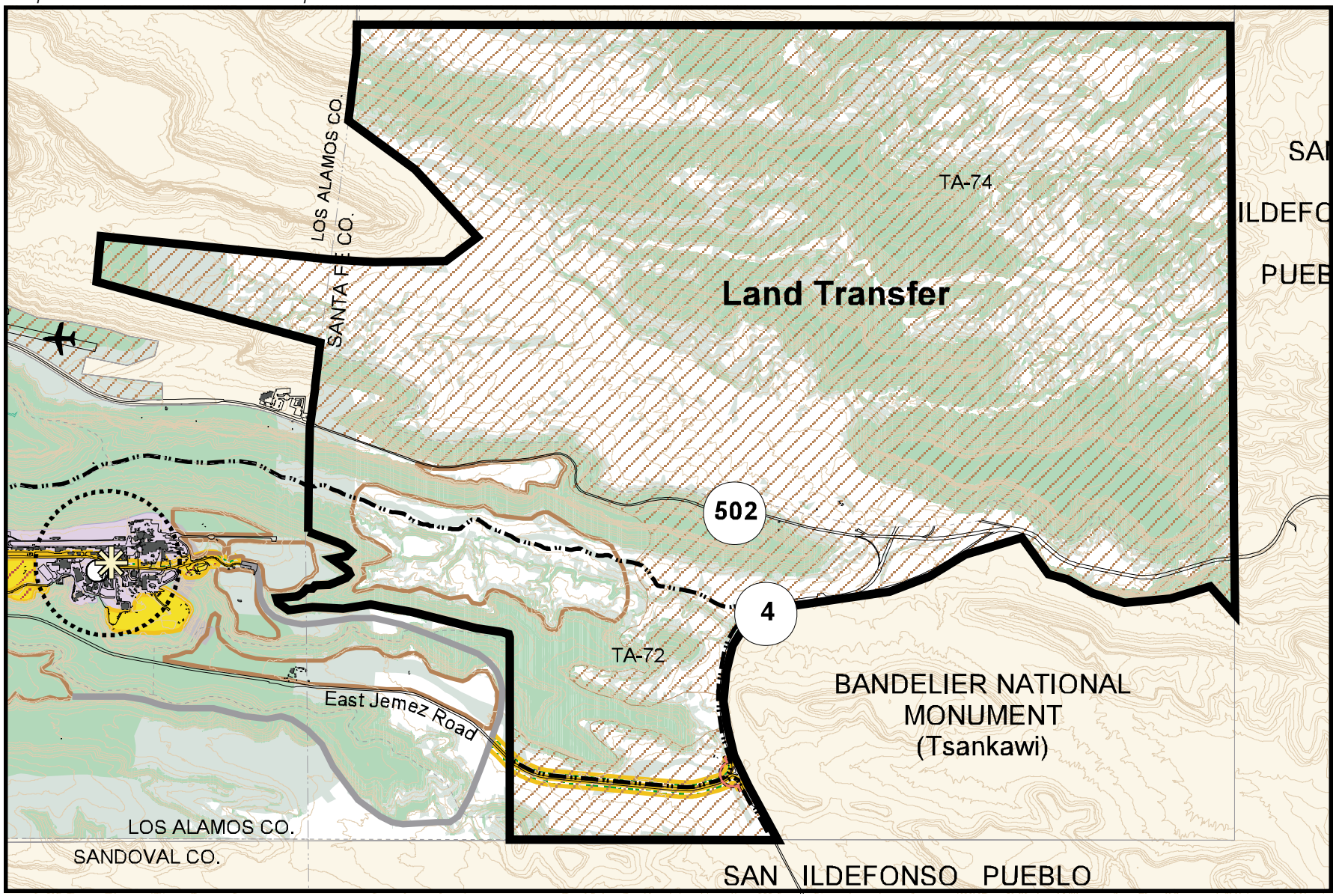
- The Land Transfer Planning Area consists of TA-72 and TA-74.

- No Laboratory development is planned, however, this planning area is critical for maintaining ` access to the Laboratory.

- All of this planning area, except for portions of TA-72, east of TA-53 is planned to be transferred to the County of Los Alamos and the Pueblo of San Ildefonso. This process may take up to 10 years or more.



Map V-11: Land Transfer Area Development Plan



VI. MONITOR AND CONTROL

A. IMPLEMENTATION PLANNING

The construction of new development and the management of existing development require consistent and reliable coordination and implementation procedures. The Laboratory's development and management planning can be improved by strengthening data consistency, programmatic directions, facility maintenance plans, reinvestment strategies, and the coordination of institutional priorities, goals, and objectives. Determining a process for establishing project priorities would also strengthen the Laboratory's implementation planning.

1. Business Management Oversight Process

The University of California (UC) and DOE annually document formal performance measures—most recently, in the *Fiscal Year 2000 Business Oversight Process Report (BMOP)*. The BMOP evaluates the management practices of the Laboratory regarding personal property, finances, human resources, procurement, information, and facilities.

The overall rating of facilities management for FY00 is "Excellent" and is an improvement over the "Good" ratings received since 1996. To improve implementation planning, the BMOP report identifed specific recommendations for various project management practices.

Improvements to Laboratory facility maintenance and configuration management practices that contribute to effective implementation are discussed in the BMOP report. The BMOP includes specific recommendations for continued management monitoring and verification of configuration management at nuclear facilities. Laboratory configuration management is still in the implementation or verification phase and is due to be complete in FY01.

Management practices most directly related to facilities and infrastructure are maintenance management, project management (PM), configuration management, physical assets planning, energy management, utilities, and real property management.

BMOP Areas for Improvement

- Increase senior Laboratory management attention, involvement and participation with PM.
- Widen involvement and participation by all responsible groups in monthly reviews of projects.
- Integrate institutional strategic planning processes.
- Improve integration of program, line, and project management functions.
- Improve the project prioritization process for line-item and GPPs.
- Upgrade cost accounting and earned value reporting to be accurate and up-to-date.
- Develop a process for tracking and resolving institutional project management issues and deficiencies.
- Refine and enhance UC performance measures to maximize PM performance.
- Develop consistent engineering, safety, and quality assurance standards.
- Improve retention of sufficient PM expertise with capabilities to meet projected workloads.
- Identify a Laboratory champion for PM.

2. Data Quality Improvement

Developing consistent data collection and categorization methods would improve information sharing and reliability at the Laboratory. The adjacent *Figure VI-1* illustrates the many Laboratory sources that provide information for the CSP. The number of sources and their varied methodologies for collecting and reporting data contribute to difficulties in presenting consistent and reliable information.

Current Laboratory databases sometimes cannot be compiled or presented with one another due to inconsistencies in the criteria by which the data was collected or compiled. Conflicts also can occur between identical data categories provided from different sources. For instance, information from Computer Aided Facilities Management (CAFM), and the Condition Assessment Survey (CAS), or a division can conflict with similar reports related to building occupancy, building assignments, facility condition, etc.

A real-time electronic link between the Geographic Information Systems (GIS) and the FWO databases has been established. This begins an integrated information system that could be used for planning and could aide in emergency management. This is the type of system that is used in many 911 systems throughout the nation. A potential link could be made to other DOE facilities for sharing data. This is a possiblity for emergency services.

Databases or spreadsheets used for planning include:

- Program List
- Human Resources (HRP), for quering populated areas.
- ESH Spacial databases - provides SWIES data.
- FWO databases: CAFM,CAS,FIMS.
- FIMAD Spatial Databases - provide environmental restoration and SWIES data.
- JCNNM-UMAP Spacial Databases - provides geographical databases of facilities, structures, and utilities.
- Other LANL sources
- Other Government agencies for various planning issues such as transportation, neighboring terrain, census information, etc.

Figure VI-1: Data Sources

3. Institutionally Consistent Facility Maintenance and Reinvestment Strategies

The Laboratory needs a consistent maintenance and strategic reinvestment strategy. The strategy needs to be developed with Laboratory and DOE management participation and needs to be incorporated into the strategic and operational management process of the Laboratory.

While the Laboratory continues progress in maintenance program execution, indicators of maintenance funding related measures continue to show stagnation or even decline. In fact, seven of 17 FMUs failed the capital reinvestment indicator, and six of the 17 FMUs failed the indicator for maintenance funding.

According to the BMOP, maintenance funding dropped from $54.3 million in 1999 to $48.1 million in 2000. Backlog costs for the same period rose from $75.8 million to $101.2 million. Likewise, preventative maintenance and corrective work orders fell in the period.

A growing backlog of facility and infrastructure maintenance and D&D projects is resulting in a “wave” of ever increasing budgetary requests for these types of activities. The BMOP noted that facilities maintenance problems did not relate to a lack of maintenance programs but to a lack of funding for those programs. Laboratory and DOE management must become engaged in the prioritzation of the maintenance and reinvestment efforts of the Laboratory.

4. Consistent Goals, Objectives, and Priorities

Laboratory facility and infrastructure project implementation could be improved with earlier and better coordination between the actual programmatic activities and the various planning functions conducted at different levels within the Laboratory, see *Figure VI-2*.

The Laboratory prepares numerous reports and planning documents in order to meet its management obligations to DOE. The plans vary in scope and purpose.

- Broad Laboratory-wide documents such as the *Institutional Plan*, the *Strategic Plan* and the *CSP* attempt to incorporate the physical facility needs of the programs and line organizations.
- Program plans are prepared that address the specific work of the Laboratory and identify specific physical needs for that work.
- Business plans are prepared for other specific disciplines or directorates and address the costs and benefits of current operations versus future anticipated work.

While the individual plans have validity within their realm, they often are not well inegrated with the other programmatic work of the Laboratory. As a result, the proposed program plans may compete for resources, including people, facilities, and funds.

Figure VI-2: Laboratory/ Work Cycle

A coordinated institutional mechanism is needed to integrate the various programmatic needs. The mechanism should first prioritize program initiatives tehn prioritize projects and the required resources for implementing the programs. As stated above, Laboratory management must play an integral role in directing the prioritization process.

The previous *Figure VI-2 Planning/Work Cycle* illustrates a generalized five-step process for conducting Laboratory planning and work activities. The outer cycle in the illustration is the general process description. The middle cycle illustrates the programmatic planning and work cycle at the Laboratory. The inner cycle describes PM-1's planning role in producing the TYCSP.

Initiatives for Implementation Planning

- New performance measures were developed jointly by a team of DOE, UC, and Laboratory experts to strengthen oversight of construction management. Expected results include recommendations for improving planning and project development and enhanced personnel qualifications, and will examine best-in-class project delivery applications.
- Advisory panels are being used to improve project management. One such panel is the Project Management Advisory Panel (PMAP), which also does senior Laboratory management reporting to the congressional Project Management Panel.
- The Laboratory, in response to new guidance in DOE413.3, is streamlining Laboratory procedures and improving standardization of new construction project management requirements.
- Coordination of the CSP with the Integrated Resource Management Plan (IRMP) is ongoing.

B. FINANCIAL CONSIDERATIONS

1. Current Facility and Infrastructure Funding

DOE facilities and infrastructure construction projects have traditionally been funded through the line item budgeting process. The process applies to budget requests for facilities that are over $5 million. The process often results in project schedules that extend up to 10 years to take a project from design through construction.

Construction projects meeting the same needs and requirements as line-item projects but having an estimated cost of less than $5 million are funded as General Plan Projects (GPPs). Either DP-10 or DP-20 currently funds GPPs at the Laboratory. See *Figures VI-3* and *VI-4*.

2. Maintenance Funding

The budget for Los Alamos National Laboratory historically has focused on programmatic research and development and has not consistently addressed facilities and infrastructure operations, maintenance, and D&D needs. Laboratory facilities have generally operated with little or no formal maintenance budgeting.

In FY00, less than 1% of the total Laboratory budget was reinvested in facility maintenance. The International Facility Management Association (IFMA) standards indicate that an average 8–10% annual reinvestment is required to cover facility maintenance, increased utility costs, and new operations. Over the last five years, Laboratory utility costs have increased 5–20 % per year. From FY99 to FY00, utility costs increased 9.51%.

3. Cerro Grande Fire Rehabilitation Funding

A maverick funding source for FY01 is the Cerro Grande Fire Rehabilitation project, which addresses facilities and infrastructure damaged or lost as a result of the Cerro Grande Fire. In addition, some of the funding addresses risk mitigation across the site. While projects are aggressively proceeding, FY01 funding is urgently needed to maintain the current rate of progress. The total project funding of $341 million is spread between $138 million for FY00, and $203 million for FY01 and beyond. $98 million of the $203 million in FY01 represents construction projects.

Figure VI-3: Line Item Construction Funding Chart

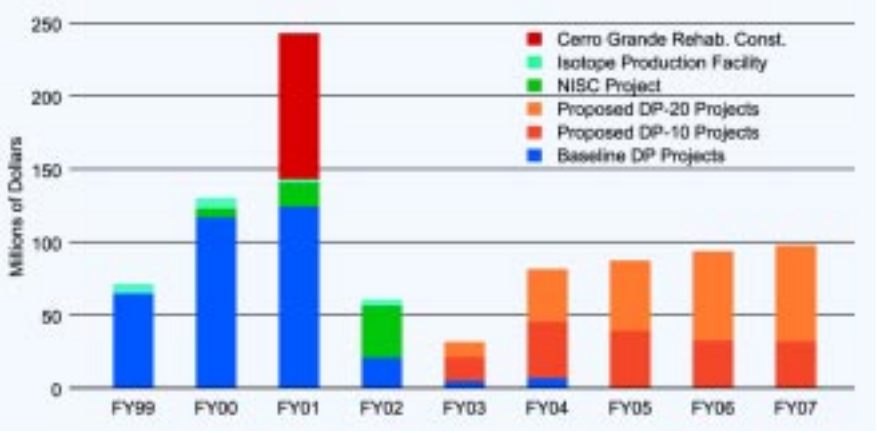
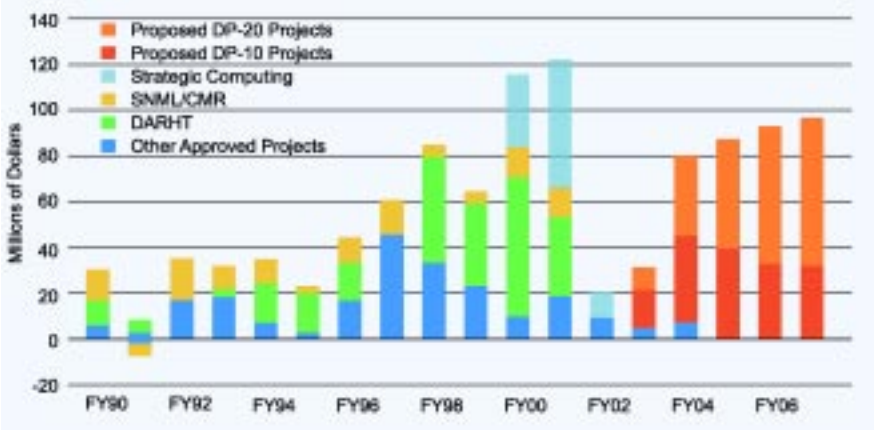


Figure VI-4: DP-10 and DP-20 Funding Chart



4. Maximizing Budget Efficiencies

Consolidating operations, new capital funding techniques, and contractual agreements can augment traditional line item and GPP funding and improve the effectiveness of budgeted dollars. Together these new efforts stretch the dollars for construction, operations, maintenance, and D&D.

Laboratory divisions are attempting to consolidate their operations to reduce the amount of total square footage that needs to be maintained and to reduce utility expenditures. The Laboratory's annual budget escalation does not adequately address increased costs of operation due to inflation, the cost of maintaining aging facilities, the maintenance backlogs, utility increases, and new facility operations.

The design-build concept for replacing office use buildings that fall within GPP funding is another technique to improve budgetary efficiency. Design-build contracts cover project costs from initial design through construction to furnishings and occupancy. Due to the maximum project funding limit of $5 million, for GPP projects, design-build projects generally result in buildings that do not exceed 20,000 gross square feet. GPP funded design-build contracts generally are competed in 12 – 15 months and are preceded by 4–6 months for project development and design.

Third party financing and turnkey construction could be employed for new facilities. This technique requires Congressional approval and secure financing from the private sector. Third party financing has not been used by DOE, but it has been successfully implemented within other federal agencies. The benefits of third party financing are compelling: construction can be completed much faster and costs can be kept lower than traditional line item projects. Also, external project management can translate into a single point of accountability, clearly defined roles and responsibilities, and rigorous adherence to cost schedules and projects specifications.

Initiative for Fiscal Issues

- To obtain better value for capital funds expended, project management and delivery improvements methods are being used to manage costs, reduce building turnaround time, and improve the designed useful life of facilities.

VII. PRIORITIZED PROJECT LIST

A. PROGRAM SPONSORS

There are six major DOE secretarial offices that presently sponsor current and future projects at the Laboratory. Below are the sponsor programs and the acronyms used on the project tables.

PROGRAM SPONSORS	
Defense Program / Stockpile Stewardship and Other	DP-SS (DP-10)
Defense Program / Weapons Stockpile Management	DP-SM (DP-20)
Environmental Restoration / Waste Management	ER/WM
Nonproliferation and National Security	NN
Office of Science (formerly Energy Research)	O of S
Infrastructure and Defense Program Landlord	DP-LL

B. PROJECT FUNDING TYPES

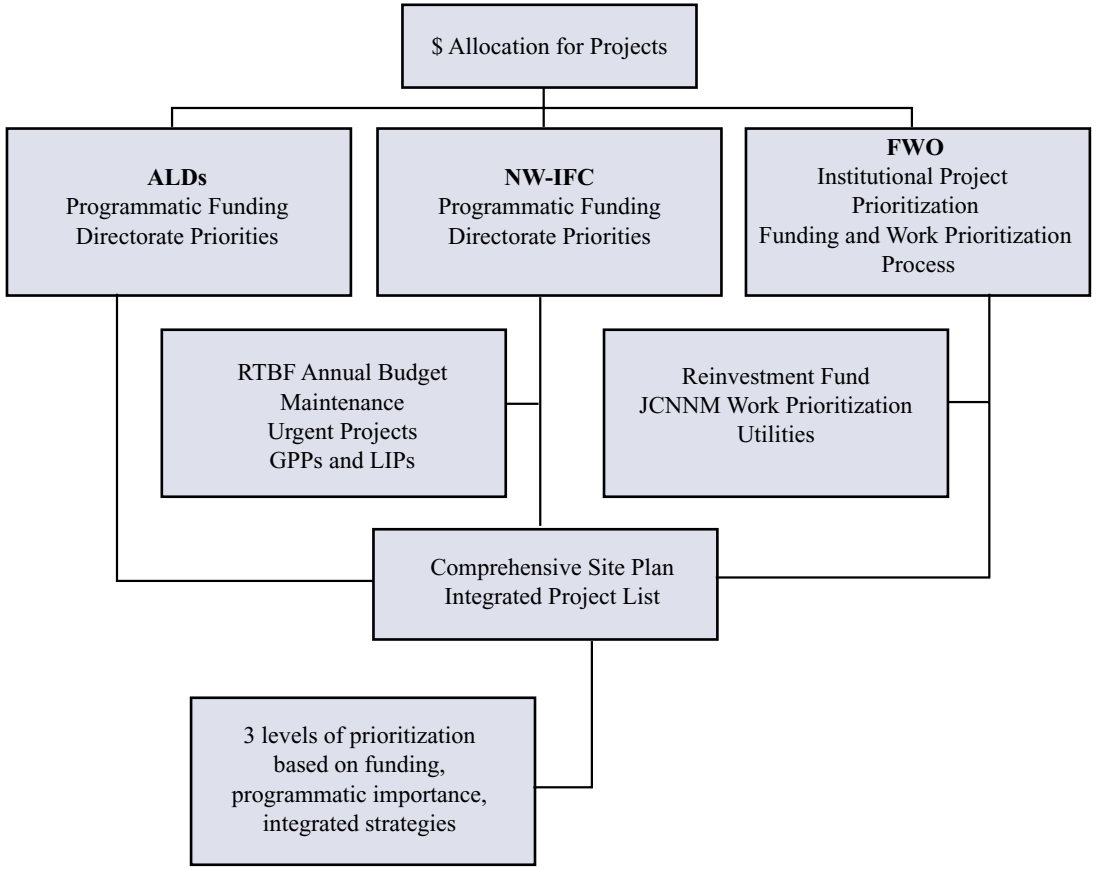
Projects are funded by several types of funding. The funding types are line item projects (LIP), general plant project (GPP), expense, and third party. LIP funds are program dollars allocated by Congress for specific projects and initiatives. GPP funds are program operations funds that are allocated for capital improvements and betterments needed to meet program initiatives. Expense funds are program operating funds supporting major maintenance and facility activities that are needed to meet program missions and do not result in capital improvements or betterment of a facility. Third party funds are currently used only for energy savings projects at the Laboratory; however, there are plans and initiatives to obtain third party funds for several revitalization projects. The mortgage created when using third party funds for revitalization projects would be paid over time with savings from program operating funds and possibly some LIP or GPP capital funds.

C. PROJECT PRIORITIZATION

Figure VII-1 is a diagram that illustrates the sources for project funding and prioritization. The Laboratory receives funding for projects from various sources that is allocated to various organizations. Each organization prioritizes their projects by their own method and submits their lists to the Site Planning and Development Group for integration into an institutional list. The *CSP* compiles the project list based on three levels of prioritization: High, Medium, and Low. Proposed out-year projects that result from recommendations in the *CSP* or other facility planning documents may not be shown due to a lack of funding or identified sponsorship.

The current prioritization process can create a sense of inconsistent priorities among different organizations in the Laboratory. Institution-wide input, review, and utilization of the *CSP* as a planning tool and guiding document will minimize inconsistency in the Laboratory's priorities, goals, and objectives in development.

Figure VII-1: Project funding and prioritization



D. THE PROJECT LIST

The *CSP 2001* project list was compiled from the Laboratory project call list as well as from interviews with senior management, program offices, PM Division, and others. An initial priority sort was completed based on information acquired during the *CSP* update and interviews.

The project priority list was compiled with High, Medium, and Low categories based on the following criteria.

High

- Funded projects with a construction project data sheet (CPDS) or similar document.
- Projects with high programmatic importance.
- Integrated strategy projects.

Medium

- Projects related to continuing existing programs.
- Revitalization projects for continuing and enhancing existing Laboratory functions.
- Important projects for the site, facilities, or programs, but not yet baselined.

Low

- Projects with no funding and/or minimal near term need.

The project priority list contains current and proposed Laboratory projects over the next 10 years. The list indicates the project's priority, the program sponsor, the type of project funding, the estimated Total Project Cost (TPC), and the distribution of that funding from FY01–FY11.

To be included, projects must have an estimated Total Project Cost (TPC) of $500,000 or greater. Figures represent project baselines or order of magnitude placeholders to be further defined following additional site and project planning. Projects listed within shaded areas are new to the list this year. Only projects that result in changes to the site, facilities, or infrastructure at the Laboratory are included. Program or experimental projects are not included unless there is a facility or site modification impact.

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FY01 $K	FY02 $K	FY03 $K	FY04 $K	FY05 $K	FY06 $K	FY07 $K	FY08 $K	FY09 $K	FY10 $K	FY11 $K
DP-10 TRI-LAB Line Item Construction Plan															
H	Strategic Computing Facility (SCC)	DP-10	LIP	98,972	56,000	11,070									
H	SM-43 Replacement	DP-10	LIP	111,700			16,120	37,640	37,540	16,800					
M	Vulnerable Facility Replacement Program	DP-10	LIP	60,000				1,000		9,000	10,000	10,000	10,000	10,000	10,000
M	Rad Liquid Waste Upgrade	DP-10	LIP	20,000					4,000		16,000				
M	Power Grid Infrastructure Upgrade	DP-10	LIP	15,000						15,000					
M	Infrastructure Roof Upgrades	DP-10	LIP	21,000						3,000	3,000	3,000	3,000	3,000	6,000
M	DX Consolidation	DP-10	LIP	20,000						3,000		10,000	7,000		
M	LANSCE Support Complex	DP-10	LIP	18,000						3,000		7,000	8,000		
M	LANL Infrastructure Revitalization	DP-10	LIP	68,000							3,000		10,000	15,000	40,000
Subtotal – DP-10 TRI-LAB				**432,672**	**56,000**	**11,070**	**16,120**	**38,640**	**41,540**	**49,800**	**32,000**	**30,000**	**38,000**	**28,000**	**56,000**
DP-20 Line Item Projects															
H	CMR Upgrades	DP-20	LIP	128,568	13,280										
H	TA-18 Relocation	DP-20	LIP	100,000			10,000	20,000	30,000	30,000	10,000				
M	CMR Replacement	DP-20	LIP	375,000				25,000	50,000	80,000	100,000	95,000			
Subtotal – DP-20 Line Items				**603,568**	**13,280**		**10,000**	**45,000**	**80,000**	**110,000**	**110,000**	**95,000**			
Other Line Item Projects															
H	DARHT (Phase 2)	DP-10	LIP	155,943	34,460										
H	TA-53 Isotope Production Facility	DP-10	LIP	18,040	5,349	1,668									
H	NISC	NN	LIP	63,020	17,294	35,978	1,450								
H	NMSSUP, Phase I	DP-20	LIP	74,634	20,391	25,761	9,785	3,648	1,907						
H	Advanced Hydrotest Facility (formerly PRISM) ($1.6B to $1.9BB Range)	DP-10	LIP	1,600,000	15,000	35,100	65,100	121,000	TBD	TBD	TBD	TBD	TBD	TBD	TBD
H	APT / Triple A Project	DP/NE	LIP	176,772	45,047	17,824									
H	Spallation Neutron Source Line Accelerator	OE/SC	LIP	204,516	41,865	54,440	57,401	15,466	1,722						
Subtotal – Other Line Items				**2,292,325**	**169,406**	**171,087**	**142,970**	**140,469**	**3,629**						
CERRO GRANDE REHABILITATION PROJECTS															
H	DARHT (BCP)	DP	LIP	6,100	6,100										
H	Emergency Operations Center	DP	LIP	20,000	20,000										
H	Multi-Channel Communication System	DP	LIP	8,000	8,000										
H	Two Office Buildings (TA46 & TA16)	DP	LIP	10,000	10,000										
H	Site-wide Fire Alarm Replacement	DP	LIP	25,000	25,000										
H	TA-50/54 Waste Mgt. Risk Mitigation	DP	LIP	29,100	29,100										
Subtotal – CGRP				**98,200**	**98,200**										
GPP & EXPENSE PROJECTS															
H	Fire Suppression Yard Main Replacement (TA-55)	DP-20	Expense	15,905	6,532	2,278									
H	Short Pulse Spallation Source (SPSS)	DP-10	Expense	25,400	5,112	5,149	556								
H	High Power Detonator Facility	DP-20	GPP	4,500	1,500	3,000									
H	TA-53-64 Cooling Tower	DP-10	GPP	4,400	3,350	600									
H	TA-53-62 Cooling Tower Replacement	DP-10	GPP	4,881	1,170	300									
H	TA-15 Electrical Distribution Upgrade	DP-10	GPP	2,500	2,000	500									
H	Water Treatment (TA-3)	DP-10	GPP	3,500	3,500										
M	Electrical Infrastructure Safety Upgrade Program	DP-10	GPP	40,690	1,500	7,800	8,000	8,300	8,600	4,500					
M	Decontamination & Volume Reduction System	EM	GPP	4,740											
M	TA-50 Salt Removal Evaporator	DP	GPP	10,000		2,000	2,000	2,000	2,000	2,000					

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FYO1 $K	FYO2 $K	FYO3 $K	FYO4 $K	FYO5 $K	FYO6 $K	FYO7 $K	FYO8 $K	FY09 $K	FY10 $K	FY11 $K
M	TA-3-40 N161 G&D (refurbish old MEC plating shop)	DP-10	GPP	1,000			750								
M	Ventilation Upgrade, Lujan Center	DP-10	GPP	2,750			2,150								
M	West Road Connector to Mercury	DP-10	GPP	3,500			3,500								
M	Convert Heating System and Upgrade Controls at TA-48-RC1	DP-10	GPP	750			750								
M	HVAC/Electrical Upgrade, MPF-6	DP-10	GPP	600			600								
M	Otowi Floor Replacement/Upgrades	DP-10	GPP	5,080			2,500	2,500							
M	TA-3 Auditorium Bldg	DP-10	GPP	4,750				4,750							
M	Target Fabrication (Series of small upgrades)	DP-10	GPP	800				800							
M	East Loop Road Phase 1 (Gateway Connection)	DP-10	GPP	5,000				5,000							
M	Firing Sites Revitalization's Program (Series of GPP's Buildings)	DP-10	GPP	25,000				5,000	5,000	5,000	5,000	5,000			
M	TA-55 Site/Parking & Infrastructure Upgrade (2 projects)	DP-20	GPP	10,000					5,000	5,000					
L	Unused Roads Reclamation Projects	DP-10	GPP	1,000							500	500			
L	Other Safety Related Urgent Maintenance & GPPs	DP-10						10,000	10,000	10,000	15,000	15,000	15,000	20,000	20,000
L	Other Safety Related Urgent Maintenance & GPPs	DP-20						10,000	10,000	10,000	15,000	15,000	15,000	20,000	20,000
Subtotal – GPP And Expenses				**176,746**	**29,164**	**21,627**	**20,806**	**48,350**	**40,600**	**32,000**	**35,500**	**35,500**	**30,000**	**40,000**	**40,000**
ESA CONSOLIDATION PROJECTS															
H	WE Office Building	CGRP	GPP	5,000	5,000										
H	TSE Office Building	DP-10	GPP	4,750	4,750										
H	Bldg 202/GTS/41	CGRP	GPP	3,500	3,500										
H	Building 260 Reconfiguration	DP-10	GPP	3,000			3,000								
H	Utilities - Site Development	DP-10	GPP	5,000		5,000									
H	Roads - Site Development	DP-10	GPP	2,000		2,000									
H	FM Office Building & Craft Support	DP-10	GPP	3,000		3,000									
H	WETF Systems Refurbishment	DP-10	GPP	5,000		5,000									
H	TA-16-450 Gas Transfer System	DP-10	GPP	5,000			5,000								
H	MX Cold Shop	DP-10	GPP	5,000			5,000								
H	Central Auditorium, Build. 200	DP-10	GPP	500			5,000								
M	GTS SLEP Support Building	DP-10	GPP	5,000				5,000							
M	Water Processing, PMR&T/TCAP	DP-10	GPP	5,000					5,000						
M	Building 193 Reconfiguration	DP-10	GPP	4,000				2,000	2,000						
M	Hot Shop	DP-10	GPP	4,000				4,000							
M	Hot Shop Office Building	DP-10	GPP	5,000				5,000							
M	Calibration Laboratory	DP-10	GPP	5,000					5,000						
Subtotal – ESA Consolidator				**69,750**	**13,250**	**15,000**	**18,000**	**16,000**	**12,000**						
FY02 FACILITY & INFRASTRUCTURE INITIATIVES															
H	Vulnerable Office Building Replacement (1)	DP	GPP	5,000		5,000									
H	Vulnerable Office Building Replacement (2)	DP	GPP	5,000		5,000									
H	Vulnerable Office Building Replacement (3)	DP	GPP	5,000		5,000									
H	Vulnerable Office Building Replacement (4)	DP	GPP	5,000		5,000									
H	Vulnerable Office Building Replacement (5)	DP	GPP	5,000		5,000									
H	NMT Corrective Maintenance Proposal	DP	Exp.	7,800		7,800									
H	Waste Maintenance Facilities - Corrective Maintenance	DP	Exp.	3,600		3,600									
H	LANSCE Chiller Replacement	DP	GPP	4,500		4,500									
H	ESA Facilities Consolidation (2 projects)	DP	GPP	10,000		10,000									

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FYO1 $K	FYO2 $K	FYO3 $K	FYO4 $K	FYO5 $K	FYO6 $K	FYO7 $K	FYO8 $K	FY09 $K	FY10 $K	FY11 $K
H	Beryllium Technology Facility-Cartridge Filter House Installation	DP	GPP	1,500		1,500									
H	LANSCE Facilities - Corrective Maintenance	DP	Exp.	4,500		4,500									
H	CIC Electrical Upgrade	DP	GPP	400		400									
H	TA-48 Radioactive Liquid Waste Line	DP	GPP	2,000		2,000									
H	Vulnerable D&D	DP	EXP	25,000		25,000									
H	TA-46 Air Exhaust System	DP	GPP	700		700									
H	Waste Maintenance Facilities #2 - Preventive	DP	Exp.	5,000		5,000									
H	TA-15 Firing Sites Support Facility	DP	GPP	4,000		4,000									
H	Safety/Infrastructure GPP, DP-20	DP	GPP	12,000		12,000									
H	ESA Facilities - Corrective Maintenance	DP	Exp.	3,300		3,300									
H	DP-10 Safety/Infrastructure GPPs	DP	GPP	15,000		15,000									
H	Sigma GPP	DP	GPP	5,000		5,000									
H	LANSCE Facilities #2 - Preventive Maintenance	DP	Exp.	10,000		10,000									
H	DX Facilities - Preventive and Corrective Maintenance	DP	Exp.	4,000		4,000									
H	ESA Facilities - Preventive Maintenance	DP	Exp.	6,000		6,000									
Subtotal – F & I				**149,100**		**149,100**									
UTILITY AND ROAD INVESTMENT															
H	SM-66 13.8 kv SwGr Replacement		GPP	1,650	150	1,000	500								
H	Refurbish Power Plant Turbine #1		GPP	2,250	1,750										
H	Refurbish Power Plant Turbine #3		GPP	4,000		4,000									
H	Refurbish Power Plant Turbine #2		GPP	3,000			3,000								
H	Reconductor Norton Line		Exp.	3,500		3,500									
H	Flue Gas Recirculation Duckwork		Exp.	900	500										
H	PP - Plant Condensate Return Piping		Exp.	520	20	250	250								
H	PP - Steam Piping Replacement		Exp.	500		500									
H	TA-3 Steam Condenstate Lines		Exp.	2,350	200	350	350	350	350						
H	PP - Feed Water Piping		Exp.	500			500								
H	Correct Cross Connections		Exp.	800	200	200	200	200							
H	TA-3 South Sewer Relief Project		Exp.	650	50	600									
H	LAC Sewer Project		Exp.	750		750									
H	100psi Natural Gas Lines, Pajarito Road		GPP	4,300	300	4,000									
H	100psi Natural Gas Lines, TA-3		GPP	2,300			300	2,000							
H	90 MVAR SVC Capacitor		GPP	2,000			500	1,500							
H	New TA-51/54 Intersection		GPP	4,100			600	3,500							
H	Widen Pajarito Road - TA-18/54		GPP	4,300			600	3,700							
H	Royalcrest Intersection		GPP	500	500										
H	Traffic Improvements(Studies in 00 & 01)		GPP	17,000	500	500	2,000	2,500	2,500	2,500	2,500	2,500	2,500		
H	TA-16 Sewer Slipining		GPP	775	300	300	100	75							
H	Replace Broken Sewer Lines		GPP	800	200	200	200	180							
H	Steam Plant Boiler Replacement		GPP	800	800										
H	345kv Ring Bus Norton		GPP	3,000		1,500	1,500								
H	Replace 2 Ea 115/13.8kv Xformer TA3		GPP	4,000											
H	Purchase RL Line ETA-STA		GPP	2,000											
H	Power Plant Upgrades		LIP	16,000											
H	Water Distribution Line Corrections		GPP	1,900											
H	Demo of Sherwood & Transportables	DP-10	Expense	2,500	2,500										
H	Demo of Syllac	DP-10	Expense	2,400			2,400								
H	Demo of Misc. Facilities	DP-10	Expense	3,000		500	1,000	1,500							

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FYO1 $K	FYO2 $K	FYO3 $K	FYO4 $K	FYO5 $K	FYO6 $K	FYO7 $K	FYO8 $K	FYO9 $K	FY10 $K	FY11 $K
H	Demo of Van de Graff Facility	ER/WM	Expense	15,000		5,000	10,000								
H	TA-02 Omega West Reactor Demo	DP-LL	Expense	10,000	6,740	3,260									
H	TA-15 Group A Demo	DP-LL	Expense	1,630	1,630										
H	TA-53 Cooling Towers Demo	DP-LL	Expense	640		640									
H	TA-21 TSTA Demo	ER/WM	Expense	10,950		2,250	4,350	4,350							
M	TA-60 Test Fab Facility Demo	DP-LL	Expense	2,000						2,000					
M	Replace Old 13.8kV Switchgears		Exp.	12,500		2,000	2,000	2,000	2,000	2,000	1,000	700	800		
M	Add 3rd 115kV transformer TA-53		Exp.	2,500					2,500						
M	Replace 13.8 kv cable		Exp.	2,500					500	500	500	500	500		
M	Replace 115kv oil circuit breaker		Exp.	2,400		300	300	300	300	300	300	300	300		
M	White Rock 115kv Ring Bus		Exp.	1,000				1,000							
M	115kV Transmission System Protection		Exp.	1,000				1,000							
M	PP - Cooling Tower Piping Replacement		Exp.	500				500							
M	TA-3/58 Gravity Line		Exp.	535					535						
M	100psi Natural Gas Lines, TA-16		GPP	2,300					300						
M	TA-18 Intersection		GPP	3,000				3,000							
M	East by-Pass		GPP	10,000					10,000						
M	TA-21 DP West Group 1 & 2 Fac. Decon/Demo	ER/WM	Expense	22,900					1,503	9,232				12,165	
M	TA-33 HPT Facility Decon/Demo	ER/WM	Expense	2,940						1,470	1,470				
M	Demo of JCN and Misc.	DP-10	Expense	6,600				6,600							
M	TA-16 Lab. & Process Bldg. Demo	ER/WM	Expense	2,000						2,000					
M	TA-3 Phase II - Demolition	DP-LL	Expense	3,000					1,500	1,000	500				
L	Replace TA-53 (2) 115kV Transformers		GPP	4,000							300	3,700			
L	TA-53 Substation 115kV Ring Bus Upgrade		Exp.	2,000						2,000					
L	Uncross NL & RL 115kV Lines		Exp.	1,000							1,000				
L	TA-70 345/115 kV Substation		GPP	5,000									5,000		
L	TA-70 115/13.8 kV Substation		GPP	5,000								5,000			
L	TA-03 Power Plant Backpressure Turbine		GPP	2,000									2,000		
L	Widen Diamond Drive		GPP	2,200								400	2,000		
L	Add 3rd 115kV transformer TA-3		GPP	2,500							2,500				
L	Add 2nd 115kV transformer TA-5 (ETA)		GPP	2,500							2,500				
L	DP East Facility Demolition	ER/WM	Expense	40,000										8,000	
L	SM-40 Annex Bldg. Demolition	DP-LL	Expense	3,000									2,500	500	
L	TA-16 Explosive Prep Bldg. Demo	DP-SS	Expense	5,000										5,000	
L	TA-3 Phase III - Demolition	DP-LL	Expense	3,000								1,000	1,000	1,000	
Subtotal Utility & Road Investment				**526,910**	**16,340**	**36,600**	**30,650**	**34,255**	**21,988**	**23,002**	**12,570**	**14,100**	**16,600**	**412,210**	
D & D															
H	Demo of Sherwood & Transportables	DP-10	Expense	2,500	2,500										
H	Demo of Sylac	DP-10	Expense	2,400			2,400								
H	Demo of Misc. Facilities	DP-10	Expense	3,000		500	1,000	1,500							
H	Demo of Van de Graff Facility	ER/WM	Expense	15,000										5,000	
H	TA-02 Omega West Reactor Demo	DP-LL	Expense	10,000	6,740	3,260									
H	Demo of Sylac	DP-LL	Expense	1,630	1,630										
H	TA-53 Cooling Towers Demo	DP-LL	Expense	640		640									
H	TA-21 TSTA Demo	ER/WM	Expense	10,950		2,250	4,350	4,350							
M	TA-60 Test Fab Facility Demo	DP-LL	Expense	2,000						2,000					
M	Demo of JCN and Misc.	DP-10	Expense	6,600				6,600							
M	TA-21 DP West Group 1 & 2 Fac. Decon/Demo	ER/WM	Expense	22,900					1,503	9,232				12,165	
M	TA-33 HPT Facility Decon/Demo	ER/WM	Expense	2,940						1,470	1,470				
M	TA-16 Lab. & Process Bldg. Demo	ER/WM	Expense	2,000						2,000					
M	TA-3 Phase II - Demolition	DP-LL	Expense	3,000					1,500	1,000	500				
L	DP East Facility Demolition	ER/WM	Expense	40,000										8,000	
L	SM-40 Annex Bldg. Demolition	DP-LL	Expense	3,000									2,500	500	

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FYO1 $K	FYO2 $K	FYO3 $K	FYO4 $K	FYO5 $K	FYO6 $K	FYO7 $K	FYO8 $K	FYO9 $K	FY10 $K	FY11 $K
L	TA-16 Explosive Prep Bldg. Demo	DP-SS	Expense	5,000										5,000	
L	TA-3 Phase III - Demolition	DP-LL	Expense	3,000								1,000	1,000	1,000	
Subtotal – D & D				**136,560**	**16,340**	**36,900**	**7,750**	**12,450**	**3,003**	**15,702**	**1,970**	**1,000**	**3,500**	**31,665**	
3rd Party Financed Proposals															
M	JCNNM Consolation	DP-10	3rd Party	18,000				9,000	9,000						
M	Gateway Visitor / LAAO Bldgs.	DP-10	3rd Party	23,000				13,000							
M	LANL Warehousing Complex	DP-10	3rd Party	16,000				8,000	8,000						
M	Gateway Infrastructure Development	DP-10	3rd Party	15,000					7,500						
M	Theoretical Studies (TA-3 Ph I)	DP-10	3rd Party	43,000						14,333	14,333	14,333			
M	Off Site Transmission	DP-10	3rd Party	30,000				1,500						1,500	
M	On-site Generation(Co-Generation)	DP-10	3rd Party	51,000				1,000	20,000				2,000		
L	TA-3 Phase II - General Office (500 ocup)	DP-10	3rd Party	43,000									20,000	23,000	
L	TA-3 Phase II - Physics Bldg.	DP-10	3rd Party	43,000									20,000	23,000	
L	TA-3 Phase II - PM/F/S Bldg.	DP-10	3rd Party	43,000									20,000	23,000	
L	Wellness/Training Bldg. (TA3 Ph II)	DP-10	3rd Party	49,000									20,000	20,000	
Subtotal – 3rd Party Financed				**374,000**				**32,500**	**44,500**	**14,333**	**14,333**	**14,333**	**82,000**	**90,500**	
Deleted from Prior Year List															
	CMIP	DP-SM	LIP	510,000		15,000	64,000	74,000	74,000	74,000	63,000	58,000	48,000	40,000	
	TMSE	DP-SM	GPP	28,815	10,256	1,793									
	Fire Protection Improvements (FPI)	DP-LL	LIP	17,460											
	AROE	DP-SS	GPP	2,438											
	Cooling Tower Replacement, TA-3-22	DP-SS	GPP	1,819											
	Satellite Parking/Intersection	DP-LL	GPP	2,951											
	TA-53 RLW Tank Replacement	DP-SS	Expense	1,428											
	Waste Water Collection Lines	DP-SS	GPP	1,340											
	WETF - Roof Upgrades	DP-SM	GPP	1,189											
	Central Health Physics Calibration Laboratory	DP-LL	LIP	4,200	2,406	926									
	NMSSUP, Phase IIa	DP-SM	LIP	75,000		10,000	10,000	30,000	5,000	15,000					
	TA-53 RLW Treatment System	DP-SS	GPP	4,422											
	Facilities Improvements Technical Support Bldg.	DP-SM	GPP	4,860											
	Bldg. 430 Tempered Water,HVAC, & Elec. Sys. Upgrades	DP-SS	GPP	1,283											
	Communication Operation Bldg.	DP-LL	GPP	4,500	372										
	Natural Gas Line (Gas Line Replacement to TA-15)	DP-SS	GPP	1,900											
	Water Well Replacements	DP-LL	LIP	17,200											
	Computational Physics (TA3 Ph I)	DP-LL	3rd Party	46,000			15,333	15,333	15,333						
	Cooling Tower TA-53-60	DP-SS	GPP	2,470	2,220										
	Demo Administration Bldg. - TA-3 Phase I	DP-LL	3rd Party	13,600					13,600						
	Demo of JCN and Misc. - Phase 1 TA-3	DP-LL	3rd Party	6,600		6,600									
	Demo of Sherwood - Phase 1 TA-3	DP-LL	3rd Party	2,100	2,100										
	Demo of Syllac - Phase 1 TA-3	DP-LL	3rd Party	2,400					2,400						
	Demolition of Misc. facilities (TA3 Ph I)	DP-LL	3rd Party	3,000		500	1,000	1,500							
	Detonator Manufacturing Fac Enlargement	DP-SM	GPP	5,000	2,500	2,500									
	Electrical Reliability Upgrades (3rd Line), 2002	DP-LL	GPP	22,000			22,000								
	ESA Office Consolidation/Revitalization	DP-SS	3rd Party	4,500	1,000	3,500									
	ESA Technical Support Facility/Tritium Group Office Bldg.	DP-SM	GPP	4,400	4,400										
	Install Two Pedestrian Turnstile Gates	DP-SS	Expense	625	625										
	Parking Structure - TA-3 Revit. Phase 1	DP-LL	3rd Party	19,000			8,500	8,500							
	Roof Upgrades	DP-SS	GPP	300	300										
	Roof Upgrades - TA-3 Bldgs. 215, 216, 422	DP-LL	GPP	300	300										
	Security Upgrade at TA-8, Bldgs. 22/23	DP-LL	GPP	390											
	TA-11 Sanitary Sewer/Water Line Upgrade	DP-SS	GPP	600											

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FYO1 $K	FYO2 $K	FYO3 $K	FYO4 $K	FYO5 $K	FYO6 $K	FYO7 $K	FYO8 $K	FY09 $K	FY10 $K	FY11 $K
	TA-15-508&194 Electrical Upgrades @ the "Hollow"	DP-SS	GPP	340											
	TA-16-200 Electrical Upgrades	DP-SS	GPP	400	400										
	TA-2 Omega West Reactor Fac Decom	ERWM	LIP	13,000										6,500	
	TA-21 DP West Facilities Decom/Demo	ERWM	LIP	56,000				8,000	8,000	8,000	8,000	8,000	8,000	8,000	
	TA-22-90 & 93 Roof Replacement	DP-SS	GPP	450											
	TA-3 Phase II - Auditorium Bldg	DP-LL	3rd Party	9,000								4,500	4,500		
	TA-3-102 Ventilation & Electrical Upgrades	DP-SS	GPP	2,500	2,500										
	TA-33 PH Tritium Facility Decon/Demo	ERWM	LIP	2,077			692	692	692						
	TA-3-39 Compressed Air System Upgrade	DP-SS	GPP	425	425										
	TA-55 Admin Revitalization	DP-SM	GPP	5,000		5,000									
	TA-9-33 & 35 Upgrades	DP-SS	GPP	500	500										
	Traffic & Parking Upgrades	DP-LL	GPP		300										
	WNR Detector Building	DP-SS	GPP	450	450										
	Assembly Facility	DP-SS	LIP	15,000						5,000	5,000	5,000			
	Building 200 Life Safety Upgrades	DP-SS	GPP	735		110	625								
	Central Records Storage	DP-LL	Expense	4,910	4,410										
	Demo of Van de Graph Facility	ERWM	LIP	15,000										5,000	
	DP East Facility Demolition	ERWM	LIP	40,000										8,000	
	GPP/Other buildings Revite Program (Series of GPP buildings)	DP-LL	GPP	25,000	5,000	5,000	5,000	5,000	5,000						
	Quality of Life Upgrades	DP-SS	GPP	350	350										
	Remove Temporary Buildings & Improve Parking	DP-SS	GPP	1,000				500	500						
	Re-Route Traffic and Relocate HE Fence	DP-SS	GPP	600	300										
	SM-40 Annex Bldg. Demolition	DP-LL	GPP	3,000									2,500	2,500	
	TA-14 Explosive Prep & Bunker Demolition	ERWM	LIP	600										600	
	TA-16 410 & 430 Electrical Upgrades	DP-SS	GPP	350	350										
	TA-16 Explosive Prep Bldg Demolitions	DP-SS	Expense	5,000										5,000	
	TA-16 Lab. & Process Bldg Demolitions	ERWM	LIP	2,000						2,000					
	TA-16-218 Refurbish for WE Office Space	DP-SS	GPP	750	750										
	TA-21 Steam Plant Boiler and Control Sys. Mods.	DP-LL	Expense	1,250	1,000										
	TA-3 Phase II - Demolition	DP-LL	3rd Party	3,000					1,500	1,000	500				
	TA-3 Phase III Demolition	DP-LL	3rd Party	3,000								1,000	500	500	
	TA-60 Test Fab Facility Demolition	DP-LL	Expense	2,000						2,000					

VIII. APPENDIX

A. REFERENCES

"NNSA Facilities and Infrastructure Needs: Written Statement By John C. Browne, Director, Los Alamos National Laboratory To The Energy And Water Development Subcommittee Of The Appropriations Committee, United States Senate, March 13, 2001." John C. Browne, Director. Los Alamos National Laboratory. Los Alamos, New Mexico. 2001.

'Assessment of Facilities Planning Processes, 2000 Update." Carroll Thatcher Planning Group, Inc. Ottawa, Canada. 2000.

"Building Modern Facilities to Meet Tomorrow's Needs: A Proposal for Alternate Financing TA-3 Revitalization, Phase 1." Los Alamos National Laboratory. Los Alamos, New Mexico. 1999.

"Comprehensive Site and Facility Planning." Los Alamos National Laboratory. LPR-210-01-00.1. Los Alamos, New Mexico. 2000.

Comprehensive Site Plan 2000. Los Alamos National Laboratory, Site Planning and Development Group (PM-1). LA-UR-99-6704. Los Alamos, New Mexico. 1999.

Comprehensive Site Plan 2000, Technical Site Document. Los Alamos National Laboratory, Site Planning and Development Group (PM-1). LA-UR-99-6704. Los Alamos, New Mexico. 1999.

"Comprehensive Site Planning." Los Alamos National Laboratory. LIR- 210-01-01. Los Alamos, New Mexico. 2001.

Computer Aided Facilities Management (CAFM). Los Alamos National Laboratory, Facility and Waste Operations Division Integrated Information Management (FWO-IIM). Los Alamos, New Mexico. 2000.
Condition Assessment Survey (CAS) Database. Los Alamos National Laboratory, Facility and Waste Operations Division Integrated Information Management (FWO-IIM). Los Alamos, New Mexico. 2000.

Department of Energy Implementation Plan, National Nuclear Security Administration. United States Department of Energy. Washington, DC. 2000.

Facility Inventory Management System (FIMS). Los Alamos National Laboratory, Facility and Waste Operations Division Integrated Information Management (FWO-IIM). Los Alamos, New Mexico. 2000.

Fiscal Year 2000 Business Management Oversight Process (BMOP) Report. United States Department of Energy, Albuquerque Operations Office. Albuquerque, New Mexico. 2000.

"Gateway Area Development Traffic Study." Los Alamos National Laboratory, Site Planning and Development Group (PM-1). Los Alamos, New Mexico. 1999.
Geographic Data. Johnson Controls Northern New Mexico, Utility Mapping Section (UMAP). Los Alamos, New Mexico. 2000.

Geographic Data. Los Alamos National Laboratory, Environment, Safety, and Health Division, Ecology Group (ESH-20). Los Alamos, New Mexico. 2000.
Geographic Data. Los Alamos National Laboratory, Environmental and Earth Sciences Division, Geoanalysis Group (EES-5), Facility for Information Management, Analysis, and Display (FIMAD). Los Alamos, New Mexico. 2000.

"Infrastructure, Construction, and Cerro Grande Rehabilitation." Los Alamos National Laboratory, Deputy Laboratory Director for Operations (DLDOPS). [Presentation, November 16, 2000]. Los Alamos, New Mexico. 2000.

Institutional Plan FY 2000-FY 2005. Los Alamos National Laboratory, Science and Technology Base Program (STB). LALP-99-151. Los Alamos, New Mexico. 1999.

Los Alamos National Laboratory 2000 Environmental Stewardship Roadmap. Los Alamos National Laboratory, Environmental Stewardship Office. LA-UR-00-5601. Los Alamos, New Mexico. 2000.

Los Alamos National Laboratory Strategic Plan (1999-2004). Los Alamos National Laboratory. Los Alamos, New Mexico. 1999.
Los Alamos Nuclear Facilities – A Strategic Plan. Los Alamos National Laboratory, Nuclear Weapons Materials and Manufacturing (NW-MM). Los Alamos, New Mexico. 1999.

"The Northwest Section of the Perimeter Road for TA-03." Los Alamos National Laboratory, Site Planning and Development Group (PM-1). Los Alamos, New Mexico. 1999.

"Position Paper for the Development of Replacement Office Buildings." Los Alamos National Laboratory, Nuclear Weapons Infrastructure, Facilities, and Construction (NW-IFC). Los Alamos, New Mexico. 2000.

Readiness in Technical Base and Facilities FY 2001 Implementation Plan. Los Alamos National Laboratory. LA-CP-00-460. Los Alamos, New Mexico. 2001.

"The Recommended Location of the Northwest Section of the Perimeter Road Around TA-03." Los Alamos National Laboratory, Site Planning and Development Group (PM-1). Los Alamos, New Mexico. 1999.

A Report on the Seismic Capacity of the General Laboratory and Administration Building at Los Alamos National Laboratory. Brookhaven National Laboratory. BNL-61500. Upton, NY. 1995.

Site and Architectural Design Principles, January 1999. Los Alamos National Laboratory, Site Planning and Campus Architecture Group (PM-1). Los Alamos, New Mexico. 1999.

Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory. Los Alamos National Laboratory. DOE/EIS-0238. Los Alamos, New Mexico. 1999.

A Special Edition of the SWEIS Yearbook, Wildfire 2000. Los Alamos National Laboratory, Site-Wide Issues Program Office. LA-UR-00-3471. Los Alamos, New Mexico. 2000.

"SSR Science Complex Project Development Plan." Los Alamos National Laboratory, Site Planning and Development Group (PM-1). Los Alamos, New Mexico. 2000.

The Stockpile Stewardship and Management Program: Maintaining Confidence in the Safety and Reliability of the Enduring U.S. Nuclear Weapon Stockpile. U.S Department of Energy, Office of Defense Programs. Washington, DC. 1995.

"TA-03 Traffic Impact Analysis." Los Alamos National Laboratory, Site Planning and Development Group (PM-1). Los Alamos, New Mexico. 1999.

"Ten Year Comprehensive Site Plans." Los Alamos National Laboratory, Nuclear Weapons Infrastructure, Facilities, and Construction (NW-IFC). [Presentation, November 29, 2000]. Los Alamos, New Mexico. 2000.

Traffic Crash Data. Community Reports. Comprehensive Traffic Crash Database. New Mexico State Highway and Transportation Department, Traffic Safety Bureau. Santa Fe, New Mexico. 2000.

"Tri-Lab Benchmarking Progress Report." Los Alamos National Laboratory, Site Planning and Development Group (PM-1). Los Alamos, New Mexico. 2000.

"Guidance for Ten-Year Comprehensive Site Plans: A Supplement to the FY2003 Budget Call." United States Department of Energy, Defense Programs. Washington, D.C. 2000.

"Science and Security in the Service of the Nation: A review of the security incident involving classified hard drives at Los Alamos National Laboratory." The Honorable Howard H. Baker, Jr. and the Honorable Lee H. Hamilton. Washington, D.C. 2000.

B. ACRONYM LIST

AC/MC	Analytical Chemistry and Materials Characterization
ADP	Area Development Plan
AEI	Area of Environmental Interest
AHF	Advanced Hydrodynamic Facility
ALD	Associate Laboratory Director
ARIES	Advanced Recovery and Integrated Extraction System
BMOP	Business Management Oversight Process
BRASS	Basic Rapid Alarm Security System
CAFM	Computer-Aided Facilities Management
CAS	Condition Assessment Survey
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CMR	Chemistry and Metallurgy Research Facility
CPDS	Construction Project Data Sheet
CSP	Comprehensive Site Plan
D&D	Decontamination and Demolition
DAF	Device Assembly Facility
DAHRT	Dual Axis Radiographic Hydrotest Facility
DLDOPS	Deputy Laboratory Director for Operations
DOE	Department of Energy
DOE-LAAO	Department of Energy - Los Alamos Area Office
DP	Defense Programs
DP-10	Defense Programs - Stockpile Stewardship
DP-20	Defense Programs - Stockpile Mangement
DP-LL	Infrastructure and Defense Program Landlord
DP-SM	Defense Programs – Stockpile Management
DP-SS	Defense Programs – Stockpile Stewardship
DVRS	Decontamination Volume Reduction System
eCSP	Electronic Comprehensive Site Plan
EOC	Emergency Operations Center
EOS	Equation of StateER Environmental Restoration
ER/WM	Environmental Restoration/Waste Management
ESA	Endangered Species Act
ES&H	Environment, Safety, and Health
ESH	Environment, Safety, and Health
F&I	Facilities and Infrastructure
FARP	Fire Alarm Replacement Project
FIMA	Facility for Information Management, Analysis, and Display
FIMS	Facility Information Management System
FMU	Facility Management Unit
FPD	Federal Planning Division
FRX-C	Field Reversed Theta Pinch Compact Plasma Generator
FWO	Facility and Waste Operations
FWO-SEM	Facility and Waste Operations – Systems Engineering and Maintenance
FWO-SSCM	Facility and Waste Operations – Support Services Contract Management
FY	Fiscal Year
G&A	General and Administrative
GIS	Geographic Information Systems
GPP	General Plant Project
GSF	Gross Square Feet
HE	High Explosives
HEU	Highly Enriched Uranium
HMP	Habitat Management Plan
HR	Human Resources
HRPS	Human Resource Personnel Summary
HVAC	Heating, Ventilation and Air Conditioning
IAEA	International Atomic Energy Agency
ICF	Inertial Confinement Fusion
ICF&RP	Inertial Confinement Fusion and Radiation Physics
IFMA	International Facility Management Association
IIRF	Institutional Infrastructure Reinvestment Fund
INP	Integrated Nuclear Park
IRMP	Integrated Resource Management Plan
ISC	Internal Siting Committee
ISM	Integrated Safety Management
ISSM	Integrated Safeguards and Security Management
IWMT	Interagency Wildfire Management Team

JCNNM	Johnson Controls Northern New Mexico
JCNNM-UMAP	Johnson Controls Northern New Mexico – Utilities Mapping
JTA	Joint Test Assembly
LEED	Leadership in Energy and Environmental Design
LACDC	Los Alamos Commerce and Development Corporation
LANL	Los Alamos National Laboratory
LANSCE	Los Alamos Neutron Science Center
LASRC	Los Alamos Strategic Research Complex
LDCC	Laboratory Data Communications Center
LIR	Laboratory Implementing Requirement
LEED	Leadership in Energy and Environmental Design
LIP	Line Item Project
LPR	Laboratory Policy Requirement
MEG	Magnetoencephalography
MRI	Magnetic Resonance Imaging
MTF	Magnetized Target Fusion
NDE	Non-destructive Evaluation
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NISC	Nonproliferation and International Security Complex
NMSSUP	Nuclear Materials Safeguard and Security Upgrade Project
NN	Nonproliferation and National Security
NNSA	National Nuclear Security Agency
NPCF	Non-nuclear Pit Component Facility
NRMR	Natural Resources Management Plan
NSRC	National Security Research Complex
NTS	Nevada Test Site
NTT	Neutron Target Tube
NWP	Nuclear Weapons Program
O of S	Office of Science
PHERMEX	Pulsed High-Energy Radiographic Machine Emitting X-Rays
PM	Project Management
PMAP	Project Management Advisory Panel
PoC	Point of Contact
R&D	Research and Development
RCRA	Resource Conservation and Recovery Act
RLW	Radioactive Liquid Waste
RSW	Radioactive Solid Waste
RTBF	Readiness in Technical Base and Facilities
RTG	Radioisotope Thermoelectric Generator
S&T	Science and Technology
SCC	Strategic Computing Complex
SET	Senior Executive Team
SMART	Summary Missions/Alternatives/Requirements Table
SME	Subject Matter Expert
SNM	Special Nuclear Materials
SPCC	Site Planning and Construction Committee
SSR	Strategic and Support Research Directorate
SWEIS	Sitewide Environmental Impact Statement
TA	Technical Area
TN	Tennessee
TN	Thermonuclear
TVA	Tennessee Valley Authority
TYCSP	Ten-Year Site Plan
UC	University of California
UNLV	University of Nevada – Las Vegas
WETF	Weapons Engineering Tritium Facility
WIPP	Waste Isolation Pilot Plant
WMRMP	Waste Management Risk Mitigation Project
WR	War Reserve

Table of Contents

I. Management Overview

A. Introduction and Strategy for Development

The draft Ten-Year Comprehensive Site Plan (TYCSP), Comprehensive Site Plan (CSP) 2001, along with the action plan is being submitted as the transition from the CSP2000 to the new TYCSP. It integrates components of the TYCSP guidance and expands into areas to resolve the CSP2000 gap analysis and the new Laboratory Implementation Requirement (LIR). The CSP2001 will reference other key documents to support TYCSP requirements.

The CSP2001 addresses University of California (U/C) Appendix F performance measures in addition to the newest TYCSP guidance received from DOE in February 2001. The TYCSP for September will also address compliance with the U/C performance measures.

The final TYCSP due in September will replace the CSP efforts. The outline presented in this document will serve as a base for development of the September deliverable to satisfy TYCSP guidelines. The Laboratory is working toward the integration of several Department of Energy (DOE) requirements within the TYCSP, such as Readiness in Technical Base and Facilities (RTBF), Facilities and Infrastructure (F&I) Initiatives, and the Integrated Nuclear Planning (INP). In addition, the Laboratory TYCSP may also cover additional institutional land use planning information that is beneficial for Laboratory management use, and programs that support planning functions at the Laboratory, such as National Environmental Policy Act (NEPA). Future TYCSP development efforts will increase coordination between key organizations and program offices, and have more emphasis on the programmatic perspective.

B. Objectives

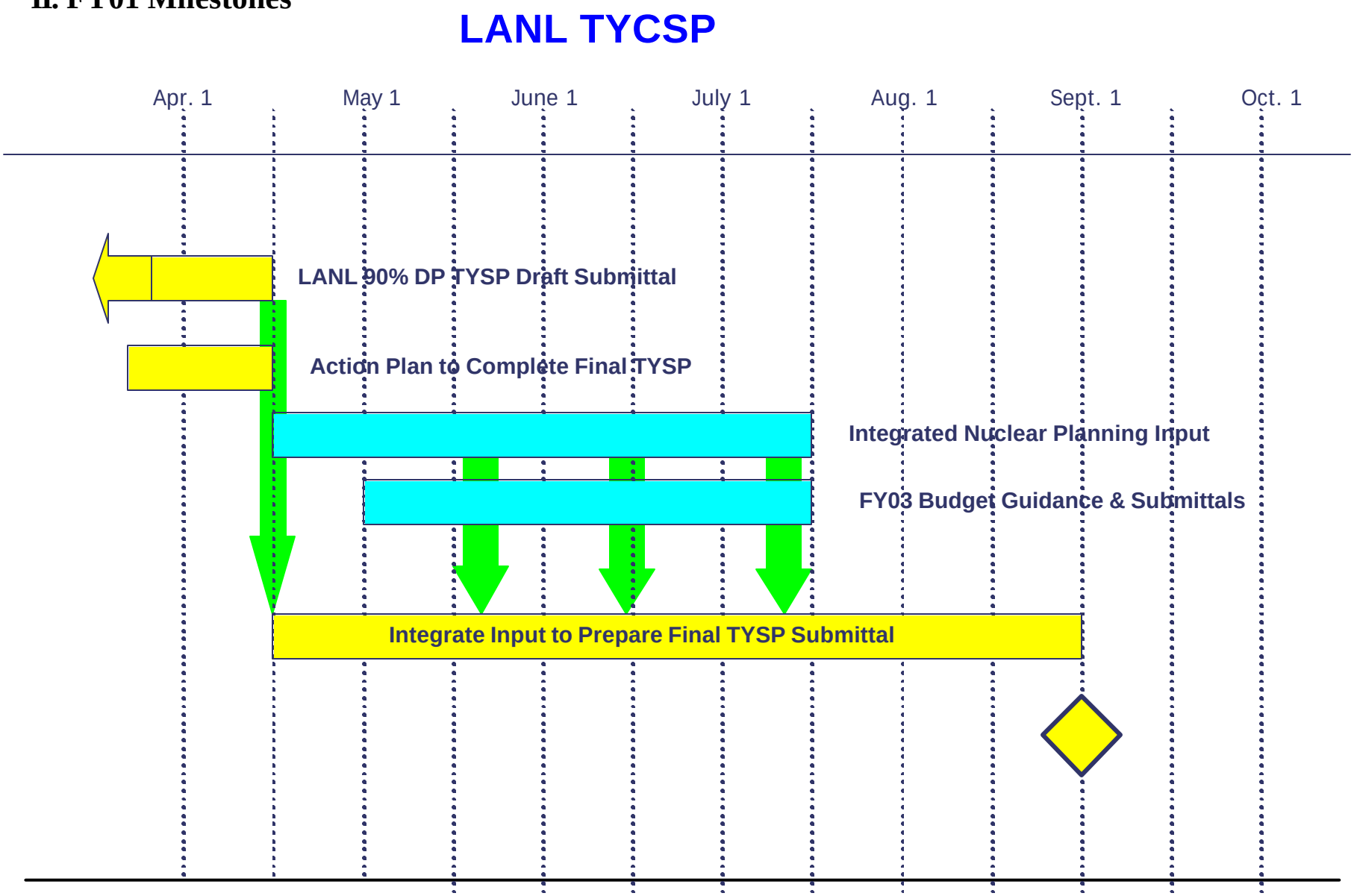
The Laboratory strives to achieve the following objectives in compliance with DOE TYCSP guidance:

- Increased program information and coordination than the previous CSPs;
- Improved link between long range planning, project requests and budget requests.;
- Improved consistency of reporting information to support DOE's roll-up of information at all sites for Headquarters;

Laboratory activities that support several DOE initiatives will be re-evaluated during the development of the final TYCSP to improve inter-relationships of programs and recommendations. In addition, the Laboratory will resolve current issues in the development of the TYCSP:

- Coordination of planning with the Budget Cycle
- Addressing overall Lab-Wide needs
- Long Range Guidance from DOE
- Supporting levels of planning information needed for various audiences that will use the TYCSP

II. FY01 Milestones



III. Budget Guidance

Data Needed from DP to Complete Budget Requirements:
FY01 DP20 Reprogramming for Facilities
FY02 President's Budget with LANL Site Split
FY03 Budget Guidance

FY01 DP20 Reprogramming for Facilities
LANL currently has an FY01 reprogramming request to move $29.8M in DP20 dollars into RTBF from the Pit and ADAPT Campaigns. This reprogramming was signed by DOE Headquarters/Chief Financial Officer and forwarded to Congress on March 30, 2001. The DP-20 reprogramming is needed to support DP20 facilities. Without these dollars, DP20 facilities cannot operate for the entire year.

In FY01, the Laboratory transitioned to Direct Funding all major experimental and computational facilities. At that time, the Sigma Complex was not included in the transition. It is now believed that this complex should be included and LANL is working on determining the appropriate means of transitioning Sigma from indirect to direct funding.

FY02 President's Budget with LANL Site Split
The Ten Year Comprehensive Site Plan budget guidance currently indicates that sites should assume an FY02 Defense Programs budget level case of $6.1Billion for planning purposes. Los Alamos National Laboratory's Comprehensive Site Plan (CSP) and RTBF Implementation Plan (IP) are both based on LANL's FY02 $5.2B case. LANL has seen the $6.1B case but has not yet seen the $5.3B President's Budget LANL site split. The President's Budget was released April 9th but we are still awaiting site splits.

The intent of the $6.1B FY02 budget was to increase some of the pit related facilities. The Presidents Budget does not include funding for the F&I Initiative. Since F&I guidance was to include projects in only one budget category (either RTBF or F&I), the entire RTBF budget will need to be evaluated and reprioritized to take into account all projects including those previously shown as F&I.

FY03 Budget Guidance
The FY03 DP Guidance has not yet been received. Once it is received, we will be able to evaluate the impacts to LANL and incorporate the impacts of FY02 into our submission for FY03. Our FY03 Budget response will feed into the final TYCSP documents as required.

IV. Deliverables

The TYCSP is being developed for primary use by a DOE and LANL audience to coordinate information in a consistent way across the DOE complex. Portions of the document may be used for public planning information dissemination.

In order to provide the level and appropriate type of information for different audiences, the Laboratory proposes a series of documents that provide the option of additional, more detailed information to DOE.

The "Final" TYCSP in September 2001 will be **one integrated document**.

A gap analysis will be performed for the CSP2001 that includes input from the SPCC, NW-IFC, and an internal PM-1 assessment to identify CSP2001 shortfalls and recommendations for improvement. In addition, follow-up on areas identified in the CSP2000 gap analysis will be reported. The "Gap Matrix" will be updated.

V. Draft TYCSP Outline

A. Site Wide Perspective

1. Management Overview
2. Vision
3. Goals and Objectives

B. Facilities and Infrastructure – Needs and Current Situation

A section will be developed for each program. Each of the program sections will include:

- A needs assessment,
- current situation,
- RTBF data sheet,
- report on facility condition and
- report on maintenance backlog.

1. Engineering & Tritium Facilities
2. LANSCE
3. Dynamic Experimentation (DX)
4. Materials Science and Laser Facilities
5. Waste Management Facilities
6. Nuclear Facilities
7. DP10 Other Direct Funded
8. DP20 Balance of Plant
9. Special Projects
10. Institutional
    a. Excess facilities and Land Assessment
    b. Utilities
    c. Roads
11. Non-DP Facilities

C. F&I Plan

A. Links/Strategies to Support Implementation of Strategic Plans and Institutional Program Plans
B. Recommendations for Improvement and Resolution of Issues and Needs
C. Maintenance Backlog Analysis
D. Future Recommendations for Land Use:
Area Development Plans
E. Links to Budgets
F. Cost Projection Spreadsheet
G. Line-Item Construction
H. Prioritized Project List
I. TYCSP Changes from Previous Submittal
J. Implementation Strategies and Plans
K. Initiatives

D. Line Item Construction

1. DP-10 Tri-Lab Construction Plan
2. DP-20 Planning (incl. Integrated Nuclear Plan)
3. Non-DP Line Items

E. Appendices

1. Roll-up Condition Assessments, Maintenance Backlog and Project List

VI. Areas for Further Integration Within the TYCSP

A. Integrated Nuclear Planning

In order for LANL to execute program requirements and priorities, DOE has requested that LANL "develop site 10-year plan that includes anticipated new facilities and consideration of a strategy for consolidation of [*security*] category I nuclear facilities."[1] In order to accomplish this, LANL and DOE have defined a process to complete an Integrated Nuclear Plan (INP) by mid-August, 2001.[2] [3] The importance of the LANL nuclear capabilities in DP missions, and the interactions between these capabilities requires a coordinated, integrated approach. LANL with DOE will:

- Identify capabilities needed to support the long-term LANL mission set;
-
- Integrate and prioritize planned activities based on program requirements and protection of core capabilities, and
- Develop a cost-effective and achievable roadmap for the next ten years of nuclear facilities requirements.

This planning effort will be considered the nuclear portion of the TYCSP, to provide options for NNSA decision makers that are defensible and executable.

The existing CMR Building is over 50 years old, and has a limited life expectancy for nuclear operations through 2010.[4] In addition, TA-18 has a limited life expectancy for nuclear operations and is formally analyzing relocation options. Both of these facilities are considering relocation near the existing TA-55 plutonium facility, for ease of operations, reduced security costs, and improved formality of operations. In addition, the TA-55 plutonium facility is now 20 years old and requires some infrastructure revitalization, and the TA-55 security system has planned upgrades. There is also a need to examine and consider improvements to the infrastructure necessary to support nuclear operations, such as utilities, office space, roads, and parking. The scope of these actions indicates a need for integrated planning, prioritization, and coordination regarding the nuclear capabilities and facilities at LANL.

As noted above, the number and complexity of proposed projects indicates the need for increased focus on integrated planning for future nuclear capabilities. In particular, there is a need to evaluate, prioritize, and integrate the multiple projects and initiatives planned in

[1] November 8, 2000 memorandum from Dave Beck, DP-20 to LANL on FY2001 programs requirements.
[2] April 6, 2001 memorandum from General Thomas Giocanda to LANL of Integrated Planning for LANL Nuclear Mission Capabilities.
[3] March 16, 2001 memorandum from Rick Glass, Manager DOE-AL to DOE-DP-1 on DOE Guidnance on the CMR Replacement Project and on Integrated Planning for LANL Nuclear Mission Capabilities

[4] CMR Risk Management Strategy, January 1999, approved by Gene Ives, DP-20.

the near future. These activities also present an opportunity to reduce operating costs through consolidation, operational realignment, segregation of high security activities from other activities, etc. Prioritization must be based on environmental, safety, security, and programmatic requirements.

One specific example of these opportunities relates to security costs. Right now, an important factor in security costs is the need to protect three separate Security Category I sites. This fact has an effect on guard force requirements, equipment requirements, response tactics (and the related training costs), etc. It also places NNSA in a situation where increases in adversary capabilities have greater than a linear effect on security costs (due to the multiple equipment needs and tactical implications associated with protecting multiple sites). Thus, consolidation of Security Category I sites may allow us to realize near term cost savings, as well as reduced cost growth long term. While there may be other factors that would discourage consolidation, it appears prudent to consider this in integrated planning for LANL's nuclear capabilities.

Similarly, NNSA has waste handling capabilities at multiple LANL nuclear facilities, and there may be opportunities to realize operational savings by consolidating these capabilities and minimizing the waste handling capabilities (while still ensuring program support).

It is expected that integrated planning would identify such opportunities and provide feedback into the individual projects

The CMR Facility was constructed in 1953

so that such savings can be realized. It is also expected that integrated planning will provide for the most efficient means to establish and maintain a viable support structure for the LANL nuclear capabilities, including roads and parking lots, utilities, office space, etc.

In order to realize these potential gains, LANL will establish a planning process to ensure that individual projects are integrated into an overall plan. This process should provide for prioritization of various project proposals (based on support of program requirements, and execution efficiency). This planning process is

based on a projected nuclear mission set (established through the CMR Replacement project, as described above), and should identify gaps and overlaps in proposed projects, as compared to the needs established by the projected mission set. The planning process should also identify interfaces between activities, and how those interfaces will be managed. Finally, the process will enable NNSA/LANL consensus on required actions, prioritization of projects, and project scope changes necessary to effect the most efficient and effective mission support.

The DOE sponsor of this work is General Thomas Giocanda, DP-1; Dave Beck, DP-20; and Rick Glass, DOE-AL Manager. The LANL sponsor of this work is W.Scott Gibbs, NW-Materials & Manufacturing Program Director. A dedicated LANL team is overseeing and executing this work, and it is coordinated with Laboratory planning efforts.

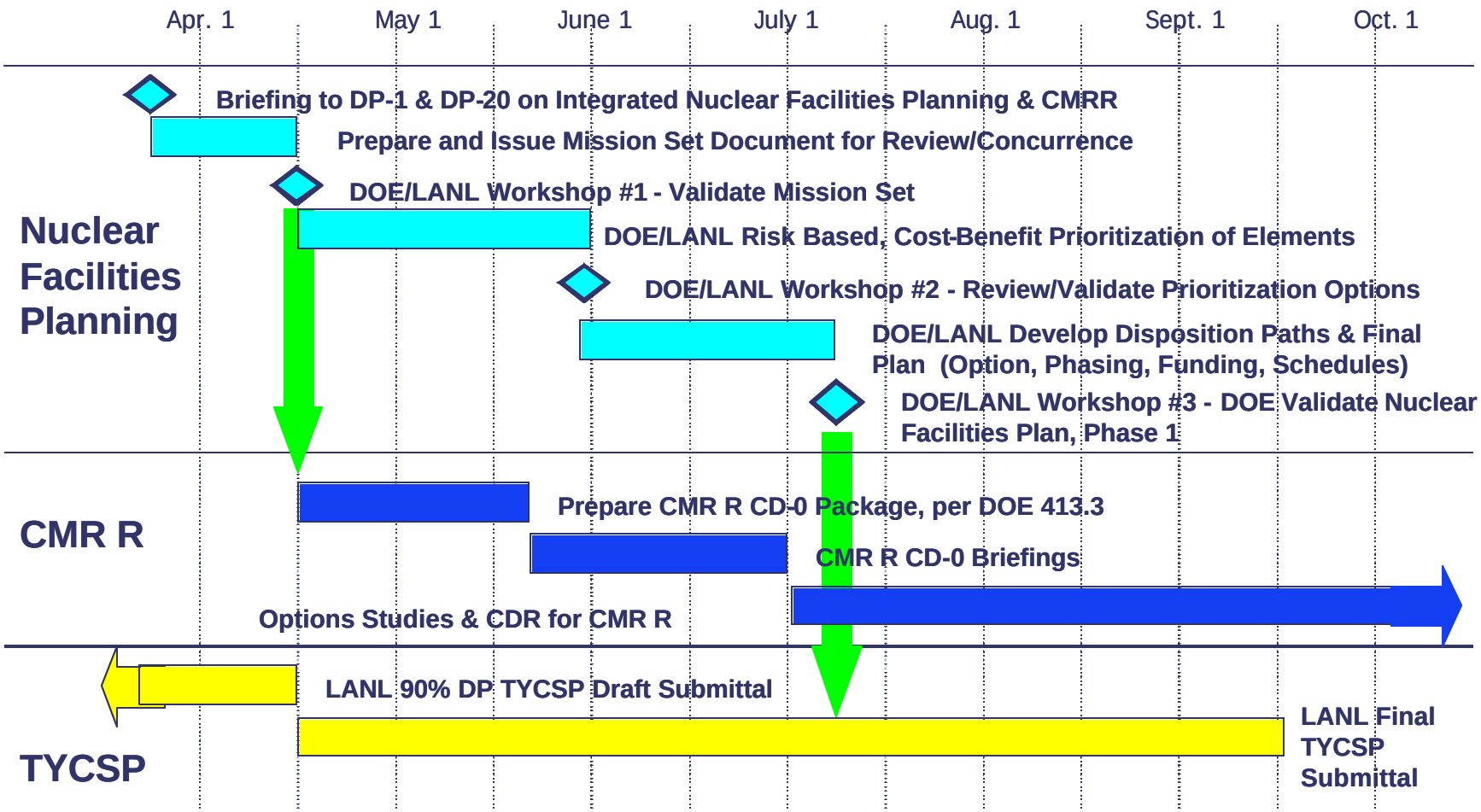
The focus of work is evaluating mission set and capabilities near TA-55. This potentially includes TA-55 revitalization, CMR Replacement, and TA-18 relocation.

A workshop approach will be used to complete the Integrated Nuclear Plan. The following steps will be accomplished using a joint DOE/LANL workshop process:

- Determine capabilities necessary for the mission set,
- Assess existing capabilities and their condition,
- Ensure planned actions address required capabilities,
- Identify performance improvements and cost-saving opportunities,
- Examine/Address infrastructure adequacy for mission support (utilities, roads, parking, offices, etc.),
- Prioritize and integrate planned activities through development and execution.

This planning effort is not intended to be an "additional" planning requirement. Rather, it is intended to highlight the need for a detail planning effort that will be embedded in the September 2001 Ten-Year Comprehensive Site Plan. The first workshop to validate the mission set is scheduled for April 18, 2001. The second workshop to validate the prioritization of elements is scheduled for early June 2001, and the final workshop to validate element disposition paths is scheduled for mid July 2001. The draft Nuclear Plan is to be issued in August 2001 and to be incorporated into the final TYCSP submittal in September 2001.

Integrated View of Nuclear Planning, CMRR, and TYCSP Activities



B. Condition Assessment

Condition assessments is a critical feature which will be enhanced in the "Final TYCSP". In order to provide the proper perspective of facility capabilities in meeting mission requirements, facility groupings will be consistent with RTBF facility groupings. While the CSP does address condition assessments, it is with a geographical (by technical area) basis.

O & M program goals:

- Serve to maintain facility and infrastructure at a level that optimizes productivity, quality, safety, and security.
- Identify facilities and infrastructure that are no longer needed to support mission requirements, or have exceeded useful life cycle
- Stabilize and reduce the O & M backlog
- Balance an acceptable risk of failure against the desire to achieve optimal operational efficiencies
- Establish the level of investment best suited for the Laboratory and its missions
- Forecast when essential facilities and infrastructure should be renovated or replaced
- Maintain facilities and infrastructure that support Laboratory missions and support the objective of recruiting and retaining the best personnel

O & M programs must be directly linked to other key Laboratory efforts, including but not limited to:

- Facility and infrastructure budget requests
- RTBF
- F & I
- D & D
- Public, Environment, and Worker Safety
- Security and safeguards
- Facility management
- Space management including off-site leases
- Waste operations

Extensive knowledge of mission requirements is key, as is the existing state of facility and infrastructure capabilities and capacities. With this information it is possible to forecast the resources required to achieve a desired condition based on investment, this includes the following categories:

- Allow for continued degradation
- Retard degradation
- Maintain at current operational levels (meets mission needs)
- Extend useful life

C. Facility and Infrastructure Initiative (F&I)

At Los Alamos, as well as the other sites in the DOE complex, many of the facilities and associated infrastructure are greater than 30 years old and in need of repairs, modification and/or replacement. Across the complex it has been estimated that a ten year program at the scale of $300 to $500 million per year is necessary to eliminate critical maintenance backlogs and gaps in stockpile repair and replacement capabilities. The F&I Program is a DOE initiative to address this issue. The approach to F&I at Los Alamos integrates facility funding, urgent maintenance needs, and long-range planning to identify, prioritize, and execute projects.

Many of the facilities at Los Alamos are funded only to the level to permit warm standby operations with only minimal maintenance for sustainability. While these facilities are run safely, we run the risk that neglected maintenance can result in a failure rendering the facility unavailable to support its mission. F&I is needed to allow sustainability of facilities, so it is important to understand the long-range plans for all facilities to properly prioritize F&I projects. F&I is an issue that affects all areas of the Laboratory and can impact all of our sponsors and stakeholders.

Condition assessment of facilities is an ongoing activity with the goal that each facility is assessed once every three years. Thus the Laboratory has the ability to maintain a maintenance backlog that is relatively current. In addition, once a year, a call is made across the Laboratory for urgent maintenance projects. Some of these projects are funded through a programmatic reserve for such needs, but each year the demands are greater than the money available. As a result the Laboratory has a large backlog of F&I issues.

The DOE F&I initiative is projected to have a FY 2002 start. For this first year, Los Alamos used the maintenance backlog to propose a total of 25 projects totaling approximately $150 million. These projects to address vulnerable facilities, urgent maintenance items, vulnerable D&D, and to fund corrective and preventive maintenance in select facilities that would otherwise be unfunded. The 25 projects have been prioritized using the Capital Asset Management Program (CAMP) methodology and verified using a risked based analysis. This approach is expected to used in out years as well.

The following is a breakout of the top ten priority projects for FY 2002 F&I. Cost project spreadsheets will be included in the TYCSP:

- The top five projects provide new office space for various divisions across the Laboratory to relieve overcrowded conditions, to replace inadequate space and to replace vulnerable facilities. Through the years the laboratory has installed numerous “temporary” trailers and transportables to

provide workspace for employees. This practice has proven to be inefficient because of the high operational costs and ineffective work environments. Consequently, these facilities are detrimental to the recruitment and retention of personnel.

- The next two projects in priority are corrective and preventive maintenance at nuclear research facilities (TA-55 and CMR) and at waste management facilities (TA-50 and TA-54). Constrained facility budgets in recent years have not allowed these facilities to address corrective maintenance backlogs and have not allowed any preventive maintenance to be addressed.

- The next priority is an urgent maintenance project for LANSCE Division. This project replaces 30 year old chillers. If the chillers fail, the linear accelerator will be shut down effectively halting all programmatic work within the division. The replacement project would be designed such that a failure of a single chiller will not require the shut down of the accelerator.

- The ninth and tenth priorities for the LANL FY 2002 F&I are part of the ESA Division Consolidation Plan. These projects will allow for modifications and additions to existing facilities that will consolidate similar operations and allow other space to be excessed or D&D'ed. This will result in more efficient facilities and a collaborative work environment.

We are extremely supportive of F&I, and we recognize that as a new initiative, iterations are natural. The CSP includes a list of the FY02 F&I submittals. We have complied with the guidance that **no proposal is duplicated in RTBF, expands mission capabilities, or is beyond GPP funding limits.** Further F&I development within budget guidance will be included in the final TYCSP.

D. Decontamination &Decommissioning (D&D)

The Laboratory has been performing surveillance and maintenance on 150-200 buildings, a total of 273,000 square feet. DP-10 began funding a minimal level of S&M/D&D within FY99 RTBF and having the following ongoing profile:

FY99	FY00	FY01	FY02	FY03	FY04
2.0	2.0	3.8	5.0	5.1	5.3

As part of the Cerro Grande Rehabilitation Project, $20M has been appropriated for D&D to remove excess facility vulnerabilities. However, we anticipate the magnitude of excess space to increase significantly with consolidation efforts. Consolidation, as one of our key strategies to ultimately reduce operating costs, will yield additional facilities to be excessed.

The last EM funded D&D took place in FY97. There are no Laboratory facilities currently on the "Accepted" list for future EM funded S&M/D&D. Tritium Systems Test Assembly (TSTA) at TA-21 is being negotiated for transfer from Office of Science to EM. If DP chooses to transfer process contaminated facilities to EM, based on recent history, we have no confidence that D&D will happen.

LANL will continue to search for any source of D&D funding to achieve bottom line impact, and F&I is one such source. **The final TYCSP will further identify the lists of currently budgeted D&D, the backlog of excess facilities slated for D&D, and facilities anticipated to be excessed in future years.**

E. Consolidation Planning

A significant number of facilities were constructed for a cold war mission and have operated beyond their design life. In recognition of this, the Laboratory encourages strategic consolidation of functions and capabilities that have strong dependencies that:

- Support improvement of future capabilities and competitiveness,
- Encourage better communication and productivity,
- Reduce vehicular travel for energy savings and safety enhancement
- Reduce overall footprint.

Program and line organizations develop facility consolidation plans, and that is the first step toward support of the development and coordination with TYCSP land use plans. The list of proposed projects resulting from consolidation planning efforts will be further incorporated into the TYCSP project list and coordinate with related project calls and budget requests.
Consolidation utilizes funds more effectively for upgrading and replacing substandard work facilities and allows for the evacuation

and demolition of poor and failed facilities. The consolidation plan identifies migration and facility demolition that contributes to an improved TYCSP D&D plan. Not only does removal of substandard space reduce workplace risks and health and productivity problems from inadequate building systems, but it also lowers long-term maintenance and operations costs. Appropriate consolidation plans encourage more effective use of the budget, offer longer term benefits for investment, and improve support for future missions.

Consolidation is an advantage for organizations and programs having functions spread across the Laboratory that could share common types of space and have common location requirements. TYCSP land use plans identify functional compatibilities for future program placement within the Laboratory. Organizations and programs are required to develop project proposals that include evaluations for cost avoidance and future cost savings and coordinate with the TYCSP. This process helps the Laboratory prioritize all budget requests and make better allocations using a consistent, graded approach.

Consolidation planning for ESA Division resulted in a new site vision

A principal area of ongoing consolidation planning is with Engineering Sciences and Applications (ESA) Division and Dynamic Testing (DX) facilities. This development will be included in the final TYCSP.

F. Vulnerable Office Buildings

One of the key strategies in addressing facility needs is the replacement of temporary structures across the Laboratory with larger quality structures. Not only does this approach address the cost of operations of maintenance, it provides for significant quality of life improvement. The quality of the work environment is a critical factor in retention and recruitment of our staff. This strategy will be further defined and integrated in the final TYCSP.

Background: The Laboratory has installed numerous "temporary" trailers and transportables over many years in order to provide workspace for employees. This practice has proven to be inefficient because of the high operational costs in addition to the fact that these facilities do not provide an effective work environment. Currently there are approximately 330 temporary structures (trailers and transportables), with 445,000 square feet housing over 2,000 people.

Until recently, GPP funding limits significantly restricted the construction of facilities without congressional approval of Line Item Projects. That GPP limit was raised to $5 million a few years ago. Within this funding level it is now possible to construct efficient office buildings of a size that provides some economy of scale and with a quality that can minimize long-term operational costs.

Three recent construction projects have been faced with the issue of constructing a quality building while minimizing cost and schedule. Each of these projects was developed using a design-build procurement process to maximize efficiencies.

What is design-build? Simply stated it is the award of a single contract for the design and construction of a building. This is in contrast with a traditional approach of contracting for design followed by the bidding of construction.

What are the benefits? This approach results in:

- Designer/contractor innovation in maximizing the product within the budget.
- Elimination of an independent Engineering Study as well as a separate A/E procurement process, with significant saving of time.
- An overlap of design and construction processes which also results in a shorter schedule.
- A single contractual source of responsibility.
- Risk reduction of accepting a bid within the budget.

What is the downside? Changing requirements has significant impact on schedule and cost. Some people have a perception that without providing a definitive design, there are too many general contractors that will not provide the expected quality. The RFQ process noted below addresses this issue.

Good candidate projects for design-build: Those projects in which the building requirements can clearly be defined are good candidates. The expectations of the final product must be clear to both the client and the contractor. Buildings that have purposes and systems that are common in commercial construction can be constructed effectively at LANL with a design-build approach – such as office buildings discussed in this paper.

Why are these recent D-B projects considered successes? These projects achieved more for the funding than the traditional design-bid-build process of recent years. They did this by defining the requirements clearly and then allowing the "pros" to develop and construct the solutions. The requirements establish the bounds or range of options in which the D-B contractor can develop solutions. The "pros" are those that provide similar products in the commercial sector everyday. They (designers and constructors) work together in the current market to find the best solution in meeting the requirements for

The Procurement Process

Request for proposals (RFP): Based on the requirements of the performance specifications, each of the short-listed contractors submits a proposal for the work. The Laboratory selects the contractor that provides the best value in meeting the requirements. The "best value" approach is a very different from that in which the contract is simply awarded to the "low bidder."

Request for qualifications (RFQ): *The purpose of this stage is to "short-list" 3 design-build companies based on their documented ability to provide similar structures to the satisfaction of the client. The RFQ process competitively limits the work to only those D-B contractors who exhibit a high level of quality performance.*

Baselines

Maximum Cost Baseline: Projects will have a maximum **total estimated cost (TEC) of $4.75M** in order to have a funding buffer with the $5M limit. The project team determines project management costs, contingency, and other costs that are beyond the design-build contract and establishes the budget available for that contract. Generally, one should expect about $3.5M to be established for the D-B contractor. In essence, design-build budget is to be provided to the contractors as part of the RFP. Their proposal will quantify what they will provide for the budget. The development costs proceeding contract award should be in the $150K range.

Scope Baseline: Projects shall include all aspects for a complete and usable office facility. All costs associated with design, site development, parking, construction, communication lines, furniture, etc. must be included in the capital (TEC) costs. Each project will be different. But, two recent projects have constructed about 24,000 square feet.

Schedule: Development time preceding the award of the design-build contract is approximately 4 to 6 months depending on how quickly the project requirements are established. The actual design and construction should be assumed to be 12 to 15 months, depending on

a given point in time. Remember the construction industry is comprised of many dynamic trades, crafts, suppliers, etc that are in constant transition. This approach allows those closest to the action to determine what best meets the quality requirements and is the most economical. Their solutions will respond to the current construction market conditions.

How can future projects build on past successes? Maintain a focus on the requirements – and range of options that can be accepted - not the final product. Previous projects are a good source for the development of the performance specifications. Many parts of the performance specs will be applicable to future projects. Much in the functions and operating requirements (F&ORs) may be very similar to other buildings. Again, the key to success is clearly defining the requirements and the range of options where possible. The project team must evaluate every page of the entire performance spec including the Special Provisions traditionally developed by BUS Division. Do not just adopt segments of previous project documents because they did well. The project team must strive for a balance in defining requirements while not over-specifying. Each RFP must also include quality site drawings (topography, utilities, other features) and a geotechnical report for subsurface conditions. In addition, graphic representations that depict project relationships/requirements may also be of value to include in the performance specification package.

Stay away from the "clone" or "cookie cutter" design approach.
Just because other projects were successful with satisfied customers, one should not try to copy those same solutions for the next project. Emulate their processes and learn from the team participants, but don't attempt to force fit previous project design solutions on a new site for a new client. Allow the D-B contractor to do what they do best to **maximize the product for the budget.**

Learn from previous projects, but remember no two projects are the same – because of:

- *Land Availability* (some sites have limited land and require 2 or more stories, while others have minimal constraints which might allow the contractor to determine if 1, 2, or even 3 floors can best be developed)
- *Site Characteristics* (topography, utility locations, building orientation, soil conditions, environmental constraints)
- *Different Owning Organizations* (some differences in F&ORs)
- *Different design team members* who are required to put their architectural and engineering seals on every drawing. (They cannot accept others' design solutions without performing complete services themselves – these involve evaluations and calculations in response to given requirements)
- *Evolution of Codes, industry standards, and LANL standards*.

- *Evolving Economic Conditions*; Every building is built in a different timeframe with different economic conditions. These conditions are not just the rate of inflation. Components within the construction industry continually respond to their particular market conditions.
- *Potential changes in procurement and funding requirements*.

Summary: There are some profound but subtle points that must be understood if a Laboratory team is to maximize a product within the budget of an office building developed using a design-build approach. The project team must have the mindset that it is not the entity that will actually be developing the solutions. Instead, it is defining the requirements for other entities, which are assumed to be in a better position, to define the final product. It can be difficult for creative people to have the discipline to stop short of the final solution and instead take the responsibility to verify that others achieve the requirements.

The FITS building at TA-55 was constructed through design-build

G. NEPA

(not noted in the guidance, but included to emphasize its critical importance as we address facility and infrastructure needs)

The Laboratory is committed to compliance with the National Environmental Policy Act (NEPA) requirements. Proposals developed by program and line organizations need to be and will be reviewed for NEPA coverage. Failure to ensure complete NEPA coverage could lead to adverse impacts on a project, ranging from delays to possible litigation. Proposed projects need to be at a sufficient stage of planning to allow for detailed NEPA analysis. When proposals are sufficiently defined, they are subject to review by DOE to determine the appropriate level of compliance action. This review could result in a determination that the proposed activity was analyzed (explicitly or implicitly) in the Site Wide Environmental Impact Statement (SWEIS); or the DOE could determine that the proposed project qualified to be categorically excluded from the need to prepare either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS); or the DOE could determine that the preparation of an EA or an EIS was necessary.

DOE assesses potential LANL projects for NEPA compliance action

Site planning includes assessments of potential futures. These are not necessarily commitments to pursue a specific project or set of projects. Projects or actions discussed in the TYCSP are not necessarily "proposed actions" in a NEPA sense, and there may be some of these that have no NEPA analysis underway or pending. When projects discussed in the TYCSP become proposed actions and are “ripe” for NEPA analysis, a NEPA strategy must be established and appropriate NEPA reviews performed in accordance with requirements and DOE policies.

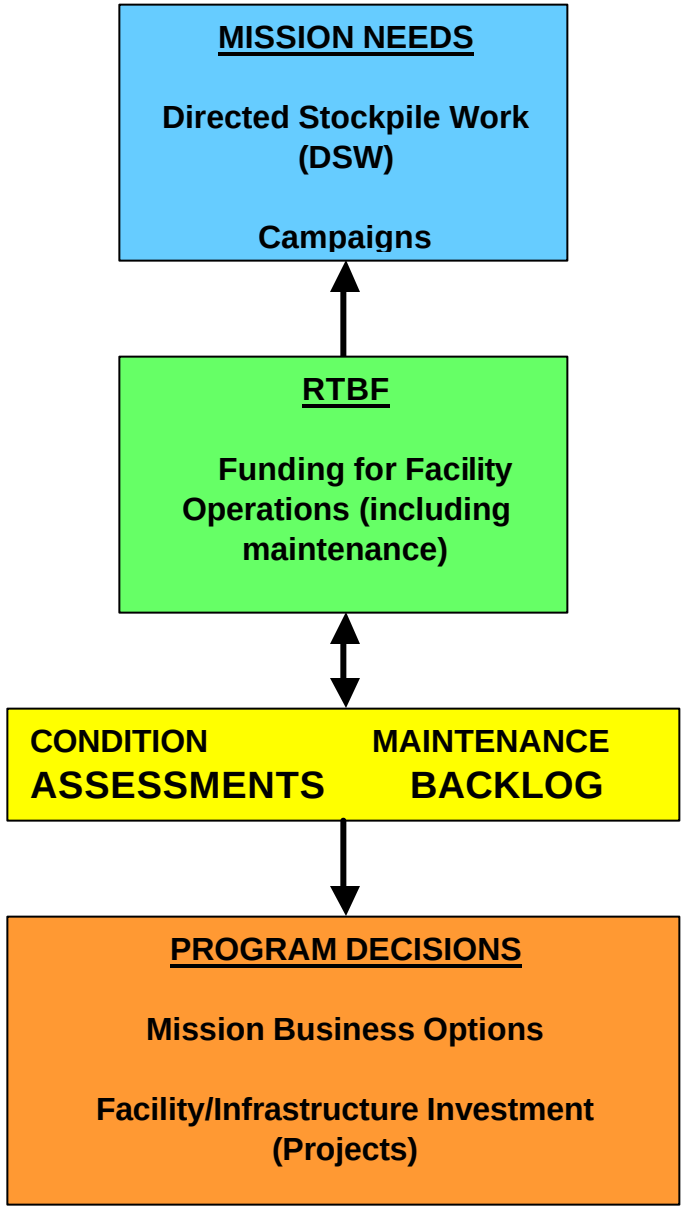
H. RTBF Integration

Readiness in Technical Base and Facilities is a crucial part of the DP program and the LANL funding base providing support for a broad range of activities from facilities to D&D operations. **The funding of facility operations, including maintenance, must be a core component, along with condition assessments and maintenance backlog data, to support programmatic decisions regarding future infrastructure investment.**

The FY2001 Los Alamos RTBF Implementation Plan is an integrated DP-10 and DP-20 planning and implementation tool for the following activities:

- Facilities, infrastructure, and institutional support
- Urgent maintenance and General Plant Projects (GPP)
- Waste management
- Materials recycle and recovery
- Decontamination and decommissioning (D&D) and management of surplus facilities
- Other DOE/DP mandates

The integration of DP-10 and DP-20 RTBF activities allows consistent methodologies for facility management, maintenance, and operations. The FY2001 RTBF IP is the second full year of RTBF planning and funding.



The creation of RTBF allows LANL to embark on a set of improvements focusing on facilities management techniques. These improvements included:

- Creation of "warm standby" condition and what it means to a facility management unit
- Development of a methodology to direct fund the facility management unit (previously in overheads)
- Improved cost reporting by individual facilities, and
- Establishment of more accountability within each facility management unit for maintenance and operations.

All these improvements allowed LANL to gain a better understanding of the true needs/requirements and costs of our facilities.

The further integration of the RTBF Implementation Plans with the TYCSP is a significant next-step in addressing both an understanding of facility requirements, as well as an approach in prioritization of resources in support of mission requirements. The FY01 RTBF Implementation Plans on the following pages will be further developed with the anticipated budget guidance and then integrated in the final TYCSP.

1. Engineering & Tritium Facilities

DATA SHEET COMPLETION DATE: *January 8, 2001*
RTBF PROGRAM ELEMENT: *Operation of Facilities*
RTBF ACTIVITY: *Operation of the DP Funded Facilities Operated by the Engineering Sciences & Applications Division (ESA).*
DP PROGRAM SPONSOR: *DP-17, Dennis M. Miotla, Associate Deputy Assistant Secretary for Facilities Management*
DP PROGRAM MANAGER: *DP-17, Michael Thompson, Program Manager*
M&O RESPONSIBLE MANAGER: *NW/IFC, James L. Holt, Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

This Implementation Plan Data Sheet includes five DP facilities operated by the Engineering Science Applications (ESA) Division, within the Nuclear Weapons Directorate.

Engineering Testing (Shake, Rattle & Roll) – The Engineering Testing Facility provides the capability for component and subsystem environmental testing including vibration, shock, and temperature evaluation in both destructive and non-destructive modes. This facility also allows evaluation of explosive and classified weapon components.

Engineering High Explosives (HE) Facilities –The Engineering High Explosives facility is located at TA-16 and TA-37. This facility incorporates the following buildings and functions:

- TA-16, Packing and Transportation, building 280-286
- TA-16, Pressing and Stock/Material Preparation and Mock HE, building 260, 430-437
- TA-16, Inspection, Building 260-267
- TA-16, Machining, building 260
- TA-16, Assembly, building 410-415
- TA-16, Disposal, building 385
- TA-16, Plastics and foams, components and characterization, building 304-307
- TA-16, Maintenance building 202,360,193, 200

- TA-16, Radiography, building 220-226
- TA-16, Burning ground, building289, 390, and HE Waste Water Treatment Facility
- TA-37, Storage Magazines

Engineering Assembly and Storage – TA-41 served as the assembly and storage facility for components and subsystems for 40+ years. As a result of the Cerro Grande Fire TA-41 is now closed and all activities have been moved to TA-16 building 202. As part of the fire recovery funding an office building will be built in FY01 to house people from TA-41. Until that office building is complete, many ESA staff are doubled-up in offices around TA-16. The Engineering Assembly and Storage facility provides the capability to test gas transfer systems; assemble, inspect and test inert pits; and test and/or store other classified assemblies for the nuclear weapons program.

Engineering Machine Shops – Provides the capability to machine most of the components for the nuclear weapons research and development program such as components for the hydrotest program, joint test assemblies, sub-critical experiments, and other LANL programs. It also has some materials forming and joining capabilities. Other related manufacturing activities includes inspection, and advanced manufacturing technology development.

Tritium Facilities – The Tritium Science and Fabrication Facility (TSFF) and the Weapons Engineering Tritium Facility (WETF) have a primary role in the area of Stockpile Boost System Research & Development, and support the long-term Neutron Tube Target Loading (NTTL) production mission.

Campaigns/DSW Supported by this Program Element
Engineering Testing – Enhanced Surety Options for Stockpile; Weapon System Engineering Certification; DSW/Baselining; DSW/Assessment & Certification; DSW/Refurbishment; DSW/Surveillance. **Engineering High Explosives** – Primary Certification; DSW/Baselining; DSW/Assessment & Certification; DSW/Refurbishment; DSW/Surveillance. **Engineering Assembly and Storage** – DSW **Engineering Machine Shops** – Primary Certification; DSW/Baselining; DSW/Assessment & Certification; DSW/Refurbishment; DSW/Surveillance. **Tritium Facilities** – DSW

Funding Profile (Figures $1,000K)											
	2001	2001	2001	2002	2002	2002	2002	2002	2003	2004	2005
Description	DP-10	DP-20	Total	DP-10	DP-20	Total	DP-10 OT	DP-20 OT	Total	Total	Total
Facility Operations	14.9	15.8	30.7	16.4	15.2	31.6	-	-	32.5	33.5	34.5

EXPLANATION OF CHANGE [S] FY 2001-FY2005: The escalation in funding from FY01 – FY05 requested for the engineering facilities directly relate to a 3% inflation factor.

FY 2001 PLANNING & ACTIVITY MANAGER'S SELF ASSESSMENT: Maintenance backlog on existing facilities is growing in the ESA Division and does pose increased risk for the operations. We are able to maintain the safety, security and compliance envelope but long-term sustainability is in question. Most of the Engineering Facilities are well beyond design life and would require significant investments to complete maintenance backlogs.

Within ESA Facilities, the high-level maintenance backlog items that are not being addressed in FY2001 currently include:

- Packaging and Transportation – Additional Requirements in the Engineering High Explosives Facilities require $800K, which is currently unfunded, to address new packaging and transportation requirements that cannot be met.
- Closure of the BE Shop (SM-102) – The new Beryllium Technology Facility is coming on-line in FY2001, and RTBF Warm Standby funding is in target for the operations of this new facility. However, the existing BE Shop, SM-102, is no longer operational and requires cleanup and potential D&D. No funding has been identified in FY2001 to address this. A detailed estimate has not been developed; however, it is assumed that this will be a multi-million dollar project.

WETF Safety Analysis Report (SAR) – The WETF SAR was funded in FY2000; however, due to SAR development problems, this effort is now planned for completion in April, 2001. No funding was included in the FY2001 RTBF baseline for either the tritium facilities or the Authorization Basis Project. This $700K effort will be funded with existing Tritium Facility Warm Standby funding; however, that means that $700K of existing Warm Standby Tritium Facility scope will not be completed and has been moved to overtarget in FY2001.

A new consolidation initiative proposed by ESA reduces the facilities' space requirements by ~30% and improves energy and operational efficiency significantly. This proposal reduces ~300,000 square feet of space by closing and ultimately D&D'ing a number of old facilities while maintaining some usable existing facilities, and adding some new facilities. This combination allows improved energy and reduced maintenance costs with better functional operations with today's mission. The cost over five years to implement this plan is ~$65M, with pay back in ~8 years from initial start of plan. The entire $65M is GPP or expense funded projects—no line items required. By implementing this proposal, the maintenance backlog would be significantly reduced.

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: The facilities at TA-16 are some of the oldest at LANL. These facilities require significant maintenance to maintain operational status and with the limited funding available in RTBF, these facilities are not sustainable. Risks continue to increase and our best hope for solving the situation is the consolidation plan. This plan has also become a positive indicator for the Engineering staff that the poor conditions can be improved. Finding ways to support full funding for the consolidation is extremely important.

2. Los Alamos Neutron Science Center (LANSCE)

DATA SHEET COMPLETION DATE: *January 8, 2001*
RTBF PROGRAM ELEMENT: *Operation of Facilities*
RTBF ACTIVITY: *Operation of the LANSCE Facilities*
DP PROGRAM SPONSOR: *DP-17, Dennis M. Miotla, Associate Deputy Assistant Secretary for Facilities Management*
DP PROGRAM MANAGER: *DP-17, Michael Thompson, Program Manager*
M&O RESPONSIBLE MANAGER: *NW/IFC, James L. Holt, Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

Accelerator Readiness – The LANSCE Accelerator is the high-intensity, one-megawatt (MW) proton linear accelerator feeding three stages of accelerators and injectors to achieve the 800 MeV final particle energy. The beam delivery and target station complex includes the Proton Storage Ring, beam-transport lines and target stations at 1L, Weapons Neutron Research (WNR) target-2, WNR target-4 and Area C.

Weapons Neutron Research Facility – At the WNR Facility, high-energy, unmoderated, neutrons and protons are used for basic and applied research in nuclear science and weapons-related measurements. WNR provides the highest flux of high-energy neutrons in the world.

Lujan Center – Experimental equipment at the Manuel Lujan Jr. Neutron Scattering Center (Lujan Center) employs moderated spallation neutrons from the LANSCE 1L target for condensed-matter science, engineering, and nuclear science research. The Lujan Center has 17 flight paths that serve a variety of specialized neutron scattering spectrometers as well as providing neutron beam for other purposes. The Lujan Center is operated as a "user facility" and serves a very broad community of material scientists, engineers, and nuclear physicists. During a typical year of operations, the experimental activities of hundreds of users can be accommodated.

Campaigns/DSW Supported by this Program Element
Accelerator – Primary Certification; Materials Dynamics; Advanced Radiography; Secondary Certification, and Enhanced Surveillance. **WNR** – Primary Certification & Secondary Certification **Lujan Center** – Materials Dynamics and Enhanced Surveillance

Funding Profile (Figures $1,000K)

	2001	2001	2001	2002	2002	2002	2002	2002	2003	2004	2005
Description	**DP-10**	**DP-20**	**Total**	**DP-10**	**DP-20**	**Total**	**DP-10 OT**	**DP-20 OT**	**Total**	**Total**	**Total**
Facility Operations	**38.0**	**-**	**38.0**	**39.2**	**1.03**	**40.2**	**4.5**	**-**	**41.4**	**42.6**	**43.9**

EXPLANATION OF CHANGE[S] FY 2000-FY2006:. Over target has been identified in FY02 to address deferred maintenance to sustain facility operations. The in-target funding increases represent a 3% annual inflation growth from FY2001 to FY 2005. Over target amounts for FY03 and beyond are not shown.

FY 2002 PLANNING & ACTIVITY MANAGER'S SELF ASSESSMENT: LANSCE has significant maintenance backlog issues. Because LANSCE is a user facility less flexibility can be afforded for down time. The complexity of maintaining LANSCE, and the age of the facility add to the challenges of keeping this facility fully operational. The RTBF funding has provided several upgrades that reduce risk of down time, but many other issues still exist. If LANSCE is to continue long-term, additional funding will be required.

Within LANSCE Division, the high-level maintenance backlog items that are not being addressed in FY2001 include:

- Capacitor Replacement Project – the existing capacitors at LANSCE are vintage 1977 and 1987. As individual capacitors fail, fires develop in the capacitor rooms. The Fire Department is concerned over the number of fires occurring in LANSCE capacitor rooms over the last few years (5 in FY2000). A currently unfunded $750K project includes the replacement of all capacitors at LANSCE to reduce the risk of future fires.
- Breaker Maintenance – Recent experience has shown that breaker maintenance will reduce the risk of future breaker failures. A currently unfunded $200K project has been identified and is being postponed until funding is found.

- Electrical System Upgrades – small upgrades to the LANSCE electrical system will allow for better system reliability, avoiding unplanned suspension of operations. A currently unfunded $200K project has been identified and is being postponed until funding is found.
- Mixed Waste Characterization and Disposal – LANSCE has identified $1.3M of funding required to address TA-53 waste management issues, including the removal of legacy waste, the implementation of aggressive waste identification and management efforts, and the disposal costs associated with these wastes. Compliance with the new DOE Order 435.1 (Radioactive Waste Management) must be implemented by 01-Oct-2001, and Disposal must by complete by 01-Oct-2002; however, all of this work is currently unfunded.

- Other LANSCE Facility Requirements that have been deferred due to lack of funding in FY2001:
- $100K - Extra Week of 100 Hz operations to accommodate calendar
- $300K – 3 weeks of operation to accommodate early completion of Outage
- $200K – Personnel access control for WNR experimental area
- $700K – Waste Disposal
- $35K – Analysis of water system in 1L Target Nuclear Facility
- $788K – Maintenance Implementation Plan
- $100K – Critical Facility Electrical System Spares
- $150K – Electrical Distribution Sectors B-H
- $666K – Nuclear Facility CM Program Implementation
- $188K – FM and Nuclear Facility CM Program Implementation

FY02 over target has been identified to address deferred maintenance to sustain facility operations at the LANSCE Accelerator. Safety can and will be ensured. Within the current target budget, the sustainability of facility operations cannot be assured. Past lack of adequate resources has resulted in long-term postponement of maintenance and infrastructure renewal.

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: LANSCE is an old and complex facility requiring significant maintenance. Today, the investment in LANSCE is minimal, with only enough funding to sustain near-term operations. Additional funding must be forthcoming if long-term sustainability is to be achieved.

3. Dynamic Testing (DX)

DATA SHEET COMPLETION DATE: *January 8, 2001*
RTBF PROGRAM ELEMENT: *Operation of Facilities*
RTBF ACTIVITY: *Operation of the DX Division Facilities*
DP PROGRAM SPONSOR: *DP-17, Dennis M. Miotla, Associate Deputy Assistant Secretary for Facilities Management*
DP PROGRAM MANAGER: *DP-17, Michael Thompson, Program Manager*
M&O RESPONSIBLE MANAGER: *NW/IFC, James L. Holt, Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

This Implementation Plan Data Sheet includes five DP facilities operated by the Dynamic Experimentation Division, within the Nuclear Weapons Directorate at LANL

HE Detonator Facility – This facility provides the capability for design, development, manufacturing, and testing of Detonator systems for the Weapons program. This includes War Reserve Production and Surveillance of detonators for Stockpile Systems and fabrication of initial systems in support of various experimental programs at Los Alamos and the Nevada Test Site. The Production and Surveillance mission was transferred to this facility under the Non-Nuclear Reconfiguration program. This mix of activities supports both DP-10 and DP-20 activities.

HE Science Facility – This facility houses various experimental activities for the characterization of high explosives in normal and abnormal environments. The results from these activities are critical to understand performance, safety and reliability of nuclear weapons.

Dual-Axis Radiographic/Radiography Hydrotest (DARHT) – The first of DARHT's two x-ray systems came on line in July 1999 and the second will be operational by September 2002. The first axis machine is used to perform non-nuclear hydrodynamic experiments designed to study implosion systems, shock physics and high velocity impacts. The radiographic images at DARHT together with other diagnostic measurements are essential for certifying the safety, reliability, and performance of the weapons in the stockpile. DARHT, when complete, will be a dual axis x-ray radiographic hydrotest machine that will enable three-dimension data acquisition.

Firing Sites – The firing sites host a variety of experiments used to ensure the safety and surety of the enduring stockpile. The data obtained from these dynamic experiments are used for the validation of computer codes to extend detailed knowledge of detonations and deflagrations physics on materials subjected to extreme pressures and temperatures. The firing sites employ various state-of-the-art diagnostics, and many sites have unique capabilities. This allows a wide range of HE experiments and diverse diagnostics to be staged and performed.

Campaigns/DSW Supported by this Program Element
HE DETS – Primary Certification; Materials Dynamics; DSW **HE Science** – Primary Certification; Materials Dynamics; SS&C/SC/Lifetime Assessments; DSW **DARHT** – Primary Certification; Advanced Radiographic Images; Nuclear System Margin & Secondary Certification. **Firing Sites** – Primary Certification; Materials Dynamics; DSW

Funding Profile (Figures $1,000K)

	2001	2001	2001	2002	2002	2002	2002	2002	2003	2004	2005
Description	**DP-10**	**DP-20**	**Total**	**DP-10**	**DP-20**	**Total**	**DP-10 OT**	**DP-20 OT**	**Total**	**Total**	**Total**
Facility Operations	**23.2**	**4.3**	**27.5**	**25.7**	**4.4**	**30.1**	**-**	**-**	**31.0**	**32.0**	**32.9**

EXPLANATION OF CHANGE[S] FY 2001-FY2005: Increases in DX funding are mainly attributable to DARHT requirements as it becomes operable. FY01 warm standby costs for DARHT reflect first axis operability and an increase in the number of hydrotests planned. The FY02 funding reflects start of 2nd axis operability. Other facilities within DX Division require only inflation related increases in funding.

FY 2001 PLANNING & ACTIVITY MANAGER'S SELF ASSESSMENT: Many of the DX facilities are more than 40 years old. These facilities are notoriously poor from an energy usage standpoint and they require significant routine maintenance. The RTBF funding for warm standby maintains the safety, security and compliance envelope but fall short of providing a sustainable condition for these facilities. DX is working to develop a consolidation plan similar to the ESA plan that will reduce space requirements and add new, more efficient facilities requiring less maintenance. Completion of the DX plan is expected by mid-FY01. Funding strategies will be proposed to DOE for concurrence before the end of FY01.

Within DX Division, the high-level maintenance backlog items that are not being addressed in FY2001 are:

- DARHT – DX Division has identified $810K associated with the DARHT facility that is currently unfunded. This includes a Microdensitometer Upgrade ($72K) and maintenance for configuration control, safety system and accelerator ($738K). If maintenance costs are not covered by RTBF, programs will be charged to continue DARHT operations.
- Firing Sites – DX Division has identified a number of unfunded items associated with the Firing Sites. These include:
  - $110K – Electronic Maintenance: Maintenance of data acquisition systems.
  - $120K – Control System Maintenance: Without proper maintenance, operational costs and inefficiencies will continue to escalate.
  - $953K – Physical Maintenance: Without proper RTBF funding, firing site availability will be limited and a shift of maintenance costs to programs will result in a loss of deliverables.
  - $180K – Rack of Scopes, Delay Generators and Time Meter: Replace failing equipment.
  - $250K – Timing Firing and Data Acquisition Replacements: Upgrade of existing components to increase efficiencies.
  - $130K – Argon Flash: Replacement of Argon Flashboxes with electronic lighting to increase operational efficiency.
  - Other items which are partially funded with shortfall potentially impacting safety and the ability to produce program deliverables:
    - $50K – 50% of Safety Management Cost:
    - $25K – 50% of Access Control Costs at Ancho Canyon
    - $17K – 85% of Classified Material Management Support
    - $25K – 50% of Crane and Heavy Equipment Operations Maintenance
    - $25K – 50% of Institutional Training Costs

HE Science – DX Division has identified replacement of the Spark Machine as an unfunded item in FY2001. The spark machine is needed for HE safety tests and the existing machine is no longer reliable. Safety requirements will not be met if HE sensitivity tests are not performed.

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: The majority of the DX facilities are more than 40 years old. These facilities require significant maintenance to maintain operational status and with the limited funding available in RTBF, these facilities are not sustainable. Risks continue to increase and our best hope for solving this difficult situation is the consolidation plan being developed. It is imperative that full development, evaluation and implementation of the consolidation effort occur as quickly as possible. The RTBF funding is not sufficient to maintain the present aged facilities.

4. Material Science and Laser Facilities

DATA SHEET COMPLETION DATE: *January 2001*
RTBF PROGRAM ELEMENT: *Operation of Facilities*
RTBF ACTIVITY: *Beryllium Technology Facility*
DP PROGRAM SPONSOR: *DP-20, David Beck, Deputy Assistant Secretary for Military Application and Stockpile Operations*
DP PROGRAM MANAGER: *DP-24, Dale Dunsworth, Site Lead for LANL Nuclear Production Facilities*
M&O RESPONSIBLE MANAGER: *Scott Gibbs, LANL NW-MM Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

Beryllium Technology Facility - LANL and DOE have designed and built a new Beryllium Technology Facility (BTF) that will provide the only technical capability within the DOE for non-nuclear component fabrication and beryllium research and development. These activities were performed previously at Rocky Flats and at older facilities at LANL. The BTF will provide a state-of-the-art facility for limiting beryllium exposure in a workplace where all beryllium-related operations can be consolidated. The beryllium operations to be performed at BTF will include alloy development, foundry operations, inspections and nondestructive testing, joining and coating, machining, metallography, mechanical testing, and powder operations. The readiness assessment for the BTF will be completed in FY01 and the facility will be fully operational.

Campaigns/DSW Supported by this Program Element
DSW and Pit Readiness Campaign

Funding Profile (Figures $1,000K)											
	2001	**2001**	**2001**	**2002**	**2002**	**2002**	**2002**	**2002**	**2003**	**2004**	**2005**
Description	**DP-10**	**DP-20**	**Total**	**DP-10**	**DP-20**	**Total**	**DP-10 OT**	**DP-20 OT**	**Total**	**Total**	**Total**
Beryllium Technology Facility	**-**	**5.8**	**5.8**	**-**	**5.9**	**5.9**	**-**	**-**	**6.1**	**6.3**	**6.5**

EXPLANATION OF CHANGE [S] FY 2001-FY2005: Changes from FY01 to FY02 include inflationary increases to ensure sustainability of this facility. From 2002 to 2005, a 3% annual inflation has been applied. Over target amounts for FY03 and beyond have not been shown.

FY 2001 PLANNING

The Beryllium Technology Facility is a new facility. Full funding as proposed in this IP provides for warm standby operations with full maintenance for sustainability. Maintenance needs within the facility will be met, including preventive and corrective maintenance.

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: This IP was written with the assumption that $29 million in requested reprogramming for FY01 would be approved and allocated to the Laboratory. Without the proposed reprogramming, the Laboratory will be obligated to place this facility in a safe configuration and cease operations on or about June 1, 2001.

5. Waste Management

DATA SHEET COMPLETION DATE: *January 2001*
RTBF PROGRAM ELEMENT: *Operation of Facilities*
RTBF ACTIVITY: *Waste Management*
DP PROGRAM SPONSOR: *DP-17, Dennis M. Miotla, Associate Deputy Assistant Secretary for Facilities Management*
DP PROGRAM MANAGER: *DP-17, Michael Thompson, Program Manager*
M&O RESPONSIBLE MANAGER: *Scott Gibbs, LANL NW-MM Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

Waste Management Facilities – This Implementation Plan Data Sheet includes five waste management facilities operated by Facility and Waste Operations and Chemistry Divisions.

TA-50 Radioactive Liquid Waste Treatment Facility:

The Radioactive Liquid Waste Treatment Facility (RLWTF) handles collection and treatment of radioactive liquid waste generated at several laboratories, reactors, and shops across LANL.

To effectively manage the waste, separation processes, reverse osmosis, ultrafiltration membranes, and evaporation are used to concentrate the radioactive constituents into a solid. The solid is either disposed of as a low-level waste at TA-54, Area G, or stored as a transuranic waste at Area G pending shipment to the Waste Isolation Pilot Plant (WIPP).

To meet new codes and regulations, the facility has undergone – or is presently undergoing – several upgrades, including the replacement of old equipment and non-routine maintenance. This has included the installation of a number of membrane systems, which include the Tubular Ultra Filter (TUF), Centrifugal Ultra Filter (CUF), Reverse Osmosis Unit (RO), and the Electro-Dialysis Unit (EDR).

TA-54 Solid Waste Operations:

The Solid Radioactive Waste Management Facility at TA-54 handles all solid radioactive waste generated at LANL, including low-level, mixed low-level, chemical, and transuranic. Low-level waste is disposed of on-site at a location known as TA-54, Area G. Sorting & segregation, supercompaction, decontamination, size reduction, and polymer encapsulation are a few of the techniques used to reduce the volume of waste actually shipped or disposed. Mixed low-level waste (MLLW) is stored at TA-54, Areas G and L, and prepared for shipment to offsite treatment and disposal facilities after being identified and classified. TA-54 includes the operations for collection and temporary storage of chemical and hazardous wastes. These wastes are eventually shipped off-site for treatment and disposal. Both transuranic (TRU) waste and Mixed TRU are managed together at the Laboratory and are often collectively referred to as TRU waste. At present, TA-54 has approximately 10,000 cubic meters of TRU waste in interim storage in a combination of earthen covered pads and dome-covered pads.

RANT/RAMROD/WCRR Facilities:

The Radioactive Materials, Research, Operations, and Development (RAMROD) facility is located at TA50, Building 37, and was authorized to operate under an FSAR/TSR as a hazard category 2 nuclear facility in February 1999. The operations initially approved included the use of drum coring equipment to remove samples of solid cemented waste, and the use of glove boxes and fume hoods to analyze these samples for volatile and semi-volatile organics and metals. In addition, the facility contains a permitted Container Storage Area, which allows the storage of up to 100 drums of TRU waste to be characterized. Future upgrades are planned, including a revision to the FSAR in FY01 to allow additional TRU waste characterization capabilities.

The Waste Characterization, Reduction, and Repackaging (WCRR) Facility located at TA-50 supports size reduction activities. The facility has added the capability to open drums of waste in a large glove box, visually examine the waste, sort it into compatible segments, and repackage it into drums. Drums can be further repackaged into standard waste boxes for shipment to WIPP. The facility also includes a hazard category 2 permitted container storage area. When the Readiness Assessments in progress are completed, the facility will add the capability to allow mobile suites of non-destructive testing and assay equipment to operate in the yard.

The Radioassay and Non-Destructive Test (RANT) Facility is located at TA-54 and includes a RCRA permitted container storage area in the yard. Completion of authorization basis documents in progress will raise the hazard category of the facility to a two in order to accommodate

sufficient TRU waste inventory to meet the increasing characterization activities and shipments to WIPP. The facility supports non-destructive testing and analyses of containerized TRU waste with fixed equipment, as well as assembly of drums and standard waste boxes into payload assemblies, which are loaded into Transuranic Waste Package Transporter (TRUPACT) II containers for shipment to WIPP.

Campaigns/DSW Supported by this Program Element
These are crosscutting functions that support all DP-10 and DP-20 Campaigns and Directed Stockpile Work. The majority of the activities are associated with handling of radioactive waste.

Funding Profile (Figures $1,000K)											
	2001	**2001**	**2001**	**2002**	**2002**	**2002**	**2002**	**2002**	**2003**	**2004**	**2005**
Description	**DP-10**	**DP-20**	**Total**	**DP-10**	**DP-20**	**Total**	**DP-10 OT**	**DP-20 OT**	**Total**	**Total**	**Total**
Waste Management Facilities	**26.5**	**-**	**26.5**	**29.8**	**-**	**29.8**	**3.6**	**-**	**30.7**	**31.6**	**32.5**

EXPLANATION OF CHANGE[S] FY 2001-FY2005: Changes from FY01 to FY02 include increases in facility maintenance and operations programs to begin addressing maintenance issues in these facilities. From 2002 to 2005, a 3% annual inflation has been applied. Over target amounts for FY03 and beyond have not been shown.

FY 2001 PLANNING: The Waste Management facilities vary in age from 20 to 50 years old. Currently, the facilities are operating safely; however, we cannot assure facility sustainability at current funding levels. Facility reinvestment at Los Alamos continues to be inadequate in FY2001 and FY2002. Increased funding is essential in order to maintain our Waste Management facilities in a safe, secure, sustainable, environmentally compliant and cost-effective manner. The TA-50 RLWTF and the TA-54 Solid Waste Operations (SWO) only have funding to support normal operations. Maintenance is addressed at an absolute minimum level to operate safely, and these two facilities are operating to failure. RANT, RAMROD, and WCRR, the TRU facilities, have funding sufficient for warm standby and basic maintenance. *Emergency*

maintenance needs are met; however, facility sustainability is not addressed. Over target funding has been identified and prioritized to address urgent maintenance needs in the Waste Management facilities.

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: At current funding levels maintenance will be deferred, sustainability of facility operations will be at risk, and full implementation of the TA-50 Strategic Plan cannot be accomplished.

6. Nuclear Facilities

DATA SHEET COMPLETION DATE: *January 2001*
RTBF PROGRAM ELEMENT: *Operation of Facilities*
RTBF ACTIVITY: *TA-55, CMR, and TA-18*
DP PROGRAM SPONSOR: *DP-20, David Beck, Deputy Assistant Secretary for Military Application and Stockpile Operations*
DP PROGRAM MANAGER: *DP-24, Dale Dunsworth, Site Lead for LANL Nuclear Production Facilities*
M&O RESPONSIBLE MANAGER: *Scott Gibbs, LANL NW-MM Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

Nuclear Facilities – This Implementation Plan Data Sheet includes the three major DP-20 nuclear facilities operated by Nuclear Materials Technology (NMT) and Nonproliferation and International Security (NIS) Divisions within the Nuclear Weapons Directorate. The subcategories are as follows:

TA-55 – Operation of TA-55 provides the safe, compliant facility infrastructure base to support programmatic activities. The LANL Plutonium Facility Site, TA-55, consists of a complex of five main buildings: an administration building, a support office, a support building, the main plutonium facility building (known as PF-4), and a warehouse. Activities housed in the complex include plutonium casting, fabrication, machining, and metallurgy laboratories; plutonium recovery shops; metal preparation; laboratories; and destructive analysis and nondestructive analysis (NDA) laboratories. It also contains a special nuclear material (SNM) storage vault. TA-55 supports pit manufacturing, surveillance, and special recovery. It also supports work for other programs in Pu-238RTG development and manufacturing and disposition of pits.

CMR – Operation of the CMR facility provides the safe, compliant facility infrastructure base to support programmatic activities. The actinide analytical chemistry capabilities housed in the CMR facility include a broad spectrum of actinide, metallurgical, and materials properties testing systems. These activities are critical for the support of Pit Surveillance, Accelerator Production of Tritium, Detonator Surveillance, Pit Manufacturing, U-233 Highly Enriched Uranium Vulnerability Assessment Finding (97-1), enhanced surveillance, Stockpile Stewardship Programs and other non-specific Stockpile Management programs.

TA-18 – The objective is to operate TA-18 safely and within its DOE-approved Authorization Agreement. The facility is managed in order to safely and securely store nuclear material and in support of the Los Alamos Critical Experiments Facility (LACEF), Emergency Response Programs, and other non-DP programs. TA-18 supports nuclear criticality research addressing national nuclear issues, training of various national groups in the use of nuclear instrumentation for assay and safe handling, and supports development and calibration of nuclear radiation measurement equipment so it can detect and identify minute to sizable quantities of nuclear materials. The facility supports basic research in nuclear chain-reacting systems and facilitates contributions to arms control and treaty verification, waste assay, safeguards and accountability, and environmental restoration.

The RTBF funding is used to maintain the facility and the nuclear critical-mass-assemblies in a state of readiness in order for the tenant to accomplish programmatic objectives.

Campaigns/DSW Supported by this Program Element
DSW, Primary Certification, Dynamic Materials Properties, Enhanced Surveillance, Pit Manufacturing Readiness, RTBF (other special project elements of RTBF)

Funding Profile (Figures $1,000K)											
	2001	**2001**	**2001**	**2002**	**2002**	**2002**	**2002**	**2002**	**2003**	**2004**	**2005**
Description	**DP-10**	**DP-20**	**Total**	**DP-10**	**DP-20**	**Total**	**DP-10 OT**	**DP-20 OT**	**Total**	**Total**	**Total**
TA-55	**3.4**	**53.4**	**56.8**	**3.4**	**55.5**	**58.9**	**-**	**-**	**60.7**	**62.5**	**64.3**
CMR		**26.8**	**26.9**		**28.0**	**28.0**			**28.8**	**29.7**	**30.6**
TA-18		**5.4**	**5.4**		**6.0**	**6.0**			**6.2**	**6.4**	**6.6**
Totals	**3.4**	**85.7**	**89.1**	**3.4**	**89.5**	**92.9**	**-**	**-**	**95.7**	**98.6**	**101.5**

EXPLANATION OF CHANGE[S] FY 2001-FY 2005: Changes from FY01 to FY02 begin to address short falls in maintenance and operations funding to address sustainability in these facilities. From FY 2002 to FY 2005, a 3% annual inflation has been applied. Over target amounts for FY03 and beyond have not been shown.

FY 2001 PLANNING: The CMR facility is over 45 years old and continues to require reinvestment. TA-55 is over 20 years old and requires reinvestment. FY2000 funding did not allow us to address urgent maintenance needs beyond required Technical Safety Requirements/Review (TSR) Upgrades as part of the CMR Upgrades Project, and the Fire Protection Yard Main Replacement and Transition Manufacturing and Safety Equipment (TMSE) Projects at TA-55. CMR and TA-55 are operated safely; however, funding for facility reinvestment continues to be inadequate in FY2001 and FY2002. In order to maintain facilities in a safe, sustainable, environmentally compliant and cost-effective manner, increased funding is essential.

Some buildings in TA-18 are over 40 years old. FY2000 funding did not allow us to address urgent maintenance needs beyond emergency maintenance. As indicated by the TA-18 stand-down of August 1998 and the subsequent Management Safety Assessment, TA-18 requires improvement in management processes and operating practices in order to continue operations. Additional resources are necessary to develop, implement, and maintain these improved processes to ensure the facility meets more stringent operating requirements. Funding in FY01 and FY02 only addresses required improvements in formality of operations.

FY2001 funding for CMR, TA-55, and TA-18 is sufficient only to provide warm standby with emergency maintenance. Facility sustainability cannot be assured at current funding levels.

Within NMT Division, the high-level maintenance backlog items that are not being addressed in FY2001 are:

- Full Type A Response – Corrective actions required in response to Type A Accident Investigation findings have a significant impact on maintenance at TA-55 and CMR. Current funding does not allow for full response. The funding needed for full response is $3,100K.
- Required Maintenance – There are a number of essential, but deferred FY01 maintenance projects at TA-55 and CMR. These are:
- $650K – TA-55 13.2 KV Switchgear Modifications
- $250K - TA-55 PF-6 Emergency Power
- $400K – TA-55 Replace Fire Alarm Panel
- $150K – TA-55 Replace HEPA Filters
- $25K – TA-55 Fix PF-6 Combustion Air
- $150K – TA-55 Install Hot Water Boiler
- $715K – TA-55 Replace Zone 1 Dryer

- $160K – TA-55 Paint PF-5 and PF-6
- $90K – CMR Fire Door Repair, Filter Towers
- $120K – CMR Supply/Exhaust Fan Motor Replacement and Spares
- $250K – CMR Acid Drain Wrapping
- $400K – CMR Process Chilled Water Chiller Replacement
- $700K – CMR Fire Alarm Field Device Replacement
- Waste Management – There are a number of waste management issues at TA-55 and CMR that are not funded through RTBF. These include
- $450K – Resource Conservation Recovery Act (RCRA)-Waste Storage
- $400K - RCRA Rooms 9030 and B235 Closures
- $150K - PCB-Database Tracking
- $800K - Relocation of the Waste Management Operations from Wing 4 to Wing 5

Other Facility Support – There are a number of facility support functions that are not funded to the amount of $2,600K. This includes replacement of a neutron counter, conduct of programmatic NDA, and fourteen personnel positions three of which support facility data base systems and eleven of which provide radiological control technicians (RCTs).

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: This IP was written with the assumption that $29 million in requested reprogramming for FY01 would be approved and allocated to the Laboratory. Without the proposed reprogramming, the Laboratory will be obligated to place these facilities in safe configuration and cease operations on or about June 1, 2001. Without the remaining $3 million requested in reprogramming, the maintenance and sustainability of these facilities will be at risk. Current identified funding in this IP does not cover implementation of Type A corrective action plans at CMR and TA-55.

7. DP10 Other Direct Funded

DATA SHEET COMPLETION DATE: *January 2001*
RTBF PROGRAM ELEMENT: *Other Direct Funded Facilities/Balance of Plant*
RTBF ACTIVITY: *Other Direct Funded Facilities/Balance of Plant*
DP PROGRAM SPONSOR: *DP-10, David Crandall, Assistant Deputy Administrator for Research, Development and Simulation*
DP PROGRAM MANAGER: *DP-17, Dennis M. Miotla, Associate Deputy Assistant Secretary for Facilities Management*
M&O RESPONSIBLE MANAGER: *NW/IFC, James L. Holt, Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

Line Item Construction Other Project Costs (OPCs)

This sub-activity includes the OPCs associated with line item construction projects. Specific FY01 projects are the ongoing Strategic Computing Complex (SCC) and the proposed SM43 Replacement Project

GPP Construction/Engineering Studies

This sub-activity includes several new or ongoing construction projects in response to urgent maintenance or infrastructure needs. FY01 projects include cooling tower replacement at LANSCE, a new office structure allowing for consolidation of Tritium activities, electrical distribution upgrades at TA-15, and the relocation of HE Formulation from TA-16 to TA-9. In addition, engineering studies, which establish the baselines for these projects or those projects planned for FY02 start, are included.

Waste Processing

This sub-activity includes Waste Processing (not Waste Management Facilities) The three specific tasks are: 1) TRU characterization – The disposal path for TRU waste generated by DP at LANL is to characterize, certify, and ship the waste to WIPP. 2) Pollution Prevention/Waste Minimization – The Pollution Prevention Program improves Laboratory operations with the goal of preventing environmental damage and adverse regulatory findings. 3) Waste Disposition provides funding for packaging, certification, and disposal of new mission-related waste.

D&D/Surveillance and Maintenance

The Los Alamos National Laboratory currently maintains approximately 160 structures in excess status. Facilities established as "excess" have been determined to have no feasible future use. Some of these facilities have been shutdown for as many as 15 years. Additional facilities are expected to be excessed in coming years because of new mission strategies that include consolidation planning currently underway. This sub-activity addresses surveillance and maintenance of excess structures as well as deactivation and demolition of some structures. Surveillance and maintenance are required to assure that the inactive facilities do not pose an unacceptable risk to personnel or the environment until such time that they are removed. D&D removes obsolete structures in order to eliminate the ongoing risk and provide for future mission use of the land. Historically, the cost of waste disposal has increased significantly with regulatory evolution. While future increases in these costs cannot be predicted, there is no doubt that the postponement of D&D will yield an increase in D&D costs much higher than the rate of inflation.

Programmatic and Institutional Initiatives

This sub-activity includes Monitoring Wells, Seismic Studies, Authorization Basis, Independent Reviews, Russian Initiatives and Change of Station. The DP-10 Monitoring Well Installation Project provides for installation of 16 deep regional aquifer characterization/monitoring wells, hydrogeologic modeling and information management. The purpose of the Seismic Studies Project is to increase the seismic safety at the LANL site through improved understanding of the geological characteristics, seismic hazard, and engineering solutions. Authorization Basis supports the implementation of authorization basis requirements for all non-nuclear facilities in addition to the already implemented nuclear facilities authorization basis requirements. Independent reviews are being performed in association with base-lining efforts on all capital projects. Through the Russian Initiatives activity the US evaluates unique Russian advances in pulsed power technology, controlled thermonuclear fusion, properties of materials at extreme conditions and related areas, and incorporates Russian advances into US programs. Change of Station, is the expense of relocating LANL employees to Washington, D.C. to advise and consult with DOE on DP Programs.

Campaigns/DSW Supported by this Program Element
All DP-10 campaigns and directed stockpile work

Funding Profile (Figures $1,000K)											
	2001	2001	2001	2002	2002	2002	2002	2002	2003	2004	2005
Description	DP-10	DP-20	Total	DP-10	DP-20	Total	DP-10 OT	DP-20 OT	Total	Total	Total
DP10 Other Direct Funded Facilities	44.3	-	44.3	40.3	-	40.3	21.2	-	41.3	42.8	45.8

EXPLANATION OF CHANGE[S] FY 2001-FY 2005: From FY 2002 to FY 2005, a 3 % annual inflation increase has been applied. Over target amounts for FY03 and beyond have not been shown.

FY 2001 PLANNING

An adequate level of funding is not currently projected to support the level of construction necessary to address LANL infrastructure needs. These needs include both replacements of aging facilities as well as deferred and urgent maintenance needs to achieve efficiencies in operations, safety, and security. Program effectiveness will continue to be adversely impacted until adequate infrastructure investment is made. The Tri-Lab Construction Planning Initiative is a positive step to address these needs. This initiative has had great success over the last two years and should be continued.

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: The ongoing operation of facilities will be conducted in both a safe and a secure manner. However, the long-term sustainability of the facilities cannot be assured.

8. DP20 Balance of Plant

DATA SHEET COMPLETION DATE: *January 2001*
RTBF PROGRAM ELEMENT: *Recycle and Recovery Activities; Infrastructure Support; Institutional Support*
RTBF ACTIVITY: *Recycle and Recovery Activities; Infrastructure Support; Institutional Support*
DP PROGRAM SPONSOR: *DP-20, David Beck, Deputy Assistant Secretary for Military Application and Stockpile Operations*
DP PROGRAM MANAGER: *DP-24, Xavier Ascanio, Director, Office of Operations and Readiness*
M&O RESPONSIBLE MANAGER: *Scott Gibbs, LANL NW-MM Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

Recycle and Recovery Activities:

This set of activities includes the recovery and recycle of plutonium; the development and implementation of enhanced discard criteria; uranium packaging and shipment and uranium decontamination. In addition, planning and materials management functions are also included within the scope of this activity. These include nuclear materials planning and support; Integrated Nuclear Materials Information Systems (INMIS); criticality safety support for all nuclear materials operations; the Material Accountability and Safeguards System (MASS); and the Laboratory Information Management System (LIMS).

Infrastructure Support:

Chemistry and Metallurgy Research Facility (CMR) Upgrades – Operating moneys support activities required for execution and closeout of the CMR Upgrades Project (CMRU). The CMRU utilizes capitalized moneys to perform upgrades authorized by the Department of Energy. These operating moneys, or other project costs (OPC), provide the indirect resources needed to address issues encountered in the various upgrades performed by the project. These include environment, safety, and health (ES&H) oversight, risk analysis, waste management, records management, configuration management, training, and readiness assessments.

CMR Replacement (CMR-R) Planning – CMR-R is one of the highest priority planning activities at LANL. The CMR-R is being considered within the Integrated Nuclear Park (INP) strategic planning. The INP concept locates all security category II and III nuclear activities except

tritium within the TA-55 area at LANL. CMR-R planning will occur as a subset of the INP but as the highest priority element. In FY01, other project costs (OPC) for CMR-R provide the resources needed to address pre-conceptual planning and coordination activities required for preparation of a CD-0 Package by July of 2001.

Fire Protection Yard Main Replacement – Provide a complete replacement of the TA-55 Fire Protection Yard Main System. Cost elements include planning, design, reviews, construction, inspection, and start-up. Key activities include: seismic compliance modifications, replacement of entire fire protection yard main, decommissioning of existing fire protection yard main, seismic bracing of the two existing fire water tanks and the potable water tank, and National Fire Protection Association and National Electrical Code compliance upgrades.

Urgent Maintenance/GPPs – No funding available. All funding was used for Fire Protection Yard Main Replacement Project.

Institutional Support:

Program Planning – Provide Facilities Program Office planning and support for the effective integration of Materials and Manufacturing facility operations. Provide out year RTBF program requirements and program planning. Provide technical, mentor, and analysis support, including Reactor and Criticality Safety Committees, to the five materials and manufacturing facilities (TA-55, CMR, TA-18, WETF, and the Beryllium Technology Facility-BTF) and the institutional waste facilities (TA-50 and TA-54).

Project Operations Planning – Provide construction project reviews and programmatic planning and support for specific project development and management requirements definition activities on nuclear construction projects.

Seismic Evaluation and Analysis – There are two objectives for the seismic effort: 1) provide support for the Los Alamos Seismic Program in understanding seismic hazards; and 2) provide a level of effort support to ensure seismic analysis, design, and construction is performed consistently for all Associate Laboratory Director for Nuclear Weapons/Materials and Manufacturing (ALDNW/MM) nuclear construction projects.

Office of Authorization Basis – Provide coordination with the NW Program Directors (MM/IFC) and Facility Managers, and Project Managers and their Division Directors to prioritize, plan, and baseline major authorization basis activities as part of program planning. Direct funding to facilities to support completion of BIOs and SARs is included in each facility direct funding element.

Program Support – This element provides for general NW-M&M program management of all CSM activities under the auspices of four program managers and associated staff. Program Management funding contributes its full share for the administrative costs and staff services needed to support the Nuclear weapons directorate through the office of the ALDNW with its two Deputies for Nuclear Weapons Science and for Nuclear Weapons Systems. Funding is also included to support the WETF Building 450 ORR and Be Rule implementation.

Campaigns/DSW Supported by this Program Element
All DP-20 campaigns and directed stockpile work

Funding Profile (Figures $1,000K)

	2001	2001	2001	2002	2002	2002	2002	2002	2003	2004	2005
Description	**DP-10**	**DP-20**	**Total**	**DP-10**	**DP-20**	**Total**	**DP-10 OT**	**DP-20 OT**	**Total**	**Total**	**Total**
Other Direct Funded Facilities	**-**	**32.4**	**32.4**	**-**	**65.6**	**65.6**	**-**	**33.4**	**67.6**	**69.6**	**71.7**

EXPLANATION OF CHANGE[S] FY 2001-FY 2005: FY02 includes safeguards and security dollars. Safeguards and security was direct funded in FY01. Other increases include TA-18 relocation planning efforts, special recovery line (SRL) operations, and Defense Nuclear Facilities Safety Board (DNFSB) 00-1 implementation. From FY 2002 to FY 2005, a 3% annual inflation increase has been applied. Over target amounts for FY03 and beyond have not been shown.

FY 2001 PLANNING

An adequate level of funding is not currently projected to support the level of construction necessary to address LANL infrastructure needs. These needs include both replacements of aging facilities as well as deferred and urgent maintenance needs to achieve efficiencies in operations,

safety, and security. Program effectiveness will continue to be adversely impacted until adequate infrastructure investment is made. The Tri-Lab Construction Planning Initiative is a positive step to address these needs. Currently, this initiative addresses only Stockpile Stewardship facilities, and needs to be expanded to include Stockpile Management facilities. In addition, this initiative has had great success over the last two years and should be continued.

These IP activities include the LANL response to the DNFSB recommendation 00-1 for plutonium. At the target funding level, the stabilization schedule ends in FY13. The FY10 completion date is being advocated by the DOE and is what the DOE would like to present to the DNFSB as the Implementation Plan.

Overtarget funding has been identified in FY02 to address some deferred and urgent maintenance, implementation of the Beryllium rule, and GPP projects. This funding will begin to address DP-20 infrastructure needs at LANL.

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: This IP was written with the assumption that $29 million in requested reprogramming for FY01 would be approved and allocated to the Laboratory. Without the proposed reprogramming, the construction projects and planning activities will be severely impacted.

9. Special Projects

DATA SHEET COMPLETION DATE: *January 2001*
RTBF PROGRAM ELEMENT: *Special Projects*
RTBF ACTIVITY: *Special Projects*
DP PROGRAM SPONSOR: *DP-10, David Crandall, Assistant Deputy Administrator for Research, Development and Simulation*
DP PROGRAM MANAGER: *DP-17, Dennis M. Miotla, Associate Deputy Assistant Secretary for Facilities Management*
M&O RESPONSIBLE MANAGER: *NW/IFC, James L. Holt, Program Director*
BRIEF DESCRIPTION OF ACTIVITY:

This Implementation Plan Data Sheet includes Special Projects within the Nuclear Weapons Directorate. The listing of activities under this program element include:

a) Electrical Safety Infrastructure Upgrades – A series of independent General Plant Projects (GPPs) will address electrical safety upgrades in a number of DP-10 facilities. These projects have been prioritized based on safety risk. The specific scope for each project is intended to maximize the safety benefit for each dollar invested. These projects are designed to provide safe and reliable electrical service to the existing program demands within the facilities. FY01 is the third year of the planned seven-year effort.
b) Water Treatment and Conditioning – This is a General Plant Project to implement the best technology available to remove silica and other solids from water used in cooling towers. Cooling towers account for 60% of all water used at the Laboratory and the implementation of a water treatment program to remove solids will reduce the overall water use at the Laboratory by as much as 25%. Pilot tests were conducted in FY00 to establish the basis for the selection of the technology to be applied. Implementation of this institutional project has been planned so that the water savings is realized prior to full installation of the 30 Teraop computer in the Strategic Computing Complex.
c) ACTI-Tech Partnership – The mission of DP technology partnership programs is to catalyze, incubate and integrate industrial partnerships that directly support the Stockpile Stewardship and Management mission of the DOE Weapons Program.
d) Los Alamos Critical Experiments Facility (LACEF) – The LACEF Experiment is comprised of three pieces, the Zeus experiment on the Comet General Purpose Assembly Machine; the Critical Mass and Energy Spectrum Measurements in Waste Matrices on the Planet General Purpose Assembly Machine, and the Reactivity and Replacement Measurements with Solution High-Energy Burst Assembly (SHEBA) experiments.

e) Education – The Education special project includes science, engineering and mathematics disciplines that focus on meeting the Laboratory Strategic Plan on meeting recommendation #7 in the "Chiles" Commission Report – establish and implement plans on a priority basis for replenishing essential technical workforce needs in critical areas.

Campaigns/DSW Supported by this Program Element
All DP-10 and DP-20 Campaigns and Directed Stockpile Work.

List of Facility (ies), Other Direct Funded Facilities (FY01 Only, and Special Project (s) Funded by this Program Element.
Electrical Safety Infrastructure Upgrades, Water Treatment and Conditioning, ACTI-Tech Partnership, Los Alamos Critical Experiments Facility (LACEF), Education, Change of Station

Funding Profile (Figures $1,000K)

	2001	2001	2001	2002	2002	2002	2002	2002	2003	2004	2005
Description	**DP-10**	**DP-20**	**Total**	**DP-10**	**DP-20**	**Total**	**DP-10 OT**	**DP-20 OT**	**Total**	**Total**	**Total**
Special Projects	**14.2**	**-**	**14.2**	**11.8**	**-**	**11.8**	**-**	**-**	**11.1**	**11.6**	**10.4**

EXPLANATION OF CHANGE [S] FY 2001-FY2005: The decrease from FY2001 to FY2002 is based on the primary contract commitments for Water Treatment & Conditioning being initiated in FY2001 and decreases in Tech Partnerships as the activity is mapped to other stockpile stewardship activities. In addition, LACEF is not funded beyond FY2002. Other projects will be increased by 3.0% annually.

FY 2001 PLANNING: Special projects are valuable to RTBF in that they provide us the opportunity to enhance safety, develop unique technology to address environmental issues, and enhance our interaction with business and education. Each of the projects under this element has had great successes in the past and has been planned in a manner to do so again in FY2001.

M&O RESPONSIBLE MANAGER'S SELF-ASSESSMENT: Special Projects have produced great successes in the past and are in a position to do so in FY2001. However, given that the long-term sustainability of the facilities cannot be assured with the level of funding projected over the next five years, there is a concern for sustainable funding for the Special Projects element of RTBF.

VII. Glossary

Activity – A sub category in an Element. A discrete function or task that has a budget and a designated responsible manager who establishes performance measures, funding requirements, and other information in the Implementation Plan Data Sheet.

Activity Manager – The responsible activity contractor manger for each activity.

Campaigns – technically challenging, multi-year, multi-functional efforts across the DP Complex, the production plants, and the Nevada Test Site (NTS). They constitute an integrated weapon science and technology program designed to develop and maintain specific critical capabilities needed to achieve weapons stockpile certifcation confidence. Campaigns have milestones and specific end-dates, effectively focusing research and development activities on clearly defined deliverables. It is anticipated that as current campaigns achieve their end state, they will be replaced by new campaigns.

Primary Certification 2005 will assure stockpile design margins are not exceeded, and train new designers on new tools under supervision of designers with nuclear test experience.

Materials Dynamics will provide the physical data and materials models to characterize crucial thermal and mechanical properties to the accurate prediction of weapons performance.

Advanced Radiography will provide the technology to obtain 3D motion pictures of imploding surrogate primaries.

Margins 2005 will determine the minimum primary factors necessary to produce a militarily effective weapon.

Enhanced Surety will prevent nuclear explosives involved in accidents or incidents from producing a nuclear yield, i.e., conduct R&D for positive measures that can protect against the deliberate unauthorized use of nuclear weapons.

Weapon System Engineering Certification will establish engineering certification methods that quantify performance and uncertainties of stockpile weaponized systems at reduced cost, drive test configurations to most critical event environments, and maximize understanding with fewer and smarter tests.

Hostile Environments Certification will develop tools and capabilities to continue to certify the enduring stockpile to STS hostile environment requirements without underground testing.

Lifetime Assessments will provide the scientific basis for certification of aged components, SLEP refurbishment decisions/schedules, and decision on a major pit manufacturing facility line item.

Integrated Product Realization Environment will integrate and systematically deploy the capabilities required to deliver qualified SLEP refurbishment products upon demand at ½ cost, ½ time with a goal of zero stockpile defects by 2005.

Inertial Confinement Fusion is responsible for ignition and high yield, and supports other stockpile activities on lasers, fast Z pinchers, and University Science Programs.

Accelerated Strategic Computing Initiative is a focused, nationally recognized program designed to shift promptly from nuclear test-based stockpile certification methods to computation-based methods. ASCI program elements include applications, materials and system models, platforms, Problem Solving Environment, alliances, One Program – Three Labs, validation and verification, distance and distributed computing, Numerical Environment for Weapons Simulation (NEWS), and Stockpile Computing (SC).

Directed Stockpile Work – Directed Stockpile Work (DSW) includes all activities that directly support the scientific understanding and engineering development capabilities necessary for the refurbishment and certification of the nuclear weapons stockpile. DSW supports weapons maintenance and surveillance, provides assessment and certification for the existing stockpile, supports scheduled weapon refurbishment and dismantlement, and supports Research and Development systems studies and technology applications.

DISCOM^2 – Distance and Distributed Computing.

Element – One of the four major sub categories of activities in the RTBF Program (Operations in Facilities, Program Readiness, Special Projects, Simulation and Computing).

Fault Mapping – The fault mapping effort requires geologists to walk the terrain and locate, with some precision, the location of faults. This knowledge is more important for nuclear facilities than non-nuclear facilities. While we should not site non-nuclear facilities over fault traces with significant offsets, the probability of fault rupture is small. However the probability is large enough to be of concern for nuclear facilities.

Inertial Confinement Fusion (ICF) – The rapid implosion of a high-density pellet or target containing fusion fuel (usually deuterium and tritium) under bombardment of laser or charge particle beams; the target is heated almost instantaneously to extremely high temperatures to produce a core that undergoes fusion before the rest of the target flies apart.

NEWS – Numerical Environment for Weapons Simulation.

Operations of Facilities – Include DP's share of the cost to operate and maintain "DP-owned" programmatic facilities in a "warm stand-by" mode. "DP owned" facilities primarily support campaigns and DSW and are usually over 50% funded by DP budget. "Warm stand-by" is a state of readiness at which each facility is prepared to execute programmatic tasks identified in the campaigns and DSW. This category includes DP's share of the cost of all structures, equipment, systems, materials, procedures and personnel necessary to provide program sponsors with a facility that is safe, secure, reliable, and "ready for operations."

Paleoseismic Investigations – Studies that require trenching across fault traces to try to determine the earthquake history on that particular fault. By exposing the fault, geologists can study soil and rock stratigraphy, which layers have been broken by an earthquake and which have not. Then through different techniques, carbon dating, thermoluminesence dating, soil development, the date at which the earthquake occurred is estimated.

Probabilistic Seismic Hazard Assessment – Taking the historical earthquake information, probabilistic estimations are made to predict the anticipated ground motion for a given earthquake return period. For instance, at Los Alamos, our current understanding of the seismic hazard led to the estimate that an earthquake that might occur every 500 years would have a 50-50 chance of not exceeding 0.31g. A curve, which gives such information, is a probabilistic seismic hazard curve. The Probabilistic Seismic Hazard Assessment is the process through which this information is developed.

Program Readiness – Includes activities that support more than one facility, campaign, or DSW activity, but are essential to achieving the program's objectives. The activities may vary from site to site due to the inherent differences in site activities and organization structure. An example of a Program Readiness activity would be target fabrication in support of weapons experiments.

Program Sponsor – The DOE Program Office Manager responsible for the oversight of RTBF activities.

Readiness in Technical Base and Facilities (RTBF) – provides the physical infrastructure at the National Laboratories, the Nevada Test Site, production sites, and other DP sites required to conduct the scientific, technical, and manufacturing activities of the Stockpile Stewardship Program.

RTBF Program Manager – The DOE Program Office Manager responsible for compiling and monitoring the execution of the RTBF Program.

SLEP – Stockpile Life Extension Program.

Special Projects – Includes direct funded activities that may either be mandated by external requirements or are separated from Operations of Facilities or Program Readiness to allow greater

visibility of the activity. Examples of Special Projects may include education or technology partnership activities.

Stockpile Stewardship Program (SSP) – The science and technology aspect of ensuring the safety, security, and reliability of the stockpile, including research and development to provide the technologies required for stockpile management.

Strategic Simulation and Computing (SS&C) – Provides the computational infrastructure necessary to support Stockpile Stewardship Program. This includes integrated computing systems (platforms); networks and networking; the means to deploy the networking infrastructure, or NEWS; and all other traditional Accelerated Strategic Computing Initiative & Stockpile Computing strategies such as Problem Solving Environments; DisCom2; Path Forward; One Program – Three Labs; University Partnerships; as well as the traditional core computing maintenance programs for computational sciences, and archived databases.

Unfunded Mandates – are those requirements that are not planned for or budgeted in the Stockpile Stewardship Program. These requirements can appear in a relatively short time frame relative to the budget cycle and my not have implementation plans that allow an orderly inclusion in the budgets. Unfunded mandates include directed reductions in facility operating budgets that cannot be accommodated within normal planning cycles.

Visual Interactive Environment for Weapons Simulation – is a new SS&C program focused on the problem of "seeing and understanding" the results of multi-TeraOps simulations and

comparing results across simulations and between simulations and experiments.

Warm Standby – is a state of readiness at which each facility is prepared to execute programmatic tasks identified in the campaigns and DSW. This category includes DP's share of the cost of all structures, equipment, systems, materials, procedures, and personnel necessary to provide program sponsors with a facility that is safe, secure, reliable, and "ready for operations."

Deactivation – The process of placing a facility in a stable and known condition including the removal of readily removable hazardous and radioactive materials to ensure adequate protection of the worker, public health and safety, and the environment, thereby limiting the long-term cost of surveillance and maintenance. Actions include the removal of fuel, draining and/or de-energizing nonessential systems, removal of stored radioactive and hazardous materials, and related actions. Deactivation does not include all decontamination necessary for the dismantlement and demolition phase of decommissioning, e.g., removal of contamination remaining in the fixed structures and equipment after deactivation. (Source: DOE Order 430.1A)

Decommissioning – Takes place after deactivation and includes surveillance and maintenance, decontamination, and/or dismantlement. These actions are taken at the end of the life of a facility to retire it from service with adequate regard for the health and safety of workers and the public and protection of the environment. The ultimate goal of decommissioning is unrestricted release or restricted use of the site. (Source: DOE Order 430.1A)

Decontamination – The removal or reduction of residual radioactive and hazardous materials by mechanical, chemical or other techniques to achieve a stated objective or end condition. (Source: DOE Order 430.1A)

Facility Disposition – Facility Disposition includes the dismantlement and removal of deactivated facilities and infrastructure that are not radiologically contaminated and are excess to current and future DP mission requirements. These actions are taken at the end of the life of a facility to retire it from service, with adequate regard for the health and safety of workers and the public and protection of the environment. (Source: Draft FY02 Headquarters Budget language regarding the Facilities and Infrastructure Recapitalization Initiative)

Maintenance Backlog – The amount of maintenance and repair work not accomplished at the end of the fiscal year that is needed or planned to sustain the assigned mission. (Source: DOE Order 430.1A)

LANL Master Project List

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FY01 $K	FY02 $K	FY03 $K	FY04 $K	FY05 $K	FY06 $K	FY07 $K	FY08 $K	FY09 $K	FY10 $K	FY11 $K
DP-10 TRI-LAB Line Item Construction Plan															
H	Strategic Computing Facility (SCC)	DP-10	LIP	98,972	56,000	11,070									
H	SM-43 Replacement	DP-10	LIP	111,700			16,120	37,640	37,540	16,800					
M	Vulnerable Facility Replacement Program	DP-10	LIP	60,000				1,000		9,000	10,000	10,000	10,000	10,000	10,000
M	Rad Liquid Waste Upgrade	DP-10	LIP	20,000					4,000		16,000				
M	Power Grid Infrastructure Upgrade	DP-10	LIP	15,000						15,000					
M	Infrastructure Roof Upgrades	DP-10	LIP	21,000						3,000	3,000	3,000	3,000	3,000	6,000
M	DX Consolidation	DP-10	LIP	20,000						3,000		10,000	7,000		
M	LANSCE Support Complex	DP-10	LIP	18,000						3,000		7,000	8,000		
M	LANL Infrastructure Revitalization	DP-10	LIP	68,000							3,000		10,000	15,000	40,000
Sub-total - DP-10 TRI-LAB				**432,672**	**56,000**	**11,070**	**16,120**	**38,640**	**41,540**	**49,800**	**32,000**	**30,000**	**38,000**	**28,000**	**56,000**
DP-20 Line Item Projects															
H	CMR Upgrades	DP-20	LIP	128,568	13,280										
H	TA-18 Relocation	DP-20	LIP	100,000		10,000	20,000	30,000	30,000	10,000					
M	CMR Replacement	DP-20	LIP	375,000			25,000	50,000	80,000	100,000	95,000				
Sub-total - DP-20 Line Items				**603,568**	**13,280**	**10,000**	**45,000**	**80,000**	**110,000**	**110,000**	**95,000**				
Other Line Item Projects															
H	DARHT (Phase 2)	DP-10	LIP	155,343	34,460										
H	TA-53 Isotope Production Facility	DP-10	LIP	18,040	5,349	1,668									
H	NISC	NN	LIP	63,020	17,294	35,978	1,450								
H	NMSSUP, Phase I	DP-20	LIP	73,951	20,391	25,761	9,785	3,648	1,907						
H	Advanced Hydrotest Facility (formerly PRISM) [$1.6B to $1.9B Range]	DP-10	LIP	1,600,000		35,100	65,100	129,100	TBD	TBD	TBD	TBD	TBD	TBD	TBD
H	APT / Triple A Project	DP/NE	LIP	176,772	45,047	17,824									
H	Spallation Neutron Source Line Accelerator	Of. Of Sc.	LIP	204,516	41,865	54,440	57,401	15,466	1,722						
Sub-total Other Line Items				**2,291,642**	**164,406**	**170,771**	**133,736**	**148,214**	**3,629**						
CERRO GRANDE REHABILITATION PROJECTS															
H	DARHT (BCP)	DP	LIP	6,100	6,100										
H	Emergency Operations Center	DP	LIP	20,000	20,000										
H	Multi-Channel Communication System	DP	LIP	8,000	8,000										
H	Two Office Buildings (TA46 & TA16)	DP	LIP	10,000	10,000										
H	Site-wide Fire Alarm Replacement	DP	LIP	25,000	25,000										
H	TA-50/54 Waste Mgt. Risk Mitigation	DP	LIP	29,100	29,100										
Sub-total CGRP				**98,200**	**98,200**										
GPP & EXPENSE PROJECTS															
H	Fire Suppression Yard Main Replacement (TA-55)	DP-20	Expense	15,905	6,532	2,278									
H	Short Pulse Spallation Source (SPSS)	DP-10	Expense	25,400	5,112	5,149	556								
H	High Power Detonator Facility	DP-20	GPP	4,500	1,500	3,000									
H	TA-53-64 Cooling Tower	DP-10	GPP	4,400	3,350	600									
H	TA-53-62 Cooling Tower Replacement	DP-10	GPP	4,881	1,170	300									
H	TA-15 Electrical Distribution Upgrade	DP-10	GPP	2,500	2,000	500									
H	Water Treatment (TA-3)	DP-10	GPP	3,500	3,500										
M	Electrical Infrastructure Safety Upgrade Program	DP-10	GPP	40,690	1,500	7,800	8,000	8,300	8,600	4,500					
M	Decontamination & Volume Reduction System	EM	GPP	4,740											
M	TA-50 Salt Removal Evaporator	DP	GPP	10,000		2,000	2,000	2,000	2,000	2,000					
M	TA-3-40 N161 G&D (refurbish old MEC plating shop)	DP-10	GPP	1,000			750								
M	Ventilation Upgrade, Lujan Center	DP-10	GPP	2,750			2,150								
M	West Road Connector to Mercury	DP-10	GPP	3,500			3,500								
M	Convert Heating System and Upgrade Controls at TA-48-RC1	DP-10	GPP	750			750								
M	HVAC/Electrical Upgrade, MPF-6	DP-10	GPP	600			600								
M	Otowi Floor Replacement/Upgrades	DP-10	GPP	5,080			2,500	2,500							
M	TA-3 Auditorium Bldg	DP-10	GPP	4,750				4,750							
M	Target Fabrication (Series of small upgrades)	DP-10	GPP	800				800							
M	East Loop Road Phase 1 (Gateway Connection)	DP-10	GPP	5,000				5,000							
M	Firing Sites Revitalization's Program (Series of GPP's Buildings)	DP-10	GPP	25,000				5,000	5,000	5,000	5,000	5,000			
M	TA-55 Site/Parking & Infrastructure Upgrade (2 projects)	DP-20	GPP	10,000					5,000	5,000					
L	Unused Roads Reclamation Projects	DP-10	GPP	1,000							500	500			
L	Other Safety Related Urgent Maintenance &GPPs	DP-10						10,000	10,000	10,000	15,000	15,000	15,000	20,000	20,000
L	Other Safety Related Urgent Maintenance & GPPs	DP-20						10,000	10,000	10,000	15,000	15,000	15,000	20,000	20,000
Sub-total GPP and Expense				**176,746**	**24,664**	**21,627**	**20,806**	**48,350**	**40,600**	**36,500**	**35,500**	**35,500**	**30,000**	**40,000**	**40,000**
ESA CONSOLIDATION PROJECTS															
H	WE Office Building	CGRP	GPP	5,000	5,000										
H	TSE Office Building	DP-10	GPP	4,750	4,750										
H	Bldg 202/GTS/41	CGRP	GPP	3,500	3,500										
H	Building 260 Reconfiguration	DP-10	GPP	3,000			3,000								
H	Utilities - Site Development	DP-10	GPP	5,000		5,000									
H	Roads - Site Development	DP-10	GPP	2,000		2,000									
H	FM Office Building & Craft Support	DP-10	GPP	3,000		3,000									
H	WETF Systems Refurbishment	DP-10	GPP	5,000		5,000									
H	TA-16-450 Gas Transfer System	DP-10	GPP	5,000			5,000								
H	MX Cold Shop	DP-10	GPP	5,000			5,000								
H	Central Auditorium, Build. 200	DP-10	GPP	500			500								
M	GTS SLEP Support Building	DP-10	GPP	5,000				5,000							
M	Water Processing, PMR&T/TCAP	DP-10	GPP	5,000					5,000						
M	Building 193 Reconfiguration	DP-10	GPP	4,000				2,000	2,000						
M	Hot Shop	DP-10	GPP	4,000				4,000							
M	Hot Shop Office Building	DP-10	GPP	5,000				5,000							
M	Calibration Laboratory	DP-10	GPP	5,000					5,000						
Sub-total ESA Consolidation				**69,750**	**13,250**	**15,000**	**18,000**	**16,000**	**12,000**						
3rd Party Financed Proposals															
M	JCNNM Consolation	DP-10	3rd Party	18,000				9,000	9,000						
M	Gateway Visitor / LAAO Bldgs.	DP-10	3rd Party	23,000				13,000							
M	LANL Warehousing Complex	DP-10	3rd Party	16,000				8,000	8,000						
M	Gateway Infrastructure Development	DP-10	3rd Party	15,000					7,500						
M	Theoretical Studies (TA-3 Ph I)	DP-10	3rd Party	43,000						14,333	14,333	14,333			
M	Off Site Transmission	DP-10	3rd Party	30,000				1,500						1,500	
M	On-site Generation(Co-Generation)	DP-10	3rd Party	51,000				1,000	20,000				2,000		
L	TA-3 Phase II - General Office (500 ocup)	DP-10	3rd Party	43,000									20,000	23,000	
L	TA-3 Phase II - Physics Bldg.	DP-10	3rd Party	43,000									20,000	23,000	
L	TA-3 Phase II - PMF/S Bldg.	DP-10	3rd Party	43,000									20,000	23,000	
L	Wellness/Training Bldg. (TA3 Ph II)	DP-10	3rd Party	49,000									20,000	20,000	
Sub-total 3rd Party Financed				**374,000**				**32,500**	**44,500**	**14,333**	**14,333**	**14,333**	**82,000**	**90,500**	
FY02 FACILITY & INFRASTRUCTURE INITIATIVES															
H	Vulnerable Office Building Replacement (1)	DP	GPP	5,000		5,000									
H	Vulnerable Office Building Replacement (2)	DP	GPP	5,000		5,000									
H	Vulnerable Office Building Replacement (3)	DP	GPP	5,000		5,000									
H	Vulnerable Office Building Replacement (4)	DP	GPP	5,000		5,000									
H	Vulnerable Office Building Replacement (5)	DP	GPP	5,000		5,000									
H	NMT Corrective Maintenance Proposal	DP	Exp.	7,600		7,600									
H	Waste Maintenance Facilities - Corrective Maintenance	DP	Exp.	3,600		3,600									
H	LANSCE Chiller Replacement	DP	GPP	4,500		4,500									
H	ESA Facilities Consolidation (2 projects)	DP	GPP	10,000		10,000									
H	Beryllium Technology Facility-Cartridge Filter House Installation	DP	GPP	1,500		1,500									
H	LANSCE Facilities - Corrective Maintenance	DP	Exp.	4,500		4,500									
H	CIC Electrical Upgrade	DP	GPP	400		400									
H	TA-48 Radioactive Liquid Waste Line	DP	GPP	2,000		2,000									
H	Vulnerable D&D	DP	EXP	25,000		25,000									
H	TA-46 Air Exhaust System	DP	GPP	700		700									
H	Waste Maintenance Facilities #2 - Preventive Maintenance	DP	Exp.	5,000		5,000									
H	TA-15 Firing Sites Support Facility	DP	GPP	4,000		4,000									
H	Safety/Infrastructure GPP, DP-20	DP	GPP	12,000		12,000									

LANL Master Project List

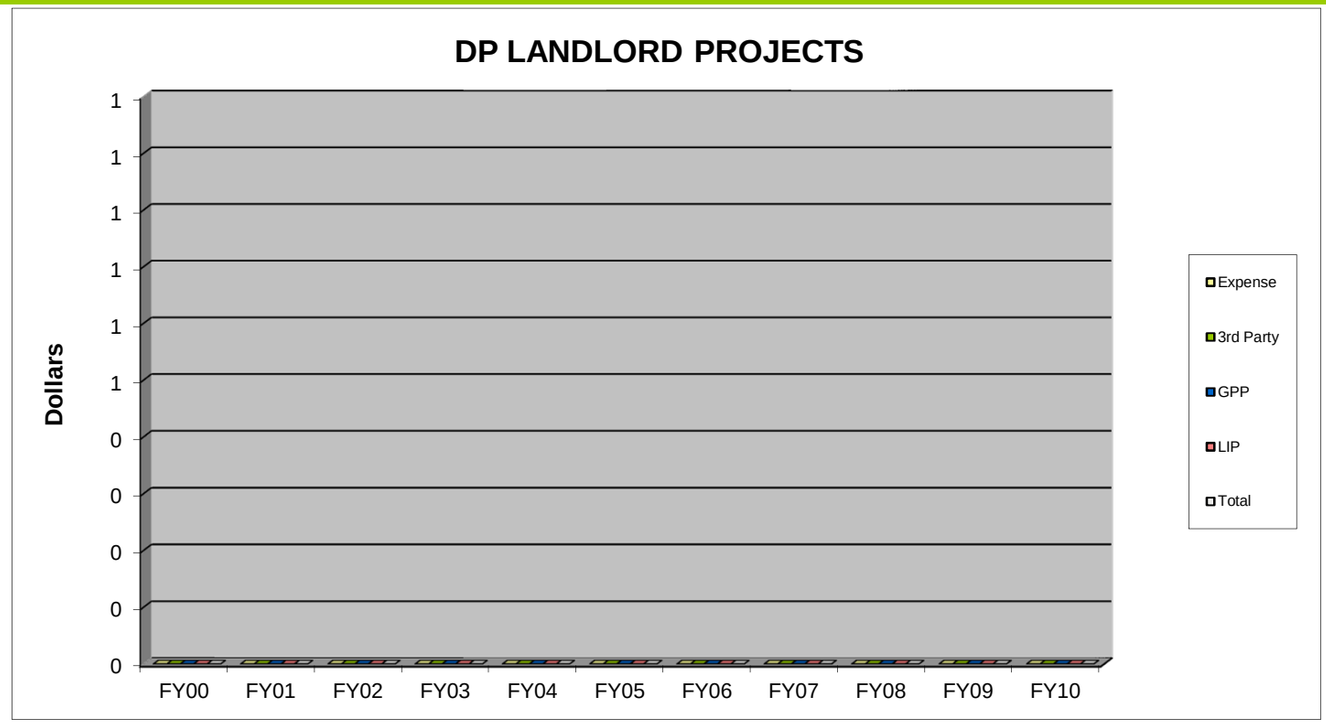
Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FY01 $K	FY02 $K	FY03 $K	FY04 $K	FY05 $K	FY06 $K	FY07 $K	FY08 $K	FY09 $K	FY10 $K	FY11 $K
H	ESA Facilities - Corrective Maintenance	DP	Exp.	3,300		3,300									
H	DP-10 Safety/Infrastructure GPPs	DP	GPP	15,000		15,000									
H	Sigma GPP	DP	GPP	5,000		5,000									
H	LANSCE Facilities #2 - Preventive Maintenance	DP	Exp.	10,000		10,000									
H	DX Facilities - Preventive and Corrective Maintenance	DP	Exp.	4,000		4,000									
H	ESA Facilities - Preventive Maintenance	DP	Exp.	6,000		6,000									
Sub-total F&I				**149,100**		**149,100**									
UTILITY AND ROAD INVESTMENT															
H	SM-66 13.8 kv SwGr Replacement		GPP	1,650	150	1,000	500								
H	Refurbish Power Plant Turbine #1		GPP	2,250	1,750										
H	Refurbish Power Plant Turbine #3		GPP	4,000		4,000									
H	Refurbish Power Plant Turbine #2		GPP	3,000			3,000								
H	Reconductor Norton Line		Exp.	3,500		3,500									
H	Flue Gas Recirculation Duckwork		Exp.	900	500										
H	PP - Plant Condensate Return Piping		Exp.	520	20	250	250								
H	PP - Steam Piping Replacement		Exp.	500		500									
H	TA-3 Steam Condenstate Lines		Exp.	2,350	200	350	350	350	350						
H	PP - Feed Water Piping		Exp.	500			500								
H	Correct Cross Connections		Exp.	800	200	200	200	200							
H	TA-3 South Sewer Relief Project		Exp.	650	50	600									
H	LAC Sewer Project		Exp.	750		750									
H	100psi Natural Gas Lines, Pajarito Road		GPP	4,300	300	4,000									
H	100psi Natural Gas Lines, TA-3		GPP	2,300			300	2,000							
H	90 MVAR SVC Capacitor		GPP	2,000			500	1,500							
H	New TA-51/54 Intersection		GPP	4,100			600	3,500							
H	Widen Pajarito Road - TA-18/54		GPP	4,300			600	3,700							
H	Royalcrest Intersection		GPP	500	500										
H	Traffic Improvements(Studies in 00 & 01)		GPP	17,000	500	500	2,000	2,500	2,500	2,500	2,500	2,500	2,500		
H	TA-16 Sewer Sliplining		GPP	775	300	300	100	75							
H	Replace Broken Sewer Lines		GPP	800	200	200	200	180							
H	Steam Plant Boiler Replacement		GPP	800	800										
H	345kv Ring Bus Norton		GPP	3,000		1,500	1,500								
H	Replace 2 Ea 115/13.8kv Xformer TA3		GPP	4,000											
H	Purchase RL Line ETA-STA		GPP	2,000											
H	Power Plant Upgrades		LIP	16,000											
H	Water Distribution Line Corrections		GPP	1,900											
H	Demo of Sherwood & Transportables	DP-10	Expense	2,500	2,500										
H	Demo of Sylfac	DP-10	Expense	2,400			2,400								
H	Demo of Misc. Facilities	DP-10	Expense	3,000		500	1,000	1,500							
H	Demo of Van de Graff Facility	ER/WM	Expense	15,000		5,000	10,000								
H	TA-02 Omega West Reactor Demo	DP-LL	Expense	10,000	6,740	3,260									
H	TA-15 Group A Demo	DP-LL	Expense	1,630	1,630										
H	TA-53 Cooling Towers Demo	DP-LL	Expense	640		640									
H	TA-21 TSTA Demo	ER/WM	Expense	10,950		2,250	4,350	4,350							
M	TA-60 Test Fab Facility Demo	DP-LL	Expense	2,000						2,000					
M	Replace Old 13.8kV Switchgears		Exp.	12,500		2,000	2,000	2,000	2,000	2,000	1,000	700	800		
M	Add 3rd 115kV transformer TA-53		Exp.	2,500					2,500						
M	Replace 13.8 kv cable		Exp.	2,500					500	500	500	500	500		
M	Replace 115kv oil circuit breaker		Exp.	2,400		300	300	300	300	300	300	300	300		
M	White Rock 115kv Ring Bus		Exp.	1,000				1,000							
M	115kV Transmission System Protection		Exp.	1,000				1,000							
M	PP - Cooling Tower Piping Replacement		Exp.	500				500							
M	TA-3/58 Gravity Line		Exp.	535					535						
M	100psi Natural Gas Lines, TA-16		GPP	2,300					300						
M	TA-18 Intersection		GPP	3,000				3,000							
M	East by-Pass		GPP	10,000					10,000						
M	TA-21 DP West Group 1 & 2 Fac. Decon/Demo	ER/WM	Expense	22,900					1,503	9,232				12,165	
M	TA-33 HPT Facility Decon/Demo	ER/WM	Expense	2,940						1,470	1,470				
M	Demo of JCN and Misc.	DP-10	Expense	6,600				6,600							
M	TA-16 Lab. & Process Bldg. Demo	ER/WM	Expense	2,000						2,000					
M	TA-3 Phase II - Demolition	DP-LL	Expense	3,000					1,500	1,000	500				
L	Replace TA-53 (2) 115kV Transformers		GPP	4,000							300	3,700			
L	TA-53 Substation 115kV Ring Bus Uprade		Exp.	2,000						2,000					
L	Uncross NL & RL 115kV Lines		Exp.	1,000							1,000				
L	TA-70 345/115 kV Substation		GPP	5,000									5,000		
L	TA-70 115/13.8 kV Substation		GPP	5,000								5,000			
L	TA-03 Power Plant Backpressure Turbine		GPP	2,000									2,000		
L	Widen Diamond Drive		GPP	2,200								400	2,000		
L	Add 3rd 115kV transformer TA-3		GPP	2,500							2,500				
L	Add 2nd 115kV transformer TA-5 (ETA)		GPP	2,500							2,500				
L	DP East Facility Demolition	ER/WM	Expense	40,000										8,000	
L	SM-40 Annex Bldg. Demolition	DP-LL	Expense	3,000									2,500	500	
L	TA-16 Explosive Prep Bldg. Demo	DP-SS	Expense	5,000										5,000	
L	TA-3 Phase III - Demolition	DP-LL	Expense	3,000								1,000	1,000	1,000	
Sub-total Utility And Road Investment				**516,910**	**16,340**	**31,600**	**30,650**	**34,255**	**21,988**	**23,002**	**12,570**	**14,100**	**16,600**	**402,210**	
D&D															
H	Demo of Sherwood & Transportables	DP-10	Expense	2,500	2,500										
H	Demo of Sylfac	DP-10	Expense	2,400			2,400								
H	Demo of Misc. Facilities	DP-10	Expense	3,000		500	1,000	1,500							
H	Demo of Van de Graff Facility	ER/WM	Expense	15,000										5,000	
H	TA-02 Omega West Reactor Demo	DP-LL	Expense	10,000	6,740	3,260									
H	TA-15 Group A Demo	DP-LL	Expense	1,630	1,630										
H	TA-53 Cooling Towers Demo	DP-LL	Expense	640		640									
H	TA-21 TSTA Demo	ER/WM	Expense	10,950		2,250	4,350	4,350							
M	TA-60 Test Fab Facility Demo	DP-LL	Expense	2,000						2,000					
M	Demo of JCN and Misc.	DP-10	Expense	6,600				6,600							
M	TA-21 DP West Group 1 & 2 Fac. Decon/Demo	ER/WM	Expense	22,900					1,503	9,232				12,165	
M	TA-33 HPT Facility Decon/Demo	ER/WM	Expense	2,940						1,470	1,470				
M	TA-16 Lab. & Process Bldg. Demo	ER/WM	Expense	2,000						2,000					
M	TA-3 Phase II - Demolition	DP-LL	Expense	3,000					1,500	1,000	500				
L	DP East Facility Demolition	ER/WM	Expense	40,000										8,000	
L	SM-40 Annex Bldg. Demolition	DP-LL	Expense	3,000									2,500	500	
L	TA-16 Explosive Prep Bldg. Demo	DP-SS	Expense	5,000										5,000	
L	TA-3 Phase III - Demolition	DP-LL	Expense	3,000								1,000	1,000	1,000	
Sub-total D&D				**136,560**	**16,340**	**31,900**	**7,750**	**12,450**	**3,003**	**15,702**	**1,970**	**1,000**	**3,500**	**31,665**	
3rd Party Financed Proposals															
M	JCNNM Consolation	DP-10	3rd Party	18,000				9,000	9,000						
M	Gateway Visitor / LAAO Bldgs.	DP-10	3rd Party	23,000				13,000							
M	LANL Warehousing Complex	DP-10	3rd Party	16,000				8,000	8,000						
M	Gateway Infrastructure Development	DP-10	3rd Party	15,000					7,500						
M	Theoretical Studies (TA-3 Ph I)	DP-10	3rd Party	43,000						14,333	14,333	14,333			
M	Off Site Transmission	DP-10	3rd Party	30,000				1,500						1,500	
M	On-site Generation(Co-Generation)	DP-10	3rd Party	51,000				1,000	20,000				2,000		
L	TA-3 Phase II - General Office (500 ocup)	DP-10	3rd Party	43,000									20,000	23,000	
L	TA-3 Phase II - Physics Bldg.	DP-10	3rd Party	43,000									20,000	23,000	
L	TA-3 Phase II - PMF/S Bldg.	DP-10	3rd Party	43,000									20,000	23,000	
L	Wellness/Training Bldg. (TA3 Ph II)	DP-10	3rd Party	49,000									20,000	20,000	
Sub-total 3rd Party Financed				**374,000**				**32,500**	**44,500**	**14,333**	**14,333**	**14,333**	**82,000**	**90,500**	
Deleted from Prior Year List															
	CMIP	DP-SM	LIP	510,000		15,000	64,000	74,000	74,000	74,000	63,000	58,000	48,000	40,000	
	TMSE	DP-SM	GPP	28,815	10,256	1,793									
	Fire Protection Improvements (FPI)	DP-LL	LIP	17,460											

LANL Master Project List

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FY01 $K	FY02 $K	FY03 $K	FY04 $K	FY05 $K	FY06 $K	FY07 $K	FY08 $K	FY09 $K	FY10 $K	FY11 $K
	AROE	DP-SS	GPP	2,438											
	Cooling Tower Replacement, TA-3-22	DP-SS	GPP	1,819											
	Satellite Parking/Intersection	DP-LL	GPP	2,951											
	TA-53 RLW Tank Replacement	DP-SS	Expense	1,428											
	Waste Water Collection Lines	DP-SS	GPP	1,340											
	WETF - Roof Upgrades	DP-SM	GPP	1,189											
	Central Health Physics Calibration Laboratory	DP-LL	LIP	4,200	2,406	926									
	NMSSUP, Phase IIa	DP-SM	LIP	75,000		10,000	10,000	30,000	5,000	15,000					
	TA-53 RLW Treatment System	DP-SS	GPP	4,422											
	Facilities Improvements Technical Support Bldg.	DP-SM	GPP	4,860											
	Bldg. 430 Tempered Water HVAC, & Elec. Sys. Upgrades	DP-SS	GPP	1,283											
	Communication Operation Bldg.	DP-LL	GPP	4,500	372										
	Natural Gas Line (Gas Line Replacement to TA-15)	DP-SS	GPP	1,900											
	Water Well Replacements	DP-LL	LIP	17,200											
	Computational Physics (TA3 Ph I)	DP-LL	3rd Party	46,000			15,333	15,333	15,333						
	Cooling Tower TA-53-60	DP-SS	GPP	2,470	2,220										
	Demo Administration Bldg. - TA-3 Phase I	DP-LL	3rd Party	13,600					13,600						
	Demo of JCN and Misc. - Phase 1 TA-3	DP-LL	3rd Party	6,600		6,600									
	Demo of Sherwood - Phase 1 TA-3	DP-LL	3rd Party	2,100	2,100										
	Demo of Syllac - Phase 1 TA-3	DP-LL	3rd Party	2,400					2,400						
	Demolition of Misc. facilities (TA3 Ph I)	DP-LL	3rd Party	3,000		500	1,000	1,500							
	Detonator Manufacturing Fac Enlargement	DP-SM	GPP	5,000	2,500	2,500									
	Electrical Reliability Upgrades (3rd Line), 2002	DP-LL	GPP	22,000			22,000								
	ESA Office Consolidation/Revitalization	DP-SS	3rd Party	4,500	1,000	3,500									
	ESA Technical Support Facility/Tritium Group Office Bldg.	DP-SM	GPP	4,400	4,400										
	Install Two Pedestrian Turnstile Gates	DP-SS	Expense	625	625										
	Parking Structure - TA-3 Revit. Phase 1	DP-LL	3rd Party	19,000			8,500	8,500							
	Roof Upgrades	DP-SS	GPP	300	300										
	Roof Upgrades - TA-3 Bldgs. 215, 216, 422	DP-LL	GPP	300	300										
	Security Upgrade at TA-8, Bldgs. 22/23	DP-LL	GPP	390											
	TA-11 Sanitary Sewer/Water Line Upgrade	DP-SS	GPP	600											
	TA-15-50&194 Electrical Upgrades @ the "Hollow"	DP-SS	GPP	340											
	TA-16-200 Electrical Upgrades	DP-SS	GPP	400	400										
	TA-2 Omega West Reactor Fac Decom	ER/WM	LIP	13,000										6,500	
	TA-21 DP West Facilities Decom/Demo	ER/WM	LIP	56,000				8,000	8,000	8,000	8,000	8,000	8,000	8,000	
	TA-22-90 & 93 Roof Replacement	DP-SS	GPP	450											
	TA-3 Phase II - Auditorium Bldg	DP-LL	3rd Party	9,000								4,500	4,500		
	TA-3-102 Ventilation & Electrical Upgrades	DP-SS	GPP	2,500	2,500										
	TA-33 PH Tritium Facility Decon/Demo	ER/WM	LIP	2,077			692	692	692						
	TA-3-39 Compressed Air System Upgrade	DP-SS	GPP	425	425										
	TA-55 Admin Revitalization	DP-SM	GPP	5,000		5,000									
	TA-9-33 & 35 Upgrades	DP-SS	GPP	500	500										
	Traffic & Parking Upgrades	DP-LL	GPP		300										
	WNR Detector Building	DP-SS	GPP	450	450										
	Assembly Facility	DP-SS	LIP	15,000						5,000	5,000	5,000			
	Building 200 Life Safety Upgrades	DP-SS	GPP	735		110	625								
	Central Records Storage	DP-LL	Expense	4,910	4,410										
	Demo of Van de Graph Facility	ER/WM	LIP	15,000										5,000	
	DP East Facility Demolition	ER/WM	LIP	40,000										8,000	
	GPP/Other buildings Revite Program (Series of GPP buildings)	DP-LL	GPP	25,000	5,000	5,000	5,000	5,000	5,000						
	Quality of Life Upgrades	DP-SS	GPP	350	350										
	Remove Temporary Buildings & Improve Parking	DP-SS	GPP	1,000				500	500						
	Re-Route Traffic and Relocate HE Fence.	DP-SS	GPP	600	300										
	SM-40 Annex Bldg. Demolition	DP-LL	GPP	3,000									2,500	2,500	
	TA-14 Explosive Prep & Bunker Demolition	ER/WM	LIP	600										600	
	TA-16 410 & 430 Electrical Upgrades	DP-SS	GPP	350	350										
	TA-16 Explosive Prep Bldg Demolitions	DP-SS	Expense	5,000										5,000	
	TA-16 Lab. & Process Bldg Demolitions	ER/WM	LIP	2,000						2,000					
	TA-16-218 Refurbish for WE Office Space	DP-SS	GPP	750	750										
	TA-21 Steam Plant Boiler and Control Sys. Mods.	DP-LL	Expense	1,250	1,000										
	TA-3 Phase II - Demolition	DP-LL	3rd Party	3,000					1,500	1,000	500				
	TA-3 Phase III Demolition	DP-LL	3rd Party	3,000								1,000	500	500	
	TA-60 Test Fab Facility Demolition	DP-LL	Expense	2,000						2,000					

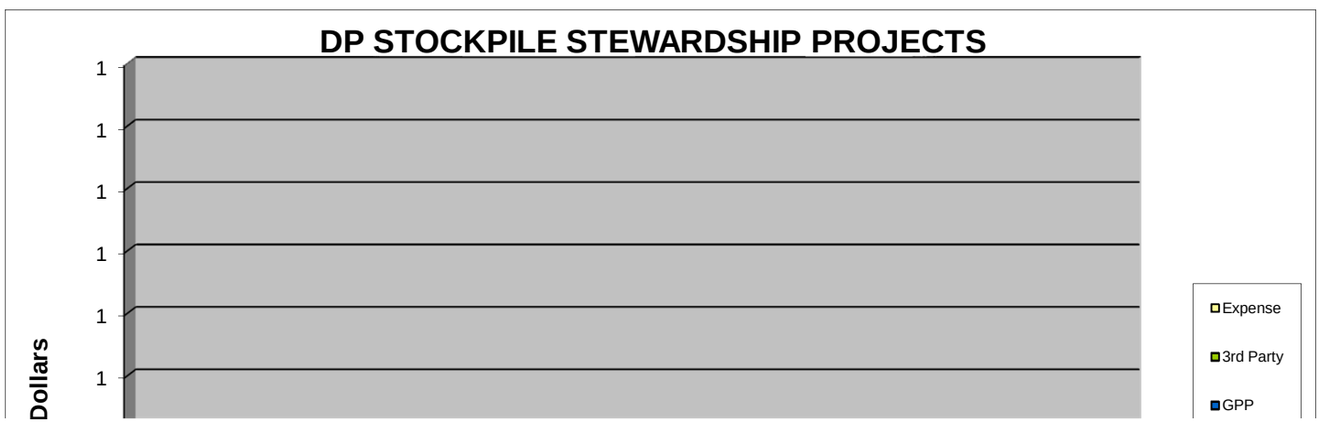
DP LANDLORD PROJECTS

	Funding Source Expense	Funding Source 3rd Party	Funding Source GPP	Funding Source LIP	Total
FY00	0	0	0	0	0
FY01	0	0	0	0	0
FY02	0	0	0	0	0
FY03	0	0	0	0	0
FY04	0	0	0	0	0
FY05	0	0	0	0	0
FY06	0	0	0	0	0
FY07	0	0	0	0	0
FY08	0	0	0	0	0
FY09	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY10	0	0	0	0	0
FY11	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY12	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY13	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY14	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY15	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY16	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY17	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY18	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY19	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY20	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

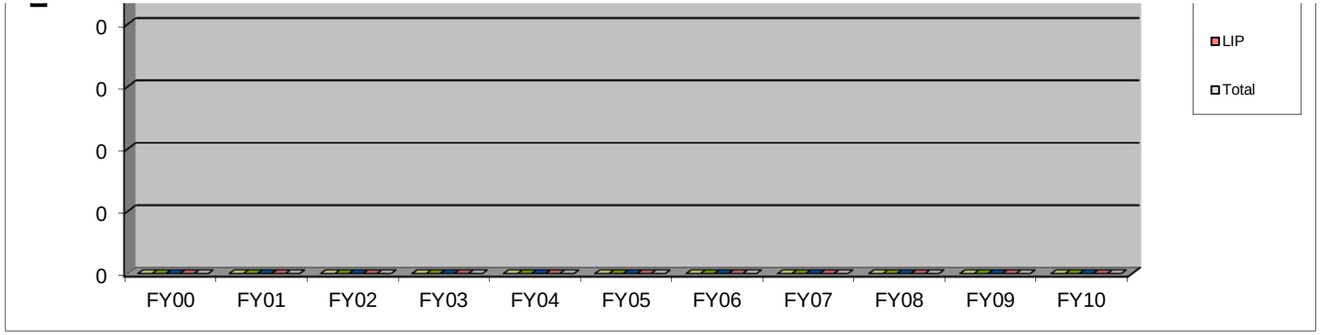


DP STOCKPILE STEWARDSHIP PROJECTS

	Funding Source Expense	Funding Source 3rd Party	Funding Source GPP	Funding Source LIP	Total
FY00	0	0	0	0	0
FY01	0	0	0	0	0
FY02	0	0	0	0	0
FY03	0	0	0	0	0
FY04	0	0	0	0	0
FY05	0	0	0	0	0
FY06	0	0	0	0	0
FY07	0	0	0	0	0
FY08	0	0	0	0	0
FY09	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY10	0	0	0	0	0
FY11	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY12	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

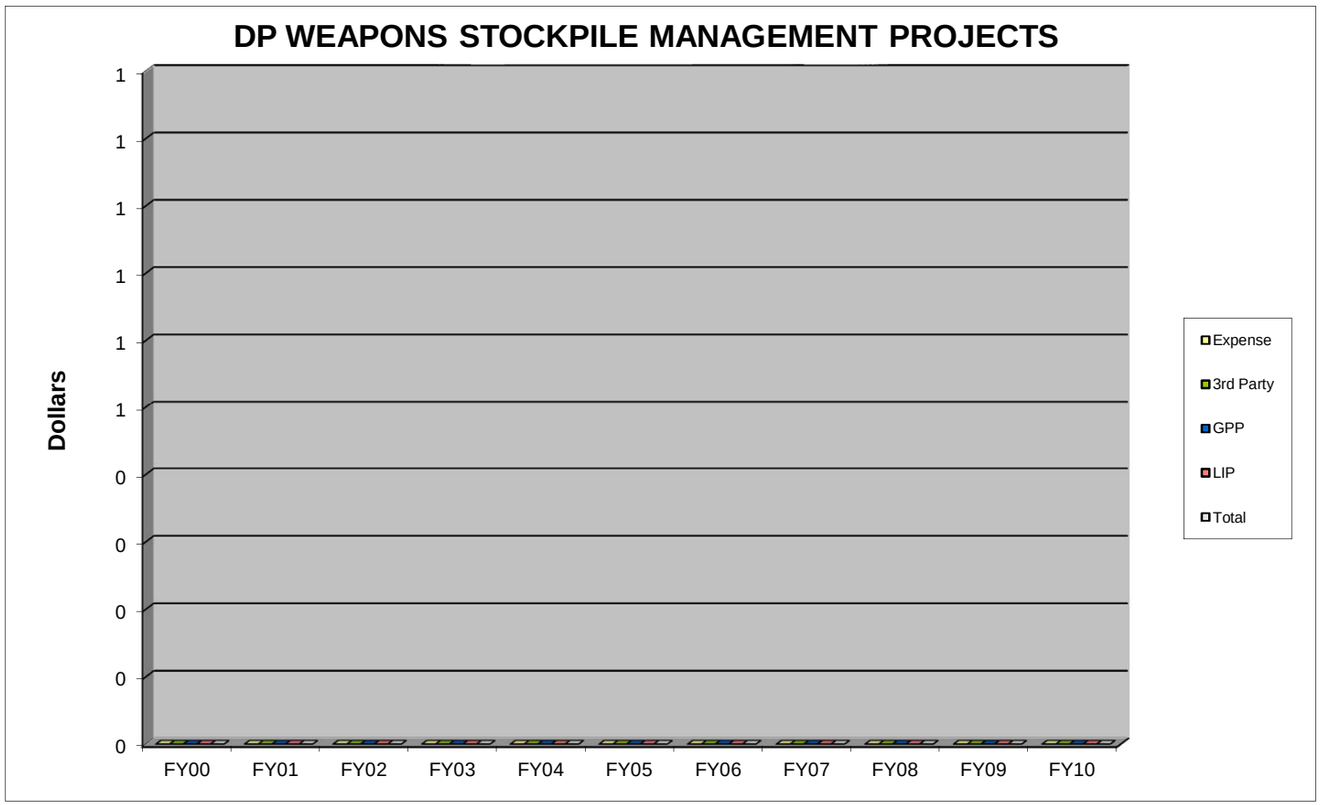


FY13	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY14	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY15	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY16	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY17	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY18	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY19	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY20	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!



DP WEAPONS STOCKPILE MANAGEMENT PROJECTS

	Funding Source Expense	Funding Source 3rd Party	Funding Source GPP	Funding Source LIP	Total
FY00	0	0	0	0	0
FY01	0	0	0	0	0
FY02	0	0	0	0	0
FY03	0	0	0	0	0
FY04	0	0	0	0	0
FY05	0	0	0	0	0
FY06	0	0	0	0	0
FY07	0	0	0	0	0
FY08	0	0	0	0	0
FY09	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY10	0	0	0	0	0
FY11	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY12	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY13	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY14	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY15	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY16	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY17	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY18	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY19	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY20	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!



ENVIRONMENTAL RESTORATION / WASTE MANAGEMENT PROJECTS

	Funding Source Expense	Funding Source 3rd Party	Funding Source GPP	Funding Source LIP	Total
FY00	0	0	0	0	0
FY01	0	0	0	0	0
FY02	0	0	0	0	0
FY03	0	0	0	0	0
FY04	0	0	0	0	0
FY05	0	0	0	0	0
FY06	0	0	0	0	0
FY07	0	0	0	0	0
FY08	0	0	0	0	0
FY09	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY10	0	0	0	0	0
FY11	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY12	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY13	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY14	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY15	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY16	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY17	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY18	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY19	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
FY20	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!