VI. THE PLANS

Introduction to the Plans

The Plans section describes the ongoing, planned and future projects by planning areas. The Plans section is organized into 11 subsections. Each relates to one of the planning areas on the adjacent map,VI-A1.

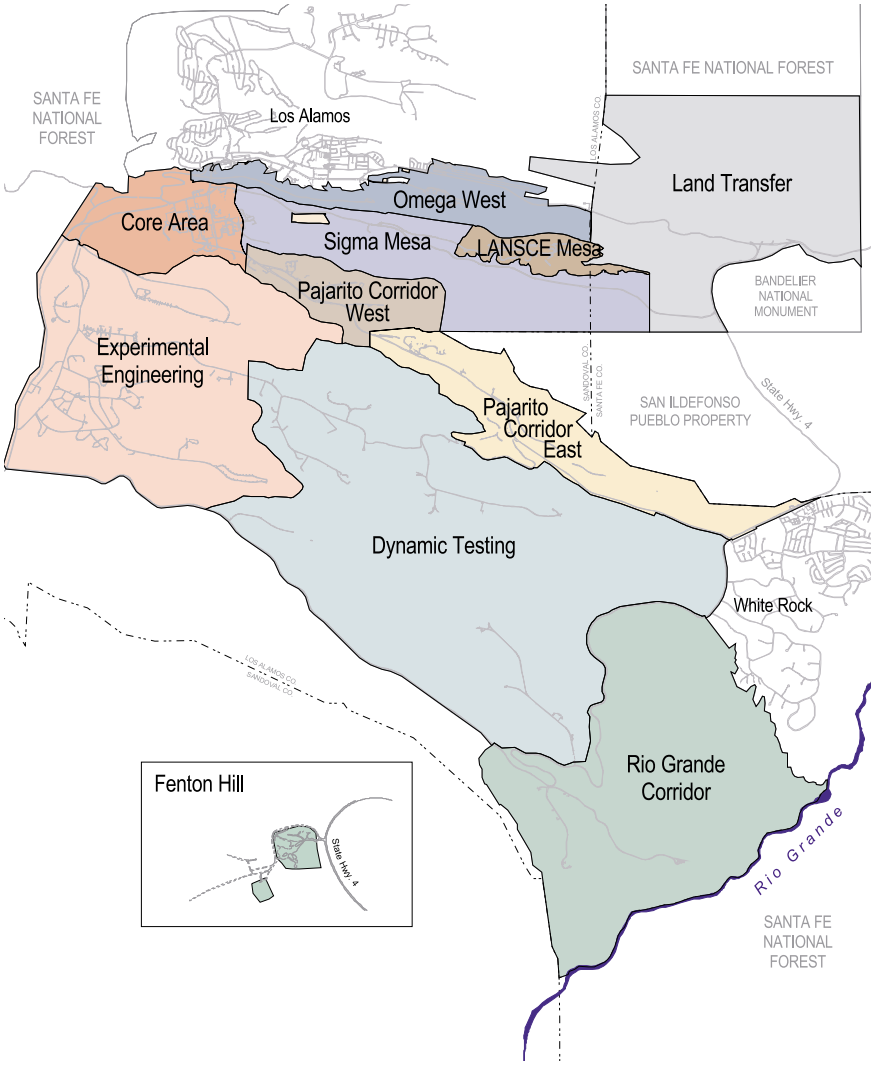
- Site Wide (Total Site)
- Core Planning Area
- Pajarito Corridor West Planning Area
- Pajarito Corridor East Planning Area
- LANSCE Mesa Planning Area
- Experimental Engineering Planning Area
- Dynamic Testing Planning Area
- Sigma Mesa Planning Area
- Omega West Planning Area
- Rio Grande Corridor Planning Area
- Land Transfer Area

Each subsection summarizes the following components of the Comprehensive Site Plan for that individual planning area:

- Assumptions for physical planning
- Opportunities and constraints
- Summary Map

The expertise and assistance of many divisions and groups throughout the Laboratory were critical to informing and guiding the plans for each planning area.

Map VI-A1: Site Wide Planning Area Boundaries



A. Site Wide Planning Area

1. General Description

The Laboratory is situated on approximately 26,660 acres, or 43 square miles, of DOE land, making Los Alamos National Laboratory the largest in land area of all the national laboratories. About 87% of the Laboratory is located within Los Alamos County.

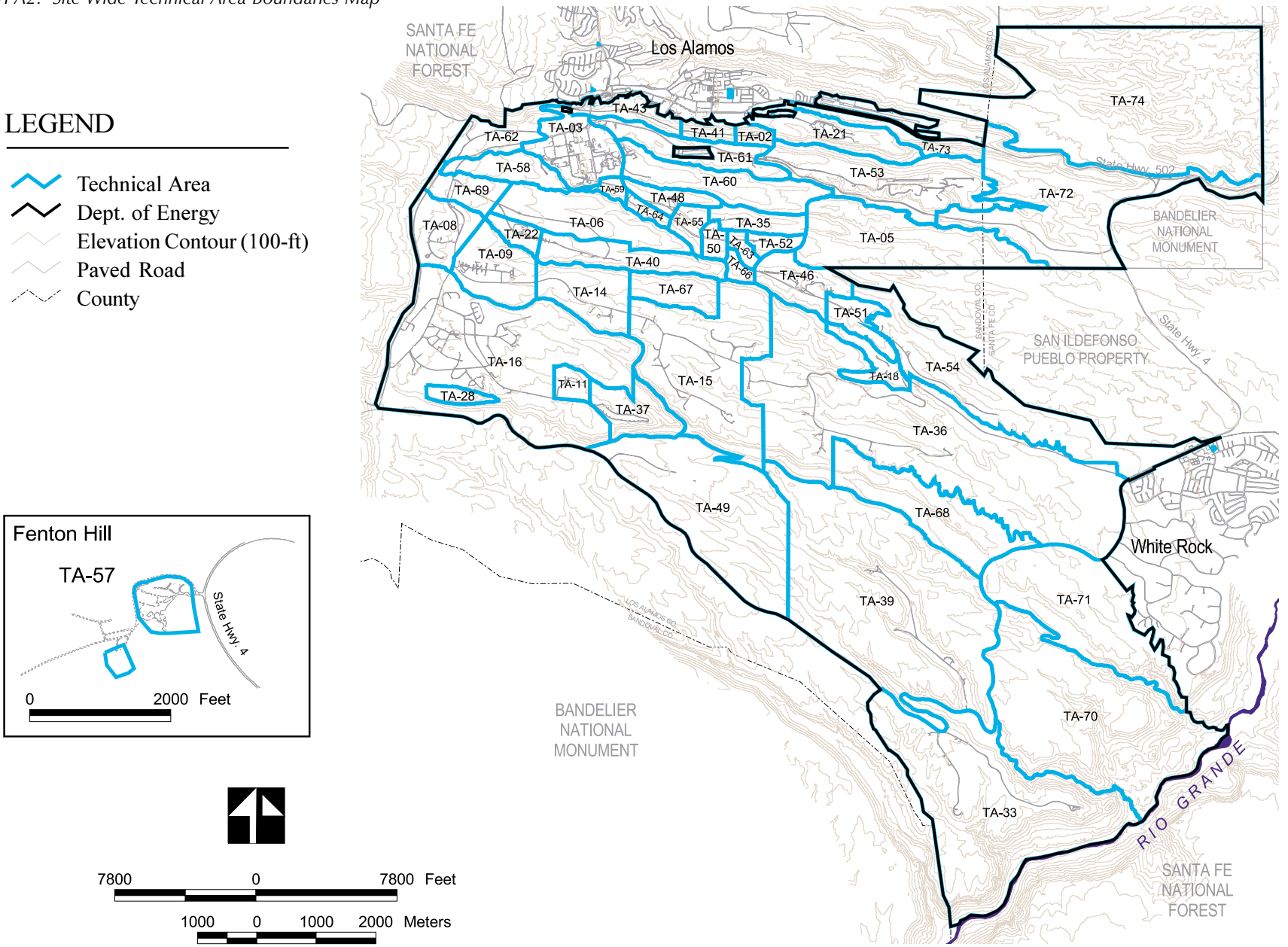
Presently, Los Alamos National Laboratory's on-site population is approximately 12,000, including both employees and contractors, housed in over 1,500 buildings which total over 7.8 million square feet.

Although at a cursory glance there appears to be sufficient land for future expansion at the Laboratory, most land is very difficult to develop, given significant physical and operational constraints. For example, over 25% of the Laboratory's acreage consists of slopes that exceed 20%. Adding to the scarcity of developable land is the type of work that the Laboratory performs. Security and safety buffers for defense-related work often require large reservations of land for these programs to continue without adversely affecting surrounding areas. These types of constraints severely limit developable land at the Laboratory.

There are currently 50 designated technical areas into which the Laboratory is divided. The nonsequential arrangement of the technical areas as shown on the adjacent Site Wide Technical Area Boundaries Map, VI-A2, reflects the 50-year history of development at the Laboratory, the limitations of the natural topography, and the functional relationships that have occurred over the years.

As a facility, the Laboratory is diverse-geographically, programmatically, and operationally. The Laboratory has a multiplicity of divisions and groups accomplishing a wide range of critical functions locally, regionally, nationally and globally. This diversity is a great strength and adds to the complexity of carrying out integrated physical planning at the Laboratory.

Map VI-A2: Site Wide Technical Area Boundaries Map



2. Land Use Development

The following 10 land use categories describe the activities at Los Alamos National Laboratory.

Administration – Nonprogrammatic technical expertise, support, and services for Laboratory management and employees. TA-03 is the center for this land use, with other small scattered sites throughout the Laboratory.

Experimental Science – Applied research and development activities tied to major programs. This land use occurs in a combination of offices, laboratories, and ancillary spaces requiring unique and specialized facilities.

High Explosives R&D – Research and development of new explosive materials. This land use is isolated for security and safety.

High Explosives Testing – Large, isolated, exclusive use areas required to maintain safety and environmental compliance during testing of newly developed explosive materials and new uses for existing materials. This land use also includes exclusion/buffer areas.

Nuclear Materials R&D – Isolated, secured areas for conducting research and development involving nuclear materials. This land use includes security and radiation hazard buffer zones. It does not include waste disposal sites.

Physical/Technical Support – Includes roads, parking lots, and associated maintenance facilities; infrastructure such as communications and utilities; facility maintenance shops; and maintenance equipment storage. This land use is generally free from chemical, radiological, or explosives hazards.

Public /Corporate Interface – Provides link with the general public and other outside entities conducting business at the Laboratory, including technology transfer activities. This land use occurs in a variety of settings including offices, laboratories, and special function buildings such as the Otowi Building and Research Library.

Theoretical/Computational Science – Interdisciplinary activities involving mathematical and computational research and related support activities.

Waste Management – Provides for activities related to the handling, treatment, and disposal of all generated waste products, including solid, liquid, and hazardous materials (chemical/radiological/explosive).

Reserve – Areas that are not otherwise included in one of the previous categories. It may include environmental core and buffer areas, vacant land, and proposed land transfer areas.

Strategies for Land Use

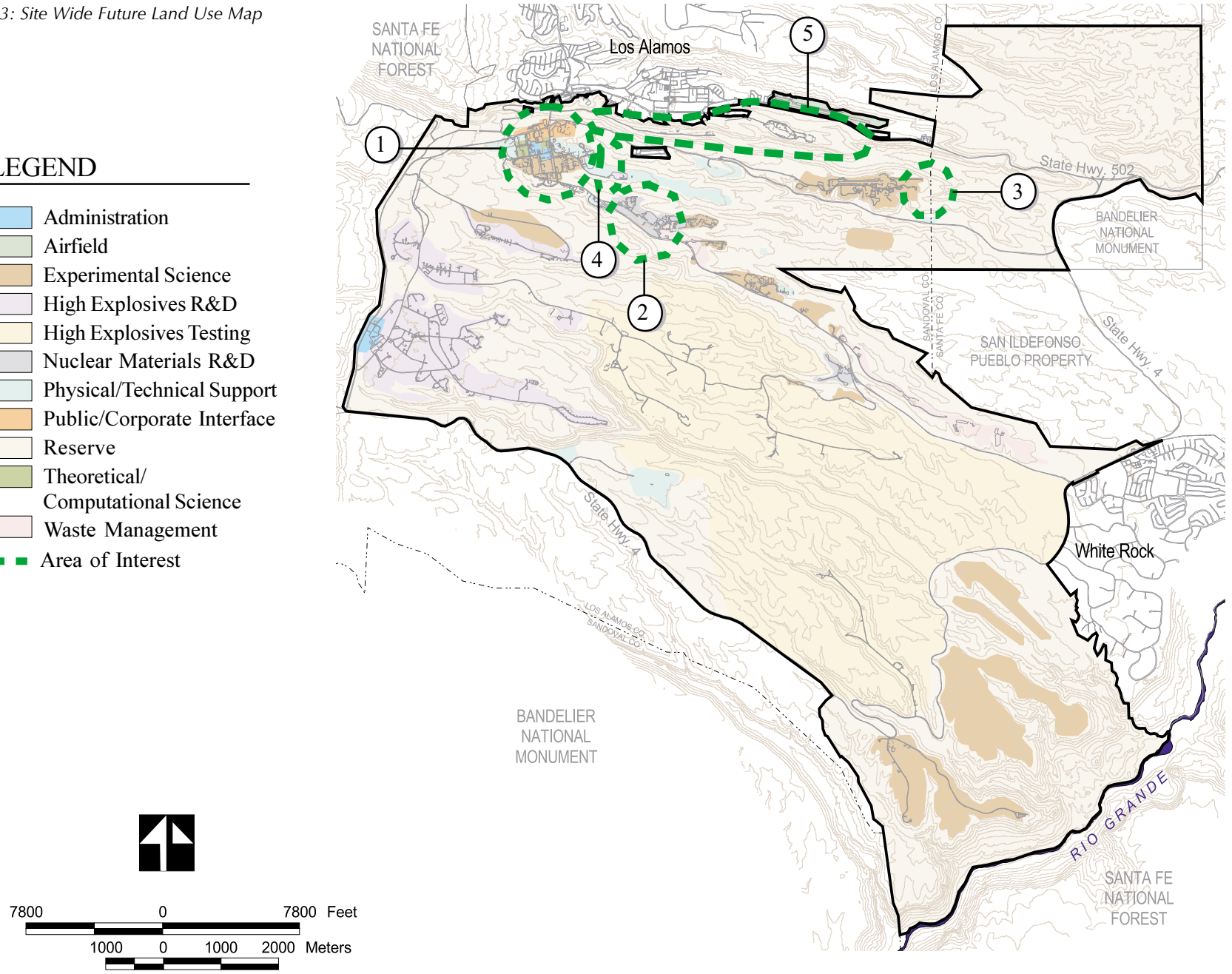
Land use strategies for the Laboratory are as follows:

- Reorganize facilities to bring disbursed program components into closer physical proximity to each other.
- Encourage construction of new facilities within existing developed areas and in support of revitalization efforts.
- Remove temporary structures such as trailers and transportables to create space for more cost-effective permanent buildings.
- Remove surface parking lots from prime development areas.
- Relocate most facilities back to Laboratory sites.
- Transfer designated lands to other agencies and political entities.

The Site Wide Future Land Use Map, VI-A3, depicts major land use changes that will affect development on a Laboratory scale.

1. Planned revitalization of TA-03.
2. Consolidation of most nuclear materials R&D to a nuclear campus at TA-55.
3. Expansion of experimental science for the Advanced Hydrotest Facility (AHF).
4. Relocation of JCNNM from TA-03 to TA-60.
5. Long-range removal of all Laboratory functions from the Omega West Planning Area.

Map VI-A3: Site Wide Future Land Use Map



3. Transportation

The Laboratory's remote location, topography, and development pattern have created unique transportation problems. Its location on a series of mesa tops separated by deep canyons and the dispersed arrangement of facilities on these mesas combine to make access between Laboratory facilities difficult and circuitous. Development of roads and parking has been incremental, often guided by short-term needs. The incremental growth has neglected pedestrian, bicycle and transit improvements. Maintenance of the transportation infrastructure has generally been inadequate to keep up with needs. These factors have resulted in site wide transportation difficulties.

Strategies for Transportation

The following are transportation strategies for the Laboratory:

- Move public traffic out of the Core Planning Area by developing an arterial loop road around TA-03.
- Move truck and other large-vehicle traffic out of densely developed areas by relocating delivery and distribution activities to areas along East Jemez Road.
- Move parking out of prime developable areas and locate new facilities at the perimeters of built zones where connections to on-site transit can be easily made.
- Develop strategies to reduce conflicts between public traffic and secure zones.
- Create a multimodal transportation system that supports regional transportation needs.
- Develop a complete transportation system that incorporates pedestrian, bicycle and transit improvements.
- Develop a transportation infrastructure that provides for emergency and safety needs.

The Site Wide Future Transportation Map, VI-A4, shows projects that are underway or proposed that support the Laboratory's transportation strategies.

(1) ***TA-03 Perimeter Loop Road -*** Revitalization efforts in TA-03 call for a perimeter loop road to route traffic around the core of TA-03. This allows TA-03 to be accessible but secure. The west section of the loop road is currently being planned. The eastern section is awaiting planning.

(2) ***Options for Pajarito Road -*** The development of a nuclear campus at TA-55 will make the security and safety conflicts with public traffic on Pajarito Road more pronounced. Three alternatives are under discussion:

- (2a) Closure of Pajarito Road to public traffic, with a guard gate east of TA-54.
- (2b) Building of a parallel bypass road south of the current alignment.
- (2c) Building of a north-south connector road between Pajarito Road and East Jemez east of TA-46.

(3) ***Add Secondary Accesses -*** Secondary access roads are proposed to improve site circulation, emergency response times, contingency planning and fire fighting capability. A major component would be a north-south connector between Pajarito Road and East Jemez Road and a second bridge to the town site to reduce public traffic in the core of TA-03.

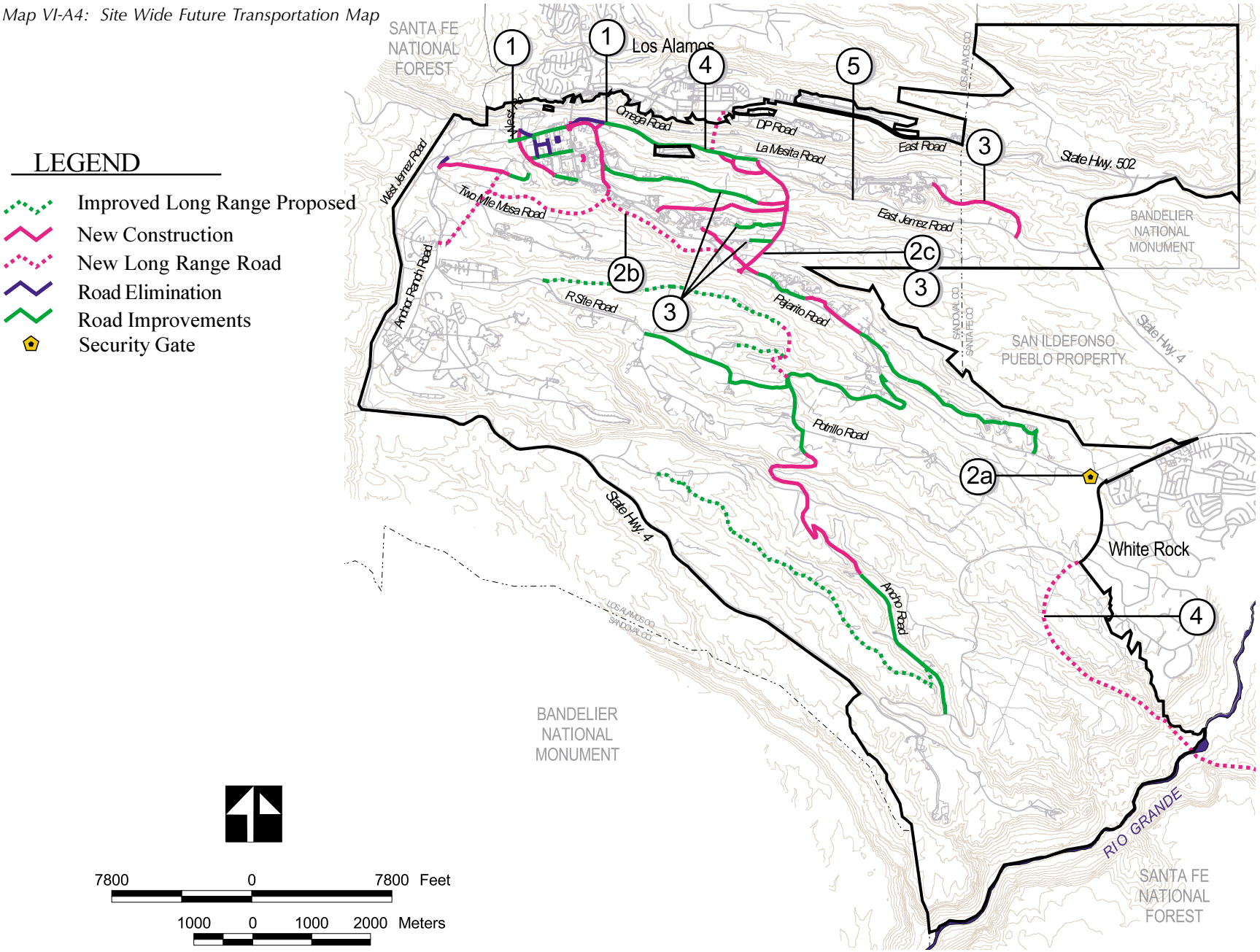
(4) ***Regional Connection to Santa Fe-*** A long range regional road connection to Santa Fe and Albuquerque needs to be considered. A second major access to Los Alamos is a safety and security need.

(5) ***Upgrade East Jemez Road -*** Traffic increases are projected for East Jemez Road if Pajarito Road is closed to public traffic. Improving the total length of East Jemez Road is proposed if the closure occurs.

ns ***Develop Pedestrian Trails -*** The Laboratory staff desires bicycle and pedestrian trails for both work and recreational purposes. These trails can also serve dual purposes as fire access, utility corridors and unpaved emergency access. Proposed improvements for pedestrians and bicyclists are included in the Core Area and LANSCE Mesa Planning Areas.

ns ***Integrate Transit Use -*** As space for surface parking becomes more restricted, the need to integrate transit planning increases. Projects to incorporate transit facilities into parking relocation plans for TA-03 are underway. Site wide transit planning is needed on this issue.

Map VI-A4: Site Wide Future Transportation Map



4. Security

Security Goal and Objectives

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

- Consolidate secure functions and interests to the extent permitted by other Laboratory functional and technical requirements.
- Limit public access to, and visibility of, limited-security and Category I & II SNM areas.
- Minimize public proximity to secured areas by locating public interface functions at the perimeter of the site.
- Establish buffer zones to protect limited-security and Category I & II SNM areas from unauthorized access.
- Surround or buffer higher-security functions with lesser-security functions to protect and insulate these functions from security threats.

Security Policies

The following policies are proposed to guide the Laboratory's security/safeguards decision-making process:

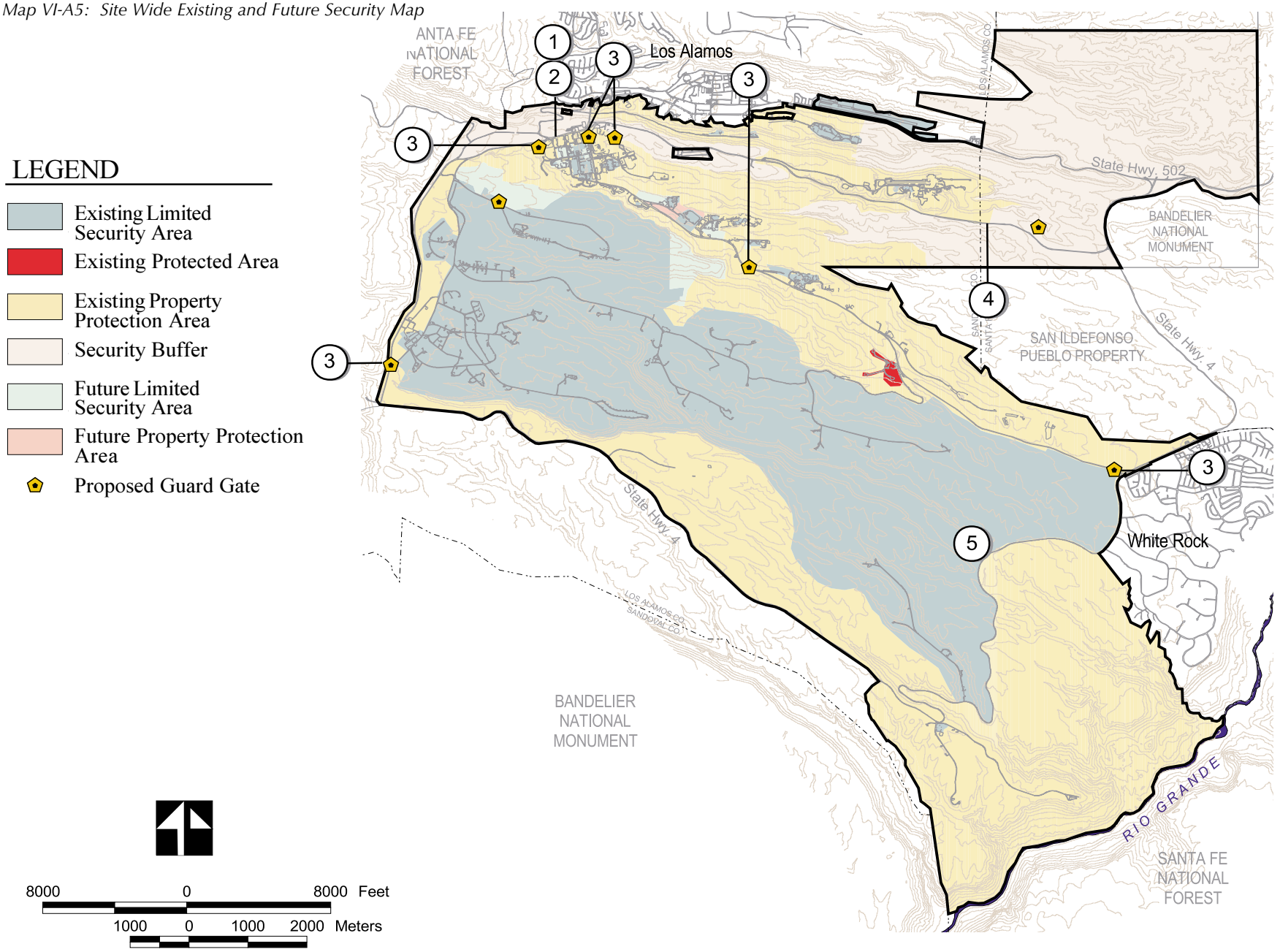
- Enhance awareness of physical security threats through education of all Laboratory personnel as necessary to help identify potential problems before any incident occurs.
- Consolidate all Category I & II SNM in as few areas as possible to enhance safeguards and security.
- Minimize the number of limited-security areas to the extent permitted by programmatic needs to consolidate and buffer such operations.
- Provide new road linkages between selected points to enhance security and emergency response time capabilities and to lessen reliance on public roads for operational activities.
- Construct peripheral roads and parking to minimize private vehicle access to secure sensitive areas.

The Site Wide Existing and Future Security Map,VI-A5, shows current and proposed projects that support the security goal, objectives and policies.

1. Establish a secure, centrally located storage facility for inactive classified documents.
2. Complete the industrial security perimeter fence around TA-03 and construct visible entry points that can be optionally staffed.
3. Provide capability to control access at Laboratory entry portals.
4. Widen East Jemez Road and make related intersection improvements so that public use and access along Pajarito Road can be de-emphasized.
5. Install fencing or other deterrents between NM 4 and the southeast boundary of the Dynamic Testing Planning Area.

- Continue to fence, sign, and enhance patrols of all Laboratory lands to discourage illegal and undesirable activities such as poaching, unauthorized entry, and vandalism as well as erosion and habitat degradation.
- Close Pajarito Road to public access when limited-security islands along Pajarito Road and the southeast portion of TA-03 expand toward each other. Reroute traffic to the TA-03 bypass roads, after they are constructed.

Map VI-A5: Site Wide Existing and Future Security Map



5. Utilities

Utility efforts that affect the Laboratory at the site wide level are the focus of this section. Minor defects are not considered unless they are part of a major issue. Major issues are categorized into three areas of concern.

System Condition - Analysis of overall system integrity. Data from maintenance reports, repair logs, and scheduled inspections support these conclusions.

System Materials - Analysis of systems' main and connecting materials. Data from design documents, construction as-builts, and repair notes support materials mapping.

System Capacities - Analysis of current system capacities and demands. Data from previous reports and field investigations have located pinch points and delivery failures.

Utility systems include major facilities on the site. The sewage treatment plant is 3 years old and has had award-winning operation. It is a model facility recognized by state and federal agencies. Electricity and steam are generated at the TA-03 power plant. Steam is also generated at TA-21. The TA-16 generation plant is dormant and scheduled for demolition.

a. Water System

Programs underway involve a leak study to detect defects in the water distribution system, possible replacement of asbestos-tainted piping, and expansion to link several new facilities into the fire protection loop.

Water System Condition

Los Alamos National Laboratory's water system is generally in good condition. However, two areas of concern are pressure consistency and fire supply lines. Water pressure consistency is a particular problem in the areas of lower elevation where the water pressure often exceeds the pressure rating for the distribution pipe.

The second concern involves inadequate fire lines. Traditionally, fire hydrants are connected to pipes that are at least 6 inches in diameter. Laboratory water service lines that provide water for fire protection need to be replaced if they have diameters that are less than 6 inches.

Water System Materials

Asbestos cement pipe is no longer used for domestic services in the United States. The Laboratory has approximately 28,425 linear feet of asbestos cement pipeline. This pipe is located in TAs-15, -50 and -53. To resolve this problem, new service leads should be installed in lieu of connections to the asbestos cement pipe. Cast iron and steel piping can be problematic if not lined or protected from corrosion. Segments should be inspected individually to determine if the pipelines require remedial action or replacement within the next 10 years.

Water System Capacities

Currently, there are no site wide issues regarding the availability or capacity of the water distribution system.

b. Sanitary Sewer System

The Laboratory has an aggressive sanitary sewer system maintenance and inspection program. It involves daily and monthly inspections of the lift stations and annual assessment of the pipelines.

Sewer System Condition

The sanitary system is generally in good condition.

Sewer System Materials

Replacement of asbestos cement piping for health and safety reasons related to the asbestos in the pipe material is currently being considered. The Laboratory has approximately 3,435 linear feet of asbestos cement sewer pipe. This pipe exists in several technical areas: TA-03, TA-18, TA-50 and TA-59. Where feasible, these sections will be replaced or bypassed with new mains.

Vitrified clay pipe, which is brittle, and cast iron and steel pipes, which are subject to corrosion if unlined, are continually inspected and assessed. If the pipes are found to be damaged or degrading, appropriate remedial action will be taken.

Sewer System Capacities

Individual pipe segments throughout the Laboratory's sanitary sewer system have inadequate slopes. These segments are prone to clogging. Flat sections should be replaced with lines that possess a minimum flow velocity of 2 feet per second. The lines are then self-clearing.

c. Solid Waste

Both the Laboratory and Los Alamos County use the same county sanitary landfill, located in the western portion of TA-61. The anticipated life of the landfill is estimated to be about 5 years. Upon closure, the Laboratory anticipates sending sanitary solid waste to a proposed regional landfill near the village of Ojo Caliente. Operations at this proposed site are anticipated to begin in the next 5 years.

d. Radioactive Liquid Waste Collection and Treatment

Radioactive liquid waste is generated from a variety of chemical laboratory and production activities conducted at many locations throughout the Laboratory. The majority of the liquid waste streams are transferred by direct pipeline between the generating facilities and the treatment facilities. Liquid waste streams from several facilities are transferred via truck transport to the main treatment facility at TA-50. Trucked liquid waste averages one truck per month at 700 to 800 gallons.

Radioactive liquid waste currently is treated at three on-site locations.

TA-50 The major facility is the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50. This facility is 38 years old and nearing the end of its functional life. A replacement facility needs to be planned.

TA-21 The existing satellite treatment facility at TA-21 Building 257 will be converted into a holding station for tritiated aqueous TSTA waste prior to transport to TA-53 evaporation basins. It is anticipated that this capability will be required until the termination of TSTA operations in 2-5 years.

TA-53 A third treatment facility is located at TA-53. This system is dedicated to TA-53 operations and tritiated wastewater trucked in from other Laboratory facilities.

e. Natural Gas System

Natural Gas System Condition

In general, the Laboratory's gas system is old. Almost half of the gas system was installed in the 1950s and another third in the 1960s.

Important natural gas system projects:

- A major repair project in the planning stage is slip-lining a 10-inch steel pipe which connects Tech Meter Two to the gas grid system on East Jemez Road. Short-term plans are to slip-line it with an 8-inch polyethylene (PE) sleeve. Long-term plans include replacement of the pipe.

- Possible replacement of the uncoated steel natural gas main line which was installed in the 1950s within the next 10 years.

Natural Gas System Materials

At present, site distribution is via approximately 62 miles of pipe. Ninety-five percent of this pipe is made of carbon steel. Carbon steel pipe is susceptible to corrosion through cathodic attack. A small percentage of the steel pipe is now slip-lined with polyethylene plastic to repair for leaks. Direct burial PE piping is more cost effective than steel and can be maintained without cathodic protection. 90% of the natural gas system was constructed prior to 1985. In 1985 PE piping was introduced as an alternate material for low pressure gas piping. While PE pipe is the material of choice, steel is used when a section of steel piping is replaced because of cathodic protection requirements. Steel is also used for canyon crossings and above ground installations where strength considerations are also necessary.

Natural Gas System Capacities

Utilizing computer modeling and empirical methods, the Laboratory has identified areas of concern. These issues include the following:

- At present, no redundant border metering station capable of supplying full capacity gas demand exists. Redundancy is necessary, since failure of Tech Meter One could curtail a large percentage of Laboratory operations. Funding for this addition is being pursued for FY 2000.

- Tech Meter Three is currently located in an area inaccessible due to radiation in the area.

- The 3-inch gas pipe running from Diamond Drive east on Pajarito Road, serving TA-54, is too small to carry peak load capacity. Current plans are to upgrade this pipe to a 6-inch line. This project is tentatively scheduled for design in FY 2000.

- A restriction of unknown origin exists in the 6-inch pipe along East Jemez Road east of the Royal Crest Trailer Court. Specific plans for this pipe have not yet been developed.

f. Steam System

Los Alamos National Laboratory has two primary sources of steam: the power plant in TA-03 and the TA-21 steam plant.

Steam System Condition

The steam system supply lines are in good condition. Steam return or condensate lines are a continuing maintenance problem. The return system is being gradually upgraded by replacing fiberglass piping with steel. An analysis of repair logs for 1997, 1998, and 1999 also identified areas of "high repair density." These high-repair areas need complete replacement projects.

Steam System Materials

In order to solve earlier leak problems, a Bondstrand synthetic, fiberglass condensate was installed in the 1980s. This material does not blister or corrode; however, it does not withstand high steam temperatures. When steam enters a Bondstrand pipe section, the pipe cracks and shatters. An analysis has located areas of Bondstrand condensate pipe and defined replacement projects.

Steam System Capacities

The power and generation plants have the capacity to deliver three times current demand. Central steam is an obsolete system but is too costly to change in developed areas. For new facilities and where feasible, gas heating should be considered a viable substitute for steam systems.

g. Communications

The central goal of voice, data, and video communications planning at the Laboratory is to provide an effective, secure, and economical communications system that helps maximize the productivity of employees in accomplishing the Laboratory's mission.

A key factor for providing effective communication service is staying abreast of and applying new technologies. The Laboratory telecommunications system has undergone a major change with the completion of the Los Alamos Integrated Communications System (LAICS) that provides analog and digital switching now and well into the next decade.

The fiber infrastructure consists of 74 miles of fiber cable and 34,000 terminated fibers. This provides a flexible, fiber-optic distribution system for routing connections to the campus's high-performance switching fabric for 624 buildings. The copper infrastructure consists of 62,600 outside plant copper cable pairs distributed throughout the Laboratory. The supporting infrastructure for the copper and fiber feeder and distribution system is provided through the use of a combination of direct buried, aerial and underground (21 miles) duct banks.

h. Electrical System

Currently, electrical power for Los Alamos National Laboratory is supplied from the DOE/Los Alamos County power pool. The Laboratory's on-site generation capabilities consist of three natural gas fired boilers, which supply three turbine generators. These turbine generators are rated at a total generating capacity of 20 megawatts. They are also used for emergency power and as spinning reserves for the power pool.

The Laboratory's distribution and utilization network consists of 59.5 miles of underground cable, 105.4 miles of overhead wire, 594 pole-mounted transformers, 329 pad-mounted transformers, 3,113 poles, 47 MVA of capacitors, numerous fuses, lighting arrestors and 11 switchgear lineups. The system has a total connected capacity of 299.4 MVA.

To provide maintenance and construction support, the Laboratory has two programs in place and is developing a pilot program. The first method is a computerized preventive maintenance program (PMP) in which a 15-member JCNNM crew performs both maintenance and construction. The second program is breaker maintenance. On a regular schedule, a crew removes circuit breakers from switchgears for cleaning, inspection, and relay testing. A metering network pilot program that monitors power usage and logs events that occur in the utilization systems is also used.

Electrical System Condition

Although the Laboratory's electrical system is generally in good operating condition, specific concerns require attention.

- The 13.8-kV switchgear and oil circuit breakers (OCBs) at several locations are 30-40 years old and obsolete. Replacement parts are often no longer available. A budget item must be placed in each fiscal year business plan for ongoing replacement of inadequate switchgear until all have been replaced. Hazardous failures have already occurred and will continue unless corrective action is taken.

- Five 115-kV/13.8-kV step-down transformers provide all the electric power delivered to the Laboratory and the Los Alamos town site. The transformers were installed in 1957, 1964, and 1969 and should be on a program for replacement.

- Transformer capacity redundancy is presently inadequate. Consideration should be given to adding additional units before replacing older units so that shortfalls in redundancy are corrected as soon as feasible.

- Presently, two 115-kV transmission lines carry all the bulk electric power for the Laboratory, the Los Alamos town site and White Rock. Both lines terminate on a common bus. A third 115-kV transmission line is planned to interconnect Public Service Company of New Mexico (PNM) with the Laboratory's power system at a new and physically separate 115-kV switchyard from the termination point of the original two lines. This will provide redundancy and increase reliability and security.

- Two-thirds of the Laboratory's 13.8-kV distribution system is run overhead. Where feasible, such distribution lines should be relocated to underground duct banks to improve reliability and increase the security of the system.

- One-third of the lightning-caused interruptions occur on the single S-17 13.8-kV distribution circuit. Improved insulation coordination on this circuit, the Laboratory's longest aerial circuit, is a specific upgrade that can improve distribution system reliability for the entire site.

- Significant and chronic over-design of low-voltage delivery facilities represents a major continuous loss of electrical energy due to core and coil losses. Replacement of old and poor equipment with properly sized equipment would mitigate this problem. A program to relocate serviceable equipment to sites more befitting their sizing could be part of the replacement program.

Electrical System Materials

Since 1982 the Laboratory has been replacing old and outdated underground cable with modern ethylene-propylene-rubber (EPR) insulated cable. Over 90,000 linear feet of old cable remain. That old cable must be replaced before increased end-of-life failure rates become disruptive.

There are 31 PCB-contaminated transformers spread across the Laboratory. Some also contain perchloroethylene – a RCRA-listed material. These transformers should either be replaced or refilled with a suitable dielectric fluid to mitigate the PCB and RCRA concerns.

Electrical System Capacities

Portions of the 13.8-kV aerial distribution lines are not adequate to carry the anticipated loads. To carry the additional distribution loads, reconductoring existing circuits and adding new circuits to accommodate the heavier conductors are essential.

The Norton transmission line is limited to 120 MVA in its present configuration. The Norton line is not adequate to carry electrical loads greater than 75 MW if the TA-03 power plant and the PNM-Reeves line were out of service. The Norton line can be reconductored to a capacity of over 200 MVA, so that it could carry existing and future loads alone, but with reliability solely dependent upon its integrity. Enhancement of load-serving capability either through increased transmission/transformation capability or through the addition of on-site generation capability will increase the fault-duty of the Laboratory's power distribution system. This could result in exceeding the fault-duty rating for a significant amount of Laboratory low-voltage systems at the building-wiring level and must be included in the planning for future system upgrades.

Figure VI-A2: Electrical Substation

Strategies for Utility Infrastructure

The following strategies were identified for utilities infrastructure during the Comprehensive Site Plan process:

- Continue to replace obsolete materials and inefficient system components.
- Define and use utility corridors.
- Create redundancy in utility systems both on-site and regionally.
- Design for system and area needs versus single-project needs.
- Plan infrastructure as private sector developers would for the long-term and total demand.
- Integrate building maintenance plans with comprehensive planning goals to promote cost savings, productivity and energy efficiency.
- Participate in regional efforts related to
  - utility supply improvements,
  - water management,
  - power pool,
  - emergency services, and
  - landfill.
- Continue to investigate alternative resources such as microturbines, solar, etc.

6. Facilities

In FY98, the Laboratory spent about $115 million on space costs. Currently, there are approximately 7.8 million gross square feet of facility space on-site. Additionally, the Laboratory leases about 281,000 square feet of space in Los Alamos, White Rock, Española, and Santa Fe. In total, the space is distributed as follows: 95% administration, 2% support, 2% storage, and 1% laboratories. Effective and cost-efficient management of this large amount of space is a critical effort at the Laboratory.

Revitalized Space Management Process

With the evolution of the Laboratory's distributed facility management model, the need to reevaluate the Laboratory's current space management process has become apparent. The Facilities and Waste Operations Division (FWO) is preparing a recommendation to revitalize the Laboratory's space management activities as a fully integrated formal process.

The purpose of the integrated space management process is to manage the Laboratory's physical assets as valuable national resources. The management of physical assets, from acquisition through operation and disposition, is intended to be an integrated and comprehensive process linking the various life cycle phases.

The cornerstone of the integrated space management program will be a space utilization target, or setpoint, for each line organization or program. This setpoint will be the total square footage of space allocated to each Laboratory line organization and program. The Laboratory's Senior Executive Team (SET) will be responsible for reviewing each organization for alignment with its target space allocation. This evaluation will be based upon an analysis by FWO.

In concert with the utilization target, the SET will establish priorities among programs and activities as they impact space needs. These priorities will be determined on the basis of comprehensive facilities planning by the Project Management Division.

Success of the integrated space management program will rely upon the leadership of specific entities with specific responsibilities.

Senior Executive Team (SET)

- To promote a culture that recognizes space as Laboratory "community property."

Site Planning and Construction Committee (SPCC)

- To establish space utilization standards.

Line/Program Organization Managers

- To provide reports of the population in space assigned to their respective organizations.
- To develop plans and implement actions consistent with SPCC guidance that will align their organizations to their space utilization setpoint.

Facility Managers (FM)

- To allocate space within utilization standards and use and activity priorities adopted/established by the SET.

Facilities and Waste Operations (FWO)

- To provide to the SET reports on the utilization of all Laboratory space.
- To facilitate the disposal of excess space per LIR 230-01-01.0, Laboratory Excess Space and Surplus Facility Requirements.
- To develop space utilization standards and recommendations for SPCC consideration.
- To expand and maintain the Laboratory's space database and its user interface capabilities.

Facilities Management Strategies

Facilities space management strategies that have been identified by the stakeholders during the Comprehensive Site Plan process include the following:

- Create an integrated space management process.
- Replace temporary structures with permanent space.
- Avoid reinvestment in substandard space.
- Prioritize infill uses first.
- Relocate off-site Laboratory facilities and space to Laboratory sites.
- Reorganize facilities to bring disbursed program components into closer physical proximity to each other.
- Colocate like types of functions.
- Construct to commercial quality standards.
- Design flexibility of use and function into space standards.

7. Quality Environment

The physical setting of Los Alamos is spectacular and beautiful. There are panoramic views across the Rio Grande Valley to the Sangre de Cristo Mountains, and the Jemez Mountains provide a dramatic backdrop. The steep canyons and narrow fingerlike mesas, enhanced by the mountain flora and fauna and mild climate, create an enchanting environment for the Laboratory. Properly managed, this physical setting is a powerful asset for the Laboratory, providing an environment that attracts quality staff.

Los Alamos was established in response to a national emergency and continued to operate under intense pressure during the Cold War era. Much of the man-made environment resulted in an austere, military/industrial appearance. Given the Laboratory's intense focus, the development was appropriate for the time.

As the Laboratory faces new challenges of the 21st century, the Laboratory's physical plant must change. No longer a rushed national venture, the Laboratory is now a firmly founded national institution with a long, proud heritage. It must now reinvent itself to meet the future. There are critical mission-related reasons for improving the Laboratory environment.

a. ***Quality Personnel -*** Los Alamos National Laboratory's greatest asset is its people. Today, the Laboratory competes on a global and national scale for the best and the brightest, not just with other governmental agencies but with private industry as well. Potential employees now assess the quality of the environment they will work in as well as the work they will do. Most expect a quality corporate campus and research park environment. In order to compete well, the Laboratory needs to address this perception.

b. ***Quality Private Partnerships*** - In the future the Laboratory will need to strengthen partnerships with private industry. As the Laboratory looks for these partners, it will need to once again assess the quality of the environment.

c. ***Quality Investment -*** The Laboratory needs to address the quality of its investments.In private life we often judge people and organizations by the visual quality of the space they occupy and maintain. This evaluation is one way to assess the management capabilities of a group. When careful thought and planning is taken to care for investments, those investments look better and function better for longer periods of time.

The Laboratory now faces a period in which opportunities for revitalizing the quality of the Laboratory environment are available. The following are some opportunities:

- Revitalization of TA-03.
- Replacement of many facilities which have exceeded their design life and need replacement or revitalized space soon.
- Replacement of substandard temporary space with permanent facilities.
- Development of new initiatives and programs that require new types of facilities.
- Establishment of heightened security that may require the relocation of some secure activities and possibly changes to the site wide transportation system.
- Improvement of site wide transportation to reduce conflicts between public and Laboratory traffic, between service and general traffic, between automobile and pedestrian/bicycle traffic.

The Laboratory recently published *Site and Architectural Design Principles*, a document that presents principles and guidelines for upgrading the quality of site wide development. The document presents a review of guidelines for improvements to the Laboratory's entrances, land development and siting, transportation, parking, pedestrian accommodations, landscaping, open spaces, security, safety, and architectural and visual image.

These principles need to be incorporated and budgeted into the requirements for all new projects at the Laboratory. This incremental process of incorporating site wide quality standards into new projects will, over time, have an impact-if they are firmly required and implemented on each project.

There is another level of improvements-those that are institutional in nature rather than project related, such as site wide signage and landscaping of open space linkages between buildings. These need a mechanism for funding and implementation that is identified and empowered by the Laboratory.

The following are current projects that support the strategies for quality environment:

- Planned pedestrian and area improvements related to SCC and NISC.
- Budgeted improvements for shuttle bus shelters at TA-03.
- Proposed revitalization of TA-03.
- Proposed trail and walkway improvements at the LANSCE Mesa Planning Area.
- Proposed architectural, pedestrian and parking improvements at the Experimental Engineering Planning Area.
- Proposed site wide signage and monumentation plan.

Strategies for Quality Environment

The following are strategies for achieving and maintaining a quality Laboratory environment:

- Incorporate the Laboratory's *Site and Architectural Design Principles* into all new project requirements; in particular, incorporate architectural finishes, pedestrian improvements, transit facilities and landscaping.
- Develop a pedestrian campus environment at TA-03.
- Develop pedestrian environments where on-site population is clustered.
- Integrate pedestrian and bicycle improvements with infrastructure projects, i.e., jogging trails over utility corridors and walks with roadways.