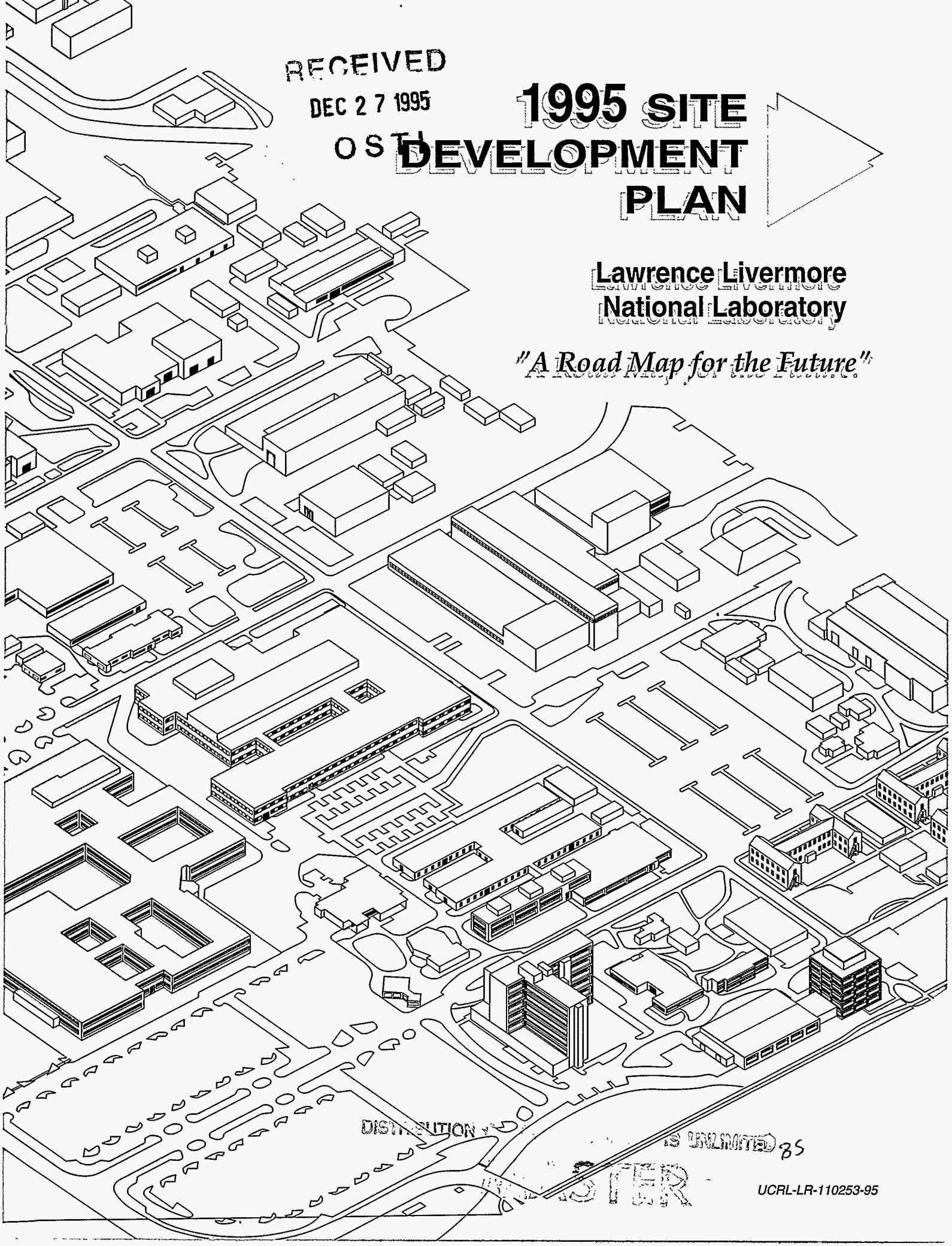
1995 SITE DEVELOPMENT PLAN

Lawrence Livermore National Laboratory

"A Road Map for the Future"



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The rendering shown on this page was developed in 1976 as the Master Plan for Lawrence Livermore National Laboratory. Although differences may be found, Laboratory development over the past 19 years has closely followed the framework presented in the '76 plan. The rendering shown on the front cover depicts the southwestern quadrant of the Livermore Site in the 21st Century.

FOREWORD

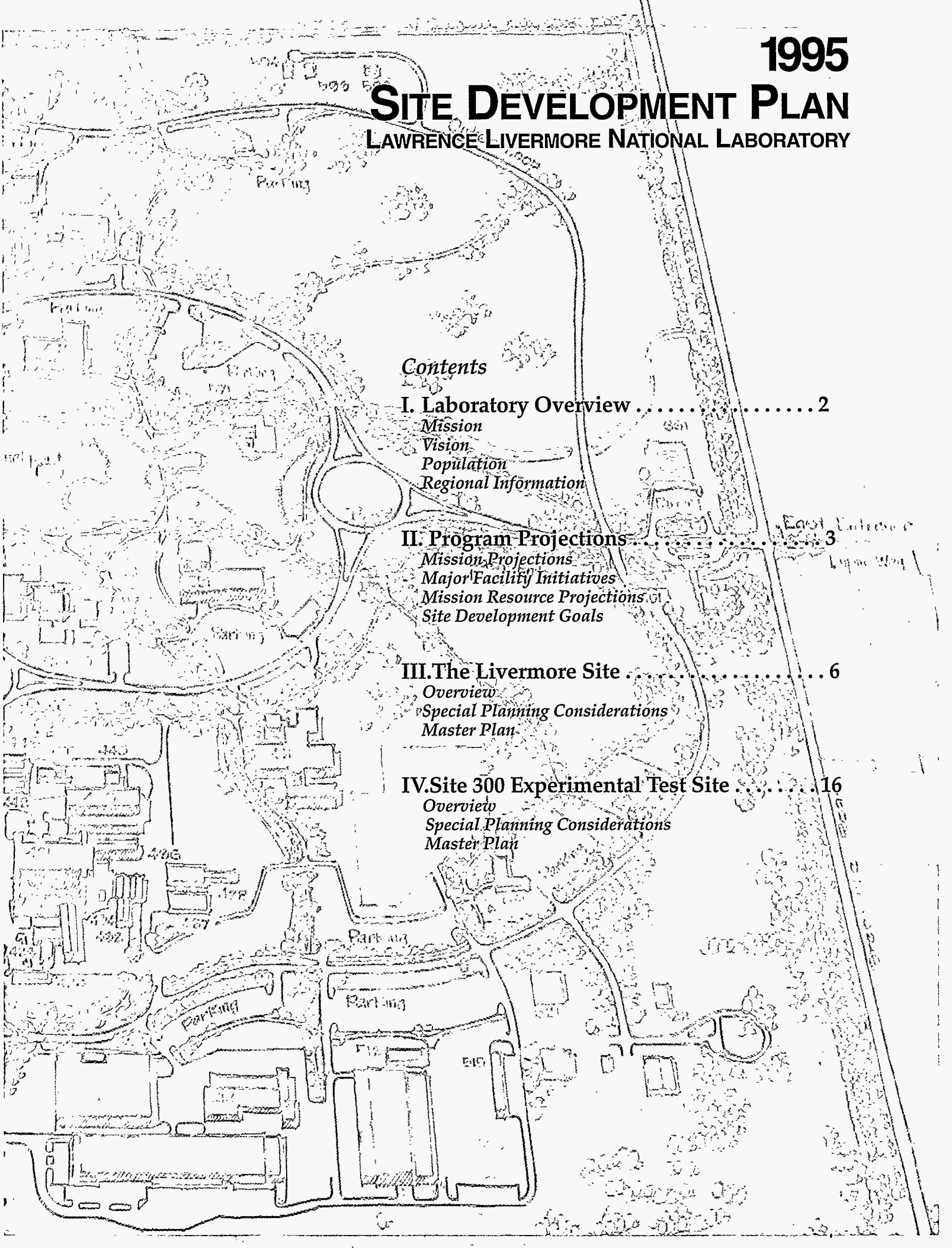
At Lawrence Livermore National Laboratory, we are changing to meet today's challenges while preparing for tomorrow. In this time of rapid change, it is very important to be flexible in one's planning and ready to accommodate shifts in direction.

Our most immediate task is to transition from an institution in which nuclear weapons were our defining rationale to an organization in which diverse programs and customer interests have significant value. This culture shift must be accomplished with well-articulated road maps in each of our technical areas based on a set of carefully conceived long-term goals. Our future strategic planning efforts will integrate national priorities, the DOE mission, and the ideas of our customers and employees into a detailed vision.

We will use this year's Site Development Plan to guide us in creating a physical environment that supports the present and future missions of the Laboratory. Our aim is to create a Laboratory site that supports the best researchers in the world, where technological achievement is the priority, and where efficient and cost effective systems are the means to accomplish our objectives. We are making progress toward that model, and we look forward to a future site that greatly enhances those objectives.

C. Bruce Tarter, Director

1995
SITE DEVELOPMENT PLAN
LAWRENCE LIVERMORE NATIONAL LABORATORY



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Laboratory Overview

Mission

The mission of the Lawrence Livermore National Laboratory (LLNL) is to apply science and technology in the national interest. LLNL's focus is on global security, global ecology, and bioscience. Laboratory employees are working with industrial and academic partners to increase national economic competitiveness and improve science education. The Laboratory's mission is dynamic and has been changed over the years to meet new national needs.

Vision

LLNL will strive towards sustained, results-oriented excellence. The Laboratory is committed to serving the country as a national resource of scientific and technological expertise, dedicated to global security, the environment, and the future scientific needs of the nation. LLNL's vision for the future aligns with the business areas identified in the Department of Energy's (DOE's) new strategic plan: national security, energy resources, environmental quality, and industrial competitiveness—all addressed through science and technology. The Laboratory will build on and enhance partnerships with DOE staff to ensure excellence in the achievement of common goals.

Attaining these goals will require new forms of cooperation among the national laboratories, universities, and industry. The commercialization of new technologies will be the planned end product of these collaborative projects.

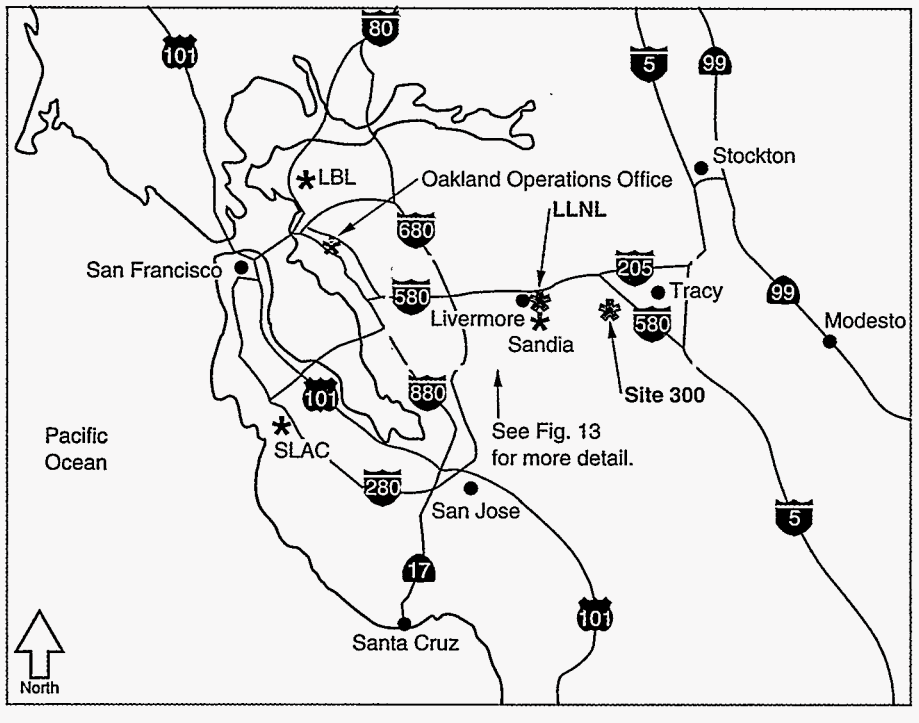


Figure 1. The LLNL Livermore Site and Experimental Test Site (Site 300) are located within the San Francisco Bay Area in proximity to other research laboratories.

Population

As of January 1, 1995, there were 10,122 persons working at the Laboratory. There are 9610 persons at the Livermore Site, 244 persons at the Experimental Test Site (Site 300), and 268 persons at off-site leased facilities. Of those at Livermore, 8114 are LLNL personnel, and 1496 are non-LLNL personnel, including 203 DOE and other federal staff.

Regional Information

The LLNL site is about 80 highway km (50 miles) southeast of San Francisco. Site 300 lies an additional 27 km (17 miles) to the east (see Figure 1 below and Figure 13 on page 16). A nearby interstate highway to the north, I-580, connects the site with the Bay Area and California's Central Valley.

The City of Livermore, with a population of nearly 62,000, has been steadily expanding toward the Laboratory for the past 20 years. A survey of the local community confirmed the Laboratory is a welcome neighbor, adding over a half billion dollars annually to the regional economy.

The San Francisco Bay Area provides an exceptional range of opportunities and resources for scientists and engineers. The Laboratory's proximity to major universities and the research and development community of Silicon Valley provides a diversity of workforce resources. Sandia National Laboratories/California (SNL) is located immediately south of LLNL, and both the Stanford Linear Accelerator Center (SLAC) and Lawrence Berkeley Laboratory (LBL) are located in the Bay Area.

Program Projections

Mission Projections

Today's world requires a fresh assessment of the role of the national laboratories in general and the role of the defense laboratories and Livermore in particular. LLNL's programmatic evolution over the past 40 years is dramatically charted in Figure 2; the future of the Laboratory may demand even greater change. The Laboratory has identified three areas of long-term importance where it can make unique and valuable contributions: global security, global ecology, and bioscience.

The first of these missions—global security—represents a transformation from historical nuclear weapons efforts to the post-Cold War era. There are three important tasks, all with the goal of reducing nuclear danger throughout the world: stewardship of the stockpile, development of nuclear non-proliferation measures, and the safe dismantlement of a portion of the strategic arsenal. LLNL, in concert with Los Alamos National Laboratory and Sandia National Laboratories, will carry out these responsibilities as part of the DOE's integrated plan. The overall plan, which is still being developed, envisions a much smaller weapons complex, operating in a more integrated fashion and drawing on the unique strengths of each site. The goal is to cut costs while preserving required capabilities. It will take over a decade to make the transformation to the very different configuration attuned to the needs of the post-Cold War world. It is anticipated that the three laboratories will take on a more challenging and diverse set of long-term roles as the production complex is further reduced. This process may eventually lead to closing the plutonium facility at LLNL.

Harmonizing the demands of the world's economy with the needs of the environment is a crucial national and global issue. Achieving this balance will require safe and clean energy sources, as well as manufacturing processes and consumer goods that make wide use of resources while protecting the environment. The Laboratory can contribute to all aspects of this challenge—developing energy sources, working with industry to devise advanced manufacturing processes, and developing innovative and cost-effective technologies for environmental management and cleanup. In addition, there is a large effort devoted to developing, implementing, and ensuring compliance with environmental regulations.

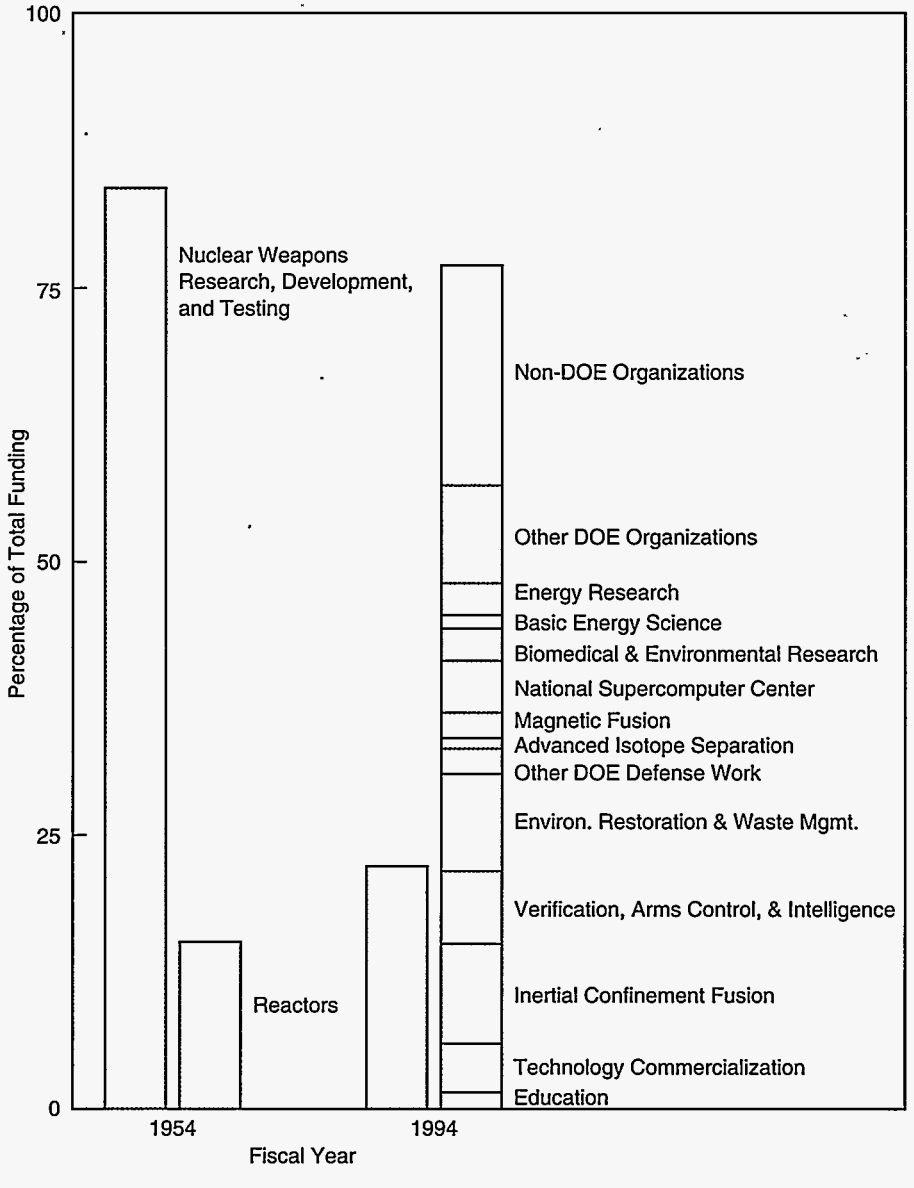


Figure 2. Programmatic work at LLNL has grown significantly more diverse over the past 40 years.

Bioscience offers a new frontier in research. For the first time in history, the tools exist to decipher the genetic blueprint (DNA) and reveal the basic science of human life. This knowledge will make it possible to ameliorate, cure, or even prevent genetic diseases, enhancing the quality of life and decreasing the health-care costs to society. Several examples of recent LLNL health-care accomplishments include improved mammography techniques, advances in medical lasers, and the use of microengineering techniques to repair aneurysms. The fruits of this human biology research will undoubtedly carry over into agriculture, environmental management, and industry.

Beyond these primary focuses, the Laboratory will continue to support other innovative science and technology initiatives having potential for high impact in their fields and that reinforce scientific and technological strengths. In addition, LLNL remains committed to fostering science and math education to help ensure the scientific literacy of the general population and to inspire future generations of scientists and engineers.

LLNL views partnering with the DOE, other laboratories and government agencies, industry, and academia as a primary way to assist in accomplishing its programmatic objectives.

The recent reduction in classified research and development presents an historic opportunity to open up the Laboratory to an increasing variety of collaborations. The Laboratory will be configured to make a large portion of it accessible to partners and customers. LLNL's people, data, and facilities will also be more available through open information networks and through higher-performance computer networks that allow remote access to key experiments. Key national facilities will be built and used by multi-institutional teams of researchers. The goal is to make Livermore the first-choice meeting ground for blending new ideas from all of its partner communities.

Major Facility Initiatives

Among the keys to meeting the Laboratory's new missions are the availability of critical research facilities and the reliability of the supporting infrastructure. Three critical research facilities and various infrastructure initiatives proposed for LLNL are described below.

National Ignition Facility

The National Ignition Facility (NIF) is the next scientific step in inertial confinement fusion (ICF). It will demonstrate thermonuclear ignition and burn in the laboratory for the first time and will enable optimization of ICF targets. NIF will play a critical role in the DOE's nuclear weapons science-based Stockpile Stewardship Program. In the absence of underground testing, the reliability, safety, and effectiveness of the remaining stockpile can be assured only through advanced computational capabilities and above-ground experimental facilities. NIF, for an estimated $868.6 million, will be among the most important of these facilities (see Figure 3).

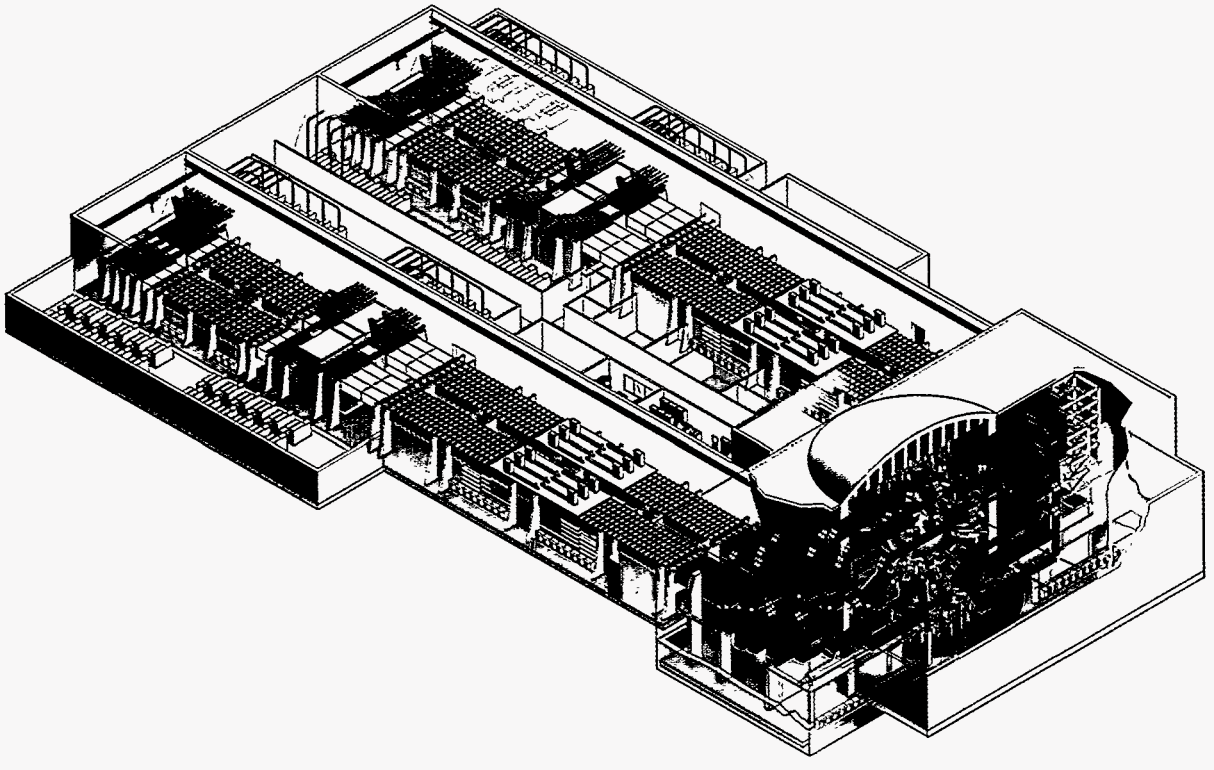


Figure 3. The proposed National Ignition Facility offers a key research capability and is LLNL's highest priority project. NIF will play a crucial role in the DOE's science-based Stockpile Stewardship Program.

NIF will also allow the U.S. to remain a world leader in developing ICF as an environmentally attractive energy source. The NIF technical goal, to achieve fusion ignition, will help establish the scientific basis for electrical power generation by inertial confinement fusion. NIF will provide a civilian application by helping to establish the requirements for the key components of a power plant for economic electric power generation.

NIF will provide new and unmatched scientific research capabilities by creating conditions similar to those at the center of the sun and other stars. It will be key in maintaining and advancing many U.S. high technology industries. The NIF laser will be the world's largest optical instrument and will be available to scientists throughout the research community, including universities, other federal laboratories and private industry.

Contained Firing Facility

The Flash X-Ray Facility at Site 300, in conjunction with high-speed optical cameras, pin-dome technology, and multibeam velocimetry, constitutes the most versatile and complete explosives test facility in the world. The cumulative investment in this facility is $85 million. The proposed $49.7 million enhancement will add a 2685-m^2 (28,900-ft^2) facility, including a reinforced firing chamber, a support staging area, and additional diagnostic space. This facility will provide the capability to test explosive charges up to 60 kg with improved environmental protection and safety.

Genomics and Structural Biology Research Facility

The Biology and Biotechnology Research Program (BBRP) continues to grow but is hampered by limited office, laboratory, and support space. The proposed 7785-m^2 (83,800-ft^2) Genomics and Structural Biology Research Facility will house LLNL's human genome effort and alleviate serious overcrowding in existing buildings. This $37.6 million building will provide offices and laboratories for approximately 154 people and will support collaborative research with BBRP's university colleagues and industrial collaborators.

Infrastructure Improvements

Safe and reliable infrastructure is essential in supporting ongoing research and development efforts at LLNL. Maintenance and repair of the existing infrastructure continues; however, improvements are required to replace aging and dilapidated components and to provide for projected facility usage. Proposed infrastructure projects include: roof replacements, road reconstruction, sanitary sewer rehabilitation, low conductivity water (LCW) upgrades, underground fuel tank upgrades, electrical power system upgrades, and chlorofluorocarbon chiller conversions. Specific projects are listed in Table 1, Line-Item Construction Plan Project Summary, located on page 12, and on the Site 300 Master Plan, found on page 21.

Mission Resource Projections

Annual operating and capital funds are expected to remain at approximately $1 billion, plus or minus 30% over the next five years. During this time, the Laboratory expects significant growth in the non-defense areas, as well as in selected defense-related programs. In particular, funding growth is projected in global security, with an emphasis on dismantling the strategic arsenals, dealing with the proliferation threat, and science-based stockpile stewardship. Funding growth is also projected in the areas of global ecology (i.e., environment, energy, and economy), bioscience, and health care.

Site Development Goals

Changing security requirements, continuing urban encroachment, and the flexibility required to meet the new national focus are issues affecting land use, physical security, and traffic circulation. The following site development goals address these critical issues:

- *Enhance the physical image of the Laboratory commensurate with its standing as a nationally recognized center for basic and applied research and development.*
- *Consolidate and collocate functional groups into flexible facilities to foster communications and collaborations.*
- *Ease access to the Laboratory, while maintaining appropriate levels of security, to better facilitate collaborative research with universities, industry, and other government agencies.*
- *Replace or renovate temporary, outdated and substandard facilities to provide modern, energy-efficient workspace.*
- *Ensure utility systems can provide present and future program support reliably and economically.*
- *Enhance road and pathway systems to provide safe, efficient circulation conducive to effective security and emergency response.*

These goals serve as the basis for discussion in the following chapters.

The Livermore Site

Overview

Land use at the Livermore Site is the result of 50 years of development. Development was initially determined by the requirements of a naval air station and later guided by the Atomic Energy Commission, the Energy Research and Development Administration, and the DOE Long-Range Site Development Plans.

In the early years of the Laboratory, most employees were housed in converted barracks and other facilities dating back to World War II. Some of these buildings are still in use today. As the Laboratory grew, new facilities were built adjacent to the original cantonment area.

LLNL's site development decisions were influenced by the existing grid of roads and utilities. This led to overdevelopment in the southwest quadrant. High population densities and constrained building sites severely limited traffic flow and facility expansion potential. In 1968, the Long-Range Site Development Plan promoted a loop road system to accommodate extensive Laboratory expansion. The grid pattern in the southwest quadrant of the site was modified and integrated with the loop road system.

Existing Land Use

The valley surrounding the 332-hectare (821-acre) Livermore Site has a mix of agricultural, residential, and light industrial uses. There are recent residential developments to the west of the site. Light industrial and office developments continue to grow north of the Laboratory.

Sandia National Laboratories/California is immediately south of the Livermore Site. The Department of Applied Science of the University of California, Davis, occupies a facility on 4 hectares (10 acres) of leased land due north of the East Gate.

Laboratory land is categorized and documented based on predominant use. The Existing Land Use Map displays the general use of both Laboratory and adjacent lands and defines the categories associated with Laboratory land use (see Figure 4). Understanding how the land is presently used will enable effective facility siting decisions in the future.

Existing Facilities

There are 173 permanent buildings and 331 temporary structures at the Livermore Site, totaling approximately 532,000 m^2 (5.7 million ft^2) of gross floor space. Temporary structures account for 133,408 m^2, or 25%, of this total. The entire facility has a plant replacement value of approximately

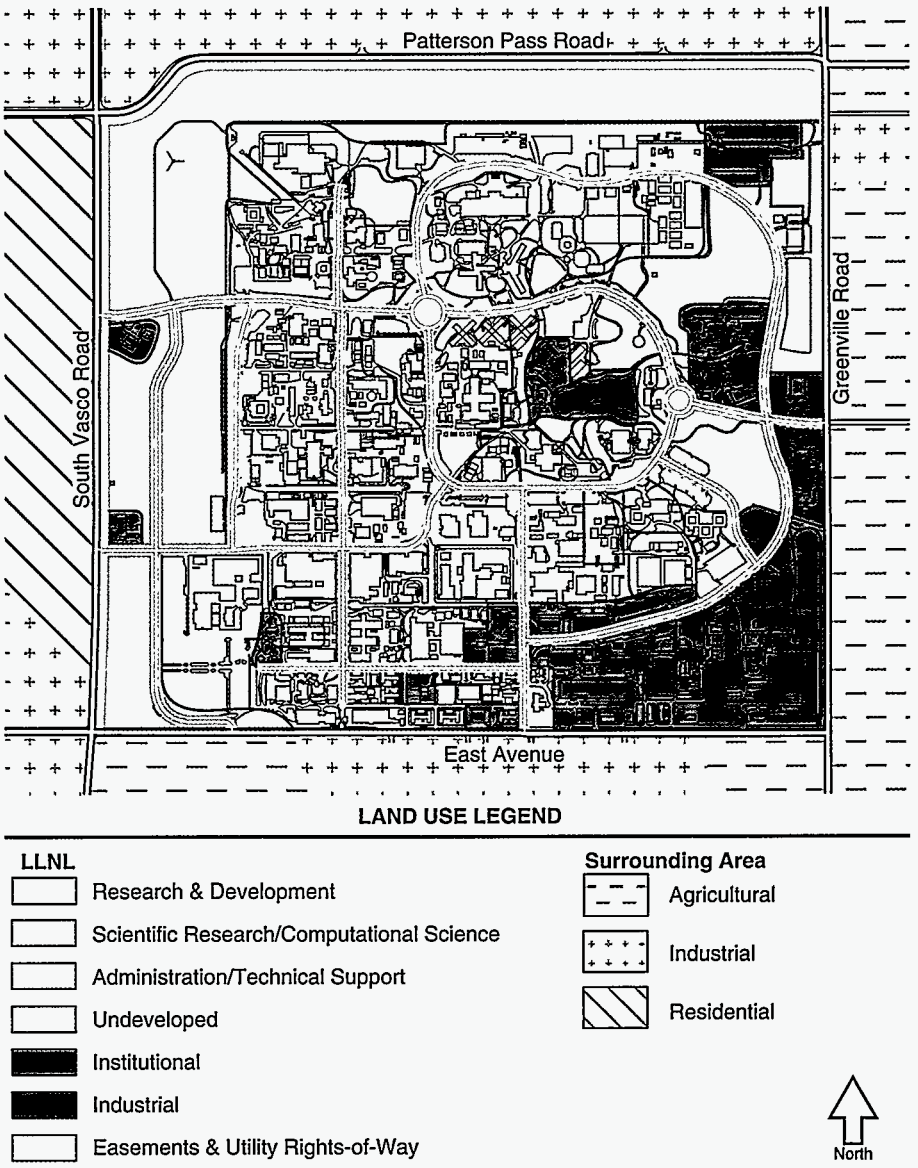


Figure 4. Existing Land Use Map. Land at the Livermore Site is categorized according to predominant use. Most of the site is developed.

$3 billion and includes many unique experimental facilities.

Approximately 27% of all facilities (141,298 m²) have exceeded their design life expectancy, and 41% (218,826 m²) are rated in substandard condition categories. These high-maintenance, outdated facilities must be rehabilitated, removed or replaced. Temporary trailers and World War II-era buildings constitute about 17% of currently occupied space. Approximately 53% of the office population is housed in facilities considered to be substandard (see Figure 5).

The overall land-to-building ratio remains near 6:1 for the Livermore Site—a very desirable ratio for a research and development facility complex. However, this ratio varies considerably throughout the site.

Infrastructure

The utilities serving LLNL are capable of meeting the present demand. On-site utilities include electrical power, natural gas, domestic water, low conductivity water, demineralized water, sanitary and storm sewer, compressed air, life safety alarms, and a state-of-the-art voice/data system. There are 33 existing utility structures totaling 3400 m² (36,594 ft²).

The two primary energy sources at LLNL are natural gas, with a backup propane system, and electricity. Natural gas is transmitted by the Pacific Gas and Electric Company (PG&E), with an average usage at 55% of the current capacity. Electrical usage is currently at 58% of capacity. A fully redundant electrical transmission/substation source is presently being constructed, provided by PG&E in parallel with the Western Area Power Administration (Western) at the 115-kV level.

The primary source of domestic water is the City of San Francisco's Hetch Hetchy system. A secondary source is Zone 7, Alameda County Flood Control and Water Conservation District. A project is underway to replace the existing storage tanks at Sandia with larger, seismically upgraded models to better support water requirements at the Livermore Site.

LCW is generated from domestic water at two utility stations, B325 and B291, recirculating in a closed-looped system. At peak times this system operates at about 90% of design capacity for the site, cooling buildings and equipment. Demineralized water and compressed air are also generated at these same utility stations.

Sanitary sewer discharge goes to the City of Livermore's waste-water collection system. A sewer diversion facility, completed in 1991, protects against accidental release of contaminants into the Livermore Municipal Treatment Facility.

The Livermore Site has an extensive range of telecommunications services. The central components of this system are the Integrated Services Digital Network (ISDN), installed in 1989, and the Ethernet and fiber optic-based Open Lab Net Data networks.

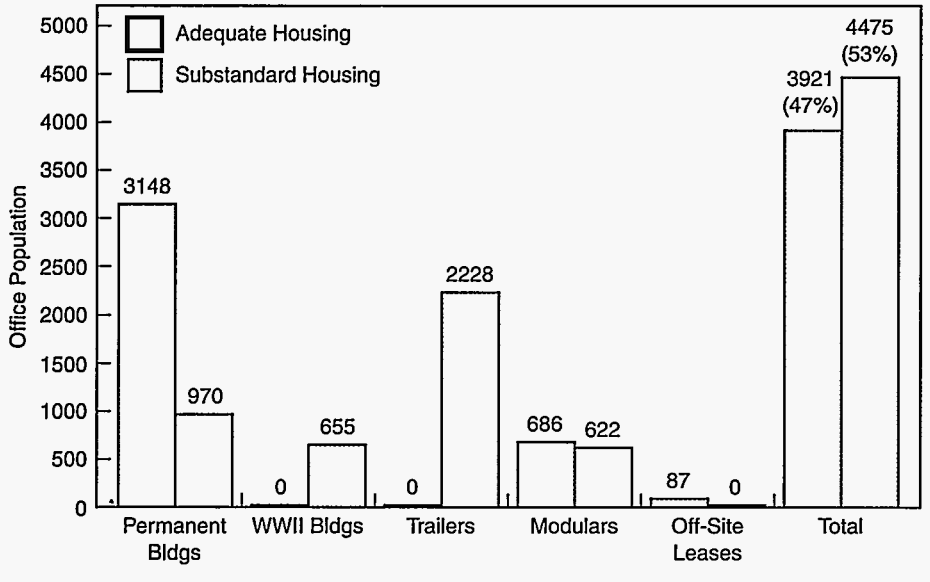


Figure 5. Approximately 47% of the Laboratory office population resides in adequate facilities, while 53% is housed in facilities considered substandard.

Special Planning Considerations

Energy Secretary Hazel O'Leary recently issued an innovative land and facility use policy to strengthen stewardship of DOE lands and facilities. The policy's purpose is to stimulate local economies, cut costs and red tape, and ensure public participation in the planning process. The new policy states:

It is Department of Energy policy to manage all of its land and facilities as valuable national resources. Our stewardship will be based on the principles of ecosystem management and sustainable development. We will integrate mission, economic, ecologic, social and cultural factors in a comprehensive plan for each site that will guide land and facility use decisions. Each comprehensive plan will consider the site's larger regional context and be developed with stakeholder participation. This policy will result in land and facility uses which support the Department's critical missions, stimulate the economy, and protect the environment.

The comprehensive plan mentioned above will be developed in concert with the National Environment Policy Act (NEPA) process.

Land use planning will be more closely integrated with the NEPA process, looking beyond the site's boundaries and inviting stakeholders to participate (see Figure 6).

With this in mind, the following sections explore key Laboratory issues and topics that affect planning and site development decisions for the Livermore Site.

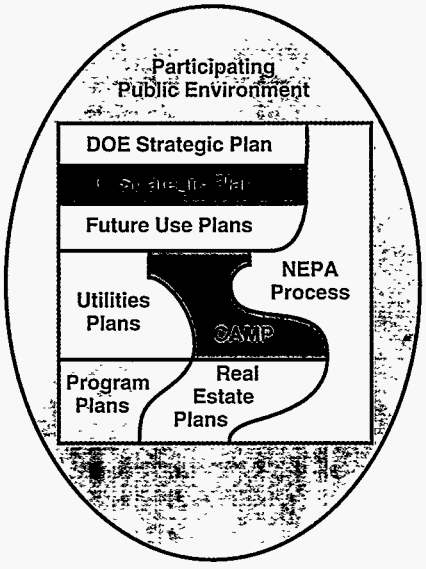


Figure 6. The future comprehensive planning process will integrate many distinct planning elements with stakeholder involvement.

Economic Impact

LLNL is a valuable member of the regional Tri-Valley economic base. Approximately 2.9% of all Tri-Valley residents are employed at LLNL, representing a $20 million monthly payroll. More significantly, 5.3% of the City of Livermore population is Laboratory employees, comprising a $15 million monthly payroll. Additionally, the Laboratory's increased emphasis on partnering is promoting a very lucrative business environment. In 1994 alone, LLNL awarded over $93 million to Tri-Valley vendors for goods and services. Clearly, any significant reduction in Laboratory employment will have an adverse impact on the local/regional economy.

Ecosystem Management

Development has occurred on 259 of the 332 hectares at the Livermore Site. The Navy built roads, runways, and buildings in the 1940s and, since 1952, the Laboratory has added facilities, roads, lawns, and ornamental vegetation. Since most of the Laboratory's operations and projects are in areas that have already been developed, there is little impact on wildlife resources. However, some intact and native wildlife communities remain on site in specific locations (e.g., Arroyo Seco).

A minimum of 10 species of mammals, 31 species of birds, and 3 species of reptiles and amphibians are present at the Livermore Site. Most of these animals live in the undeveloped grassland areas, near the drainage retention basin, and along the two arroyos. A nesting pair of white-tailed kites (*Elanus leucurus)*, a state-protected bird, was noted in a stand of eucalyptus trees near the East Gate during the summer of 1994. These birds are perennial nesters and should be back in the spring of 1995. In addition, the drainage retention basin in the center of the Laboratory is attracting more wildlife each year. Kingfishers (*Megaceryle alcyon)*, and pied-billed grebes (*Podilymbus podiceps*) are among the more recent arrivals. Other state or federally protected species may eventually move into these areas as well.

Site Accessibility

The increasing emphasis on collaboration with outside industry and technology transfer means that LLNL employees will host more uncleared visitors, including foreign nationals. In addition, the changing mission of LLNL, with its emphasis on unclassified activities, requires a reassessment of the physical security configuration. The objective is to allow easier access for visitors while maintaining effective physical and technical security where necessary.

Minimizing the number of physical barriers to areas which could be designated for unclassified activities is both desired and necessary. Physical barriers in the southwest classified core may be minimized by moving security fence lines closer to classified facilities and, in some cases, by using building walls themselves as the classified area perimeters. This reconfiguration will require changes in access control. Each facility will need some form of access control appropriate to the level of classification or sensitivity to its mission.

Consolidation of classified functions out of temporary structures and into secured, permanent buildings will be pursued. "End-to-end" encryption will be one of the methods explored to accommodate the required classified computer communication networks linking secured buildings.

The most sensitive portion of the Limited Area core, the Superblock and its contiguous areas, will become the "new green core" (see Figure 7). This will minimize the acreage dedicated to the classified core while meeting DOE guidelines for the protection of special nuclear material.

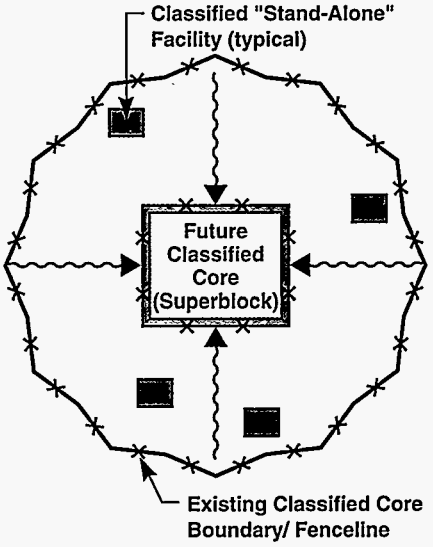


Figure 7. Reducing the area dedicated to classified work will allow easier access for unclassified research collaboration.

Lease Arrangements

The Livermore Site is constrained by aging trailers, insufficient permanent facilities, and long acquisition periods for line-item facilities. Off-site facility leasing offers a means to provide suitable housing quickly and relatively economically. Off-site leased facilities have supplemented on-site space for more than a decade. As more collaborative efforts are pursued with outside agencies, additional leasing may present a viable housing alternative.

Another concept being explored involves leasing DOE land to a third party for contiguous facility development. In lieu of obtaining scarce capital funding for new facilities, third party financing for modern facilities may be encouraged by providing an attractive long-term property lease, through DOE. This approach has been used successfully by the Department of Defense and is ideally suited for Cooperative Research and Development Agreements (CRADAs) with a variety of partners. The FY2000 Technology Transfer Complex, depicted in Figure 8, is a project which may lend itself to alternative financial arrangements.

Facilities Management

Facility management and site development are becoming much more interdependent as efforts to overcome limited facility resources are pursued. As the Laboratory consolidates activities and decommissions substandard facilities, impacts on utility services, infrastructure, and subsequent activity migrations must be considered.

A review is underway at LLNL to prioritize potential future uses for existing facilities. A Facility Assessment and Ranking System (FAaRS) has been developed as a tool to help LLNL planners identify and rank substandard facilities. FAaRS combines both technical status and strategic appraisal of facilities. FAaRS is coordinated with the Capital Asset Management Process (CAMP), and the ranking results will help justify the facilities' removal, mothballing, continued maintenance, and renewal investment proposals. The facility decisions are coordinated with land use planning to shape the direction in developing the physical site.

Buildings 222, 251, and 412 are presently listed as surplus in the EM-60 Surplus Facility Inventory Assessment database. EM/HQ is reviewing the transfer of these three old, contaminated facilities to EM-60 in FY1997 for continued surveillance and maintenance. Line item capital funds will be sought for decontamination and demolition of these buildings in support of future redevelopment initiatives.

Redevelopment

Requirements for facilities and land continue to evolve. There is suitable and adequate land available for all projected facility requirements provided areas can be redeveloped.

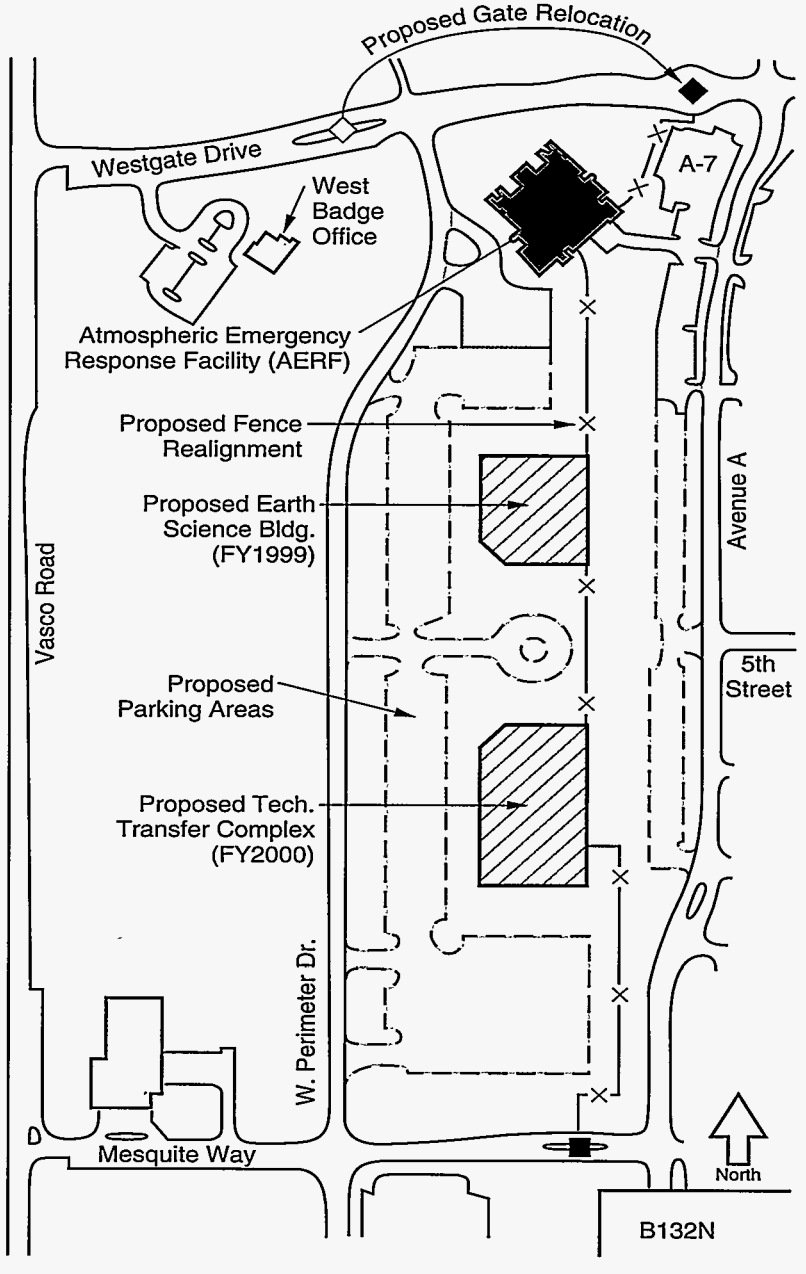


Figure 8. Westside Development Concept. Future development on the western edge of the Livermore Site offers a great opportunity for research collaboration.

The most obvious potential redevelopment areas are those now supporting temporary trailer complexes and substandard, contaminated buildings.

Completion of the Defense Programs Research Facility (DPRF) and the Nuclear Test Technology Complex (NTTC) in the southwest quadrant (B132 Complex) will result in mass personnel migrations over the next three years of up to 15 to 20% of the Laboratory population. This migration presents a number of demolition and redevelopment opportunities. Similarly, upon completion of the Atmospheric Emergency Response Facility (AERF) later this year, six substandard trailer complexes will be eliminated.

Redevelopment sites at LLNL offer an opportunity to reuse the existing infrastructure. Proximity to service facilities and functional program areas make this an exceedingly attractive option. These factors must be weighed together with existing population density in determining proposed facility sitings.

Unfortunately, severe federal budget reductions have resulted in limited line-item facility construction at DOE sites. This trend is projected to continue for the foreseeable future. With this in mind, an adaptive reuse plan is being developed to

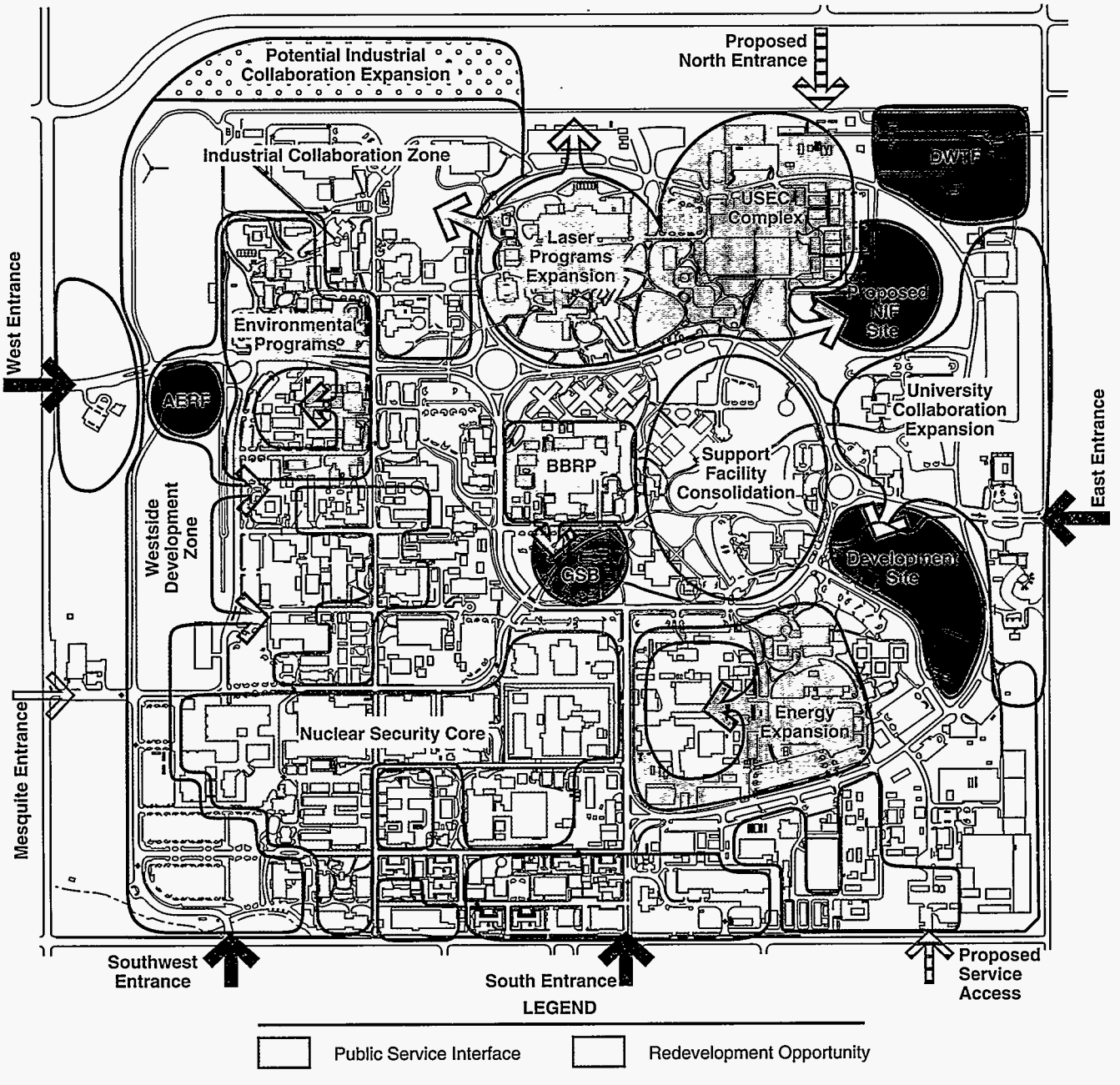


Figure 9. Future opportunities for programmatic growth, redevelopment, and collaboration abound at the Livermore Site.

renovate eight World War II-era barracks buildings. Although old, these facilities are structurally sound, and they offer approximately 18,000 m² of replacement space on the southern perimeter of the Laboratory. A modest investment in the renovation of these two-story structures will provide modern, desirable office space and an opportunity to eliminate some temporary trailers.

Permanent facilities will remain the preferred method of housing personnel. Replacing temporary facilities with suitable, permanent facilities must continue to be emphasized as facilities approach their anticipated life expectancies.

Master Plan

Figure 9 presents an overview of the major site-wide opportunities and respective programmatic projections for the Livermore Site. Proposed major line-item facilities are identified on this diagram, as are areas presenting redevelopment opportunity, collaboration potential, and public service interface.

Figure 11 on page 13 presents the Livermore Site Master Plan. The Master Plan establishes future land uses, presents expansion of the traffic circulation system, and locates all proposed facilities documented in the CAMP and keyed to Table 1 on page 12. It is meant to serve as both a foundation and the "road map" for more detailed implementation plans.

Projected land uses shown on the Master Plan map are significantly different from existing land uses previously depicted in Figure 4 on page 6. These changes result mostly from efforts to collocate and consolidate related functions, and from programmatic and institutional projections hinging on collaborative agreements with industry.

The main components of the Master Plan are the Classified Core Contraction Plan, the B132 Migration Plan, utility systems, and environmental restoration. These components represent the implementation strategy.

Classified Core Contraction Plan

The Classified Core Contraction Plan calls for converting most areas of the site to "property protection" level security to facilitate interfaces with private/industrial/academic sectors. Selected permanent facilities will be secured as "green islands" for classified operations (see Figure 10). Facilities engaged in sensitive, unclassified

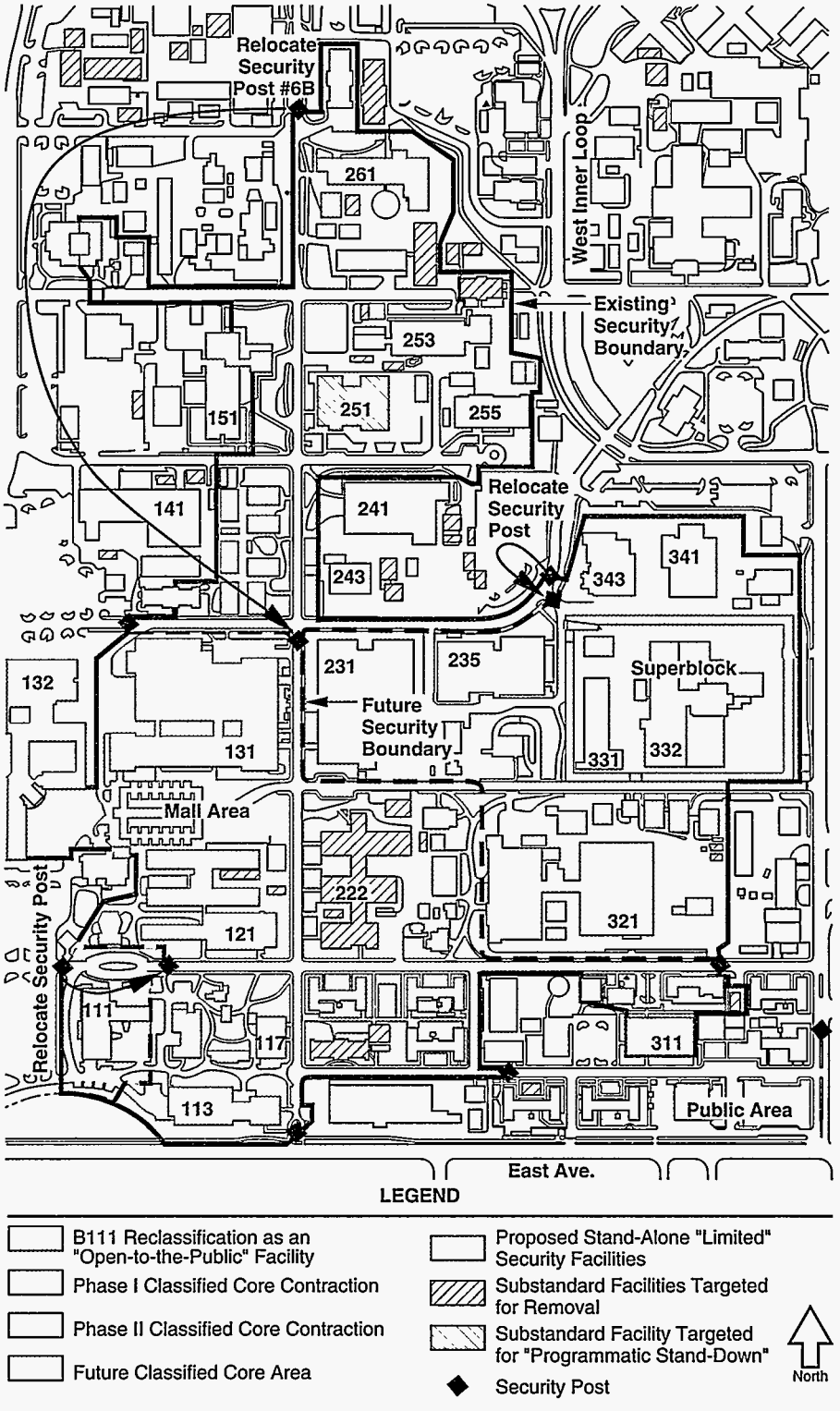


Figure 10. Classified Core Contraction Plan. Reducing the size of the fenced compound dedicated to classified research will be accomplished in a phased approach.

activities will be secured to preclude unauthorized access. Based on the current plan, the "classified core" in the southwestern quadrant of the Laboratory will eventually shrink to the existing Superblock and its immediate surroundings.

Current strategy calls for reducing this classified core in two distinct phases. Phase I will convert the core area north above Third Street. Security Post #6B will be relocated south of the Third Street and Avenue B intersection, security fencing will be realigned accordingly, and several facilities will be secured in a "stand alone" fashion. Reduced security escort costs will yield immediate savings. Phase II will address the balance of the classified core to provide increased opportunities for customer interaction.

Additionally, physical security modifications are planned for B111 to allow portions of it to become "open-to-the-public," thereby serving as a focal point for institutional and industrial partnering.

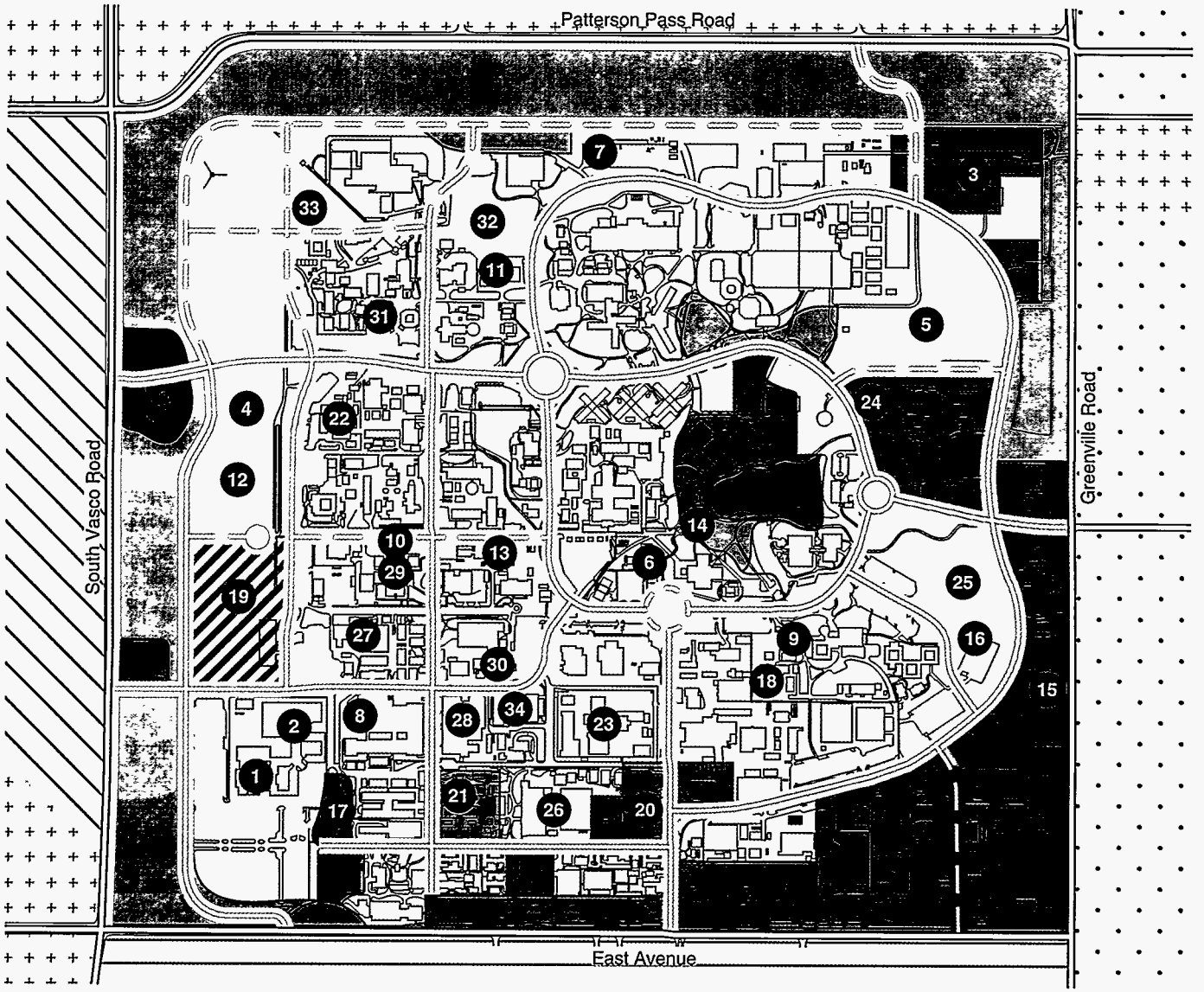
Building 132 Migration Plan

Completion of the B132 Complex (DPRF and NTTC) will provide valuable, modern office and laboratory

Table 1. Line-item Construction Plan Project Summary.

Project Key	Project	FY Start	$M TEC	Project Key	Project	FY Start	$M TEC
Funded Projects:							
1	Nuclear Test Technology Complex (NTTC)	88	64.6	19	Technology Transfer Complex	00	21.0
2	Defense Programs Research Facility (DPRF)	91	72.6	**	Fire Safety Training Facility	00	7.5
3	Decontam./Waste Treatment Facility (DWTF)	89	68.0	20	Hazards Control Fire Science Facility	00	7.5
	Electrical Power Replacement/Upgrade I	91	31.0		Protection of Real Property (roofs) Phase IV	00	8.3
	Fiber Optics Comm. Backbone	91	1.8		Projected Utility Projects	00	29.8
	Infrastructure Modernization	92	11.1		Backlog Reduction - Roofing	01	20.3
	Sanitary Sewer Rehabilitation	92	7.1		Backlog Reduction - Building Utilities	01	32.0
	Tank Upgrades Project	92	18.5		Elec. Power Syst. Replacement/Upgrade II	01	40.0
4	Atmospheric Emerg. Resp. Facility (AERF)	93	11.3	21	B222 Chem. Bldg. Decon./Demolition	01	23.2
				22	Replace Deteriorating Offices	01	15.5
Proposed Projects:				23	Plutonium Facility Upgrade	02	28.3
	In-House Energy Management	96	100.0*	24	Laboratory Administration Center	02	2.9
5	National Ignition Facility	96	868.6	25	Laboratory Business Center	03	45.0
	Protection of Real Property (roofs) Phase I	97	7.8	26	B321 General Upgrade	03	11.0
6	Genomics & Structural Biology	97	37.6	27	B141 General Upgrade	03	5.7
7	Advanced Optical Technology Center	97	5.2	28	B231 General Upgrade	03	10.5
	Chlorofluorocarbons (CFC) Chiller Conversion	98	9.3	29	B151 Effluent Systems Upgrade	03	18.4
	Protection of Real Property (roofs) Phase II	98	8.9	30	B241 Renovation/Replacement	03	23.4
	Road Reconstruction	98	7.8		Building Electrical System Code Upgrade	04	31.3
	Sanitary Sewer Rehabilitation II	98	4.6	31	B181 Addition (replace 1700 block trailers)	05	7.1
	Building Renovation Project	98	20.0		Building Envelope Repair	06	9.6
8	SCIF Area for NAI	98	7.5		Civil Maintenance - Sitewide	06	5.3
9	B543 Addition	98	17.7	32	Generic Office Bldg #1 (replace "Iron Crosses")	07	17.8
10	B151 Plant and Seismic Upgrade	98	11.5		Backlog Reduction - Flooring	09	12.8
11	NW Low Conductivity Water (LCW) Station	98	6.5		Upgrade Smoke Detection	09	5.9
12	Earth Science Building	99	12.0	33	Generic Office Bldg #2 (replace 1800 Block trailers)	10	21.3
	Protection of Real Property (roofs) Phase III	99	8.3	34	B235 Upgrade	10	30.5
	Tank Upgrades Project II	99	5.1				
13	Refurbish Hazard Control Facility	99	21.0				
14	Central Cafeteria & Conference Center	99	9.3				
15	Public Affairs Center	99	6.2				
16	Environ., Safety and Health Facility (ES&H)	99	41.6				
17	B123 General Upgrade (Conf. Ctr. Upgrade)	99	5.4				
18	Energy Program Office Building	99	19.2				

☐ Sitewide projects
* $5M/year projected for 20 years
** Off-site project proposal
Notes: 1) Coordinated with Capital Assets Management Process (CAMP), as of 4/10/95
2) Projects keyed to Master Plan, Figure 11
3) TEC is Total Estimated Cost (over the life of the project)



LAND USE LEGEND

LLNL

- **Research & Development:** Office facilities, light and heavy laboratories, and light industrial facilities in direct support of programmatic endeavors.
- **Scientific Research/Computational Science:** Scientific research office facilities and computational laboratories for multi-program support.
- **Administration/Technical Support:** Office facilities used primarily to house the Laboratory professional and technical support staff.
- **Undeveloped:** Undeveloped properties, including floodplains and buffer zones, open space, and active/passive outdoor recreational areas.
- **Institutional:** Public and quasi-public facilities, including clinics, cafeterias, conference centers, visitor centers, and badge offices.
- **Research & Development/ Institutional:** Mixed-use facilities providing collaborative research opportunities with other institutions and industry.
- **Industrial:** Warehouses, open storage, maintenance shops, and waste management corporation yards.
- **Easements & Utility Rights-of-Way**
- **Proposed Roadway Extensions**

Surrounding Area

- **Urban Reserve**
- **Industrial**
- **Major Public**
- **Residential**

North

Figure 11. Master Plan. Future land use reflects Laboratory mission projections and site development goals.

space, while offering tremendous opportunities to collocate and consolidate various programmatic organizations. B132 will provide approximately 21,646 m^2 (233,000 ft^2) of usable space for the Livermore Site. This large addition of space will accomplish the following:

- Provide state-of-the-art laboratories.
- Serve as modern, replacement housing for approximately 644 employees.
- Allow disposal of leased or substandard facilities.
- Provide the opportunity to reuse suitable, abandoned facilities.

Additionally, this migration will help achieve several of the Laboratory development goals summarized on page 5.

Since the Laboratory's missions have changed, numerous options were explored to determine the most appropriate organizations to relocate into this new facility. This facility will be used jointly by the following Laboratory organizations:

- Defense and Nuclear Technology
- Nonproliferation/Arms Control/International Security
- Physics and Space Technology
- Chemistry and Materials Science

Collocating personnel from these four unique organizations within a single facility will provide a truly synergistic environment in spawning fresh and creative approaches to science.

Utility Systems

Completion of a looped utility network remains an important site development objective. Looped utilities are more reliable and efficient, and they are more easily repaired and maintained.

Using the Master Plan as a "template," the Laboratory has developed Utility Master Plans taking into account projected utility demands of proposed facilities (see Table 2). Figure 12 presents a compilation of Utility Master Plans, depicting both existing and proposed mechanical utility bundles and domestic water lines.

To accommodate the new National Ignition Facility (NIF), the thermal capacity of the Northwest LCW Station, B291, may need to be increased. The expansion will involve a new cooling tower cell with associated heat exchangers and pumps. In addition, full utility bundles will be extended out to the northeast corner of the site to service the NIF.

The increasingly strict state guidelines on drinking water may require some changes to the Laboratory's domestic water system. DOE and LLNL are currently working with the San Francisco Water Department in addressing the possibility of filtering Hetch Hetchy water.

Other projects that will improve the mechanical utility systems' quality, reliability, and maintainability include:

- Installing a centralized mechanical utility control and monitoring center to ensure quality, reliability, and cost-effective service.
- Upgrading the propane-air blending equipment at the propane plant.
- Replacing segments of utility piping. The age of the utility piping is beginning to show, requiring more maintenance and creating the possibility of less reliable service. In some areas of the site, the older pipes are slightly undersized for the current demand.
- Upgrading the motor control centers at the Northwest Utility Station and the supply transformer and associated switchgear at the Central Utility Station. Upgrades are required due to obsolete equipment; inappropriate applications; and environmental, safety and health concerns.
- Replacing the components of the aging cathodic protection system to protect the integrity of the buried distribution pipelines. The project will include replacement of rectifiers and deep-well anode beds.

The electric utility system is presently being designed to allow PG&E and Western to operate their systems in parallel at the Main U-424 Substation. This will minimize the effect of outages from either the PG&E or Western lines at the Livermore Site. Six new relay-activated circuit breaker switchgear installations (Load Grid Switchgear) will be provided, with feeds from both Western Livermore Substation and the Main Substation. A new duct bank is also included for the express feeders to these new switchgear installations.

Table 2. Existing and Projected Utilities Usage

Utility System	Current Usage	Year 2000 Projected Usage(1)	Current Capability
Electricity	57 MW	60 MW	100 MW
Natural Gas	13,700 TPD	15,450 TPD	24,480 TPD
Domestic Water	700,000 GPD	736,000 GPD	2,880,000 GPD
LCW(2)	79.2 MW(3)	91.1 MW	88 MW
Demineralized Water	17,280 GPD	17,900 GPD	72,000 GPD(4)
Sanitary Sewer	330,000 GPD	351,000 GPD	1,684,800 GPD
Compressed Air	2400 SCFM	2600 SCFM	4090 SCFM(5)

Unit
MW = Megawatts (1,000,000 Watts)
TPD = Therms Per Day (1 Therm = 100,000 BTU)
GPD = Gallons Per Day
SCFM = Standard Cubic Feet Per Minute

(1) Includes proposed facilities listed in Table 1
(2) Low Conductivity Cooling Water
(3) Peak low load–47 MW avg.
(4) An additional 72,000 GPD is available on stand-by
(5) 4090 SCFM electric driven, 3240 SCFM diesel back-up

The 5-to-20-year Electric Utility System plan will achieve the following: (1) modification of existing distribution feeders and installation of new distribution feeders to allow for "loop style" connections; (2) increased 115/13.8 kV substation capacity; (3) reduced system fault duty; (4) conversion of the remaining overhead distribution to underground lines; and (5) upgrades of the Supervisory Control and Data Acquisition (SCADA) system to better control the distribution system.

Environmental Restoration

Low-level chemical and radioactive contamination was discovered in both the soil and ground water at the Livermore Site in 1983. The Environmental Restoration Division (ERD) of the Environmental Protection Department continues to characterize the site. The ERD also remediates areas that historically have been contaminated above regulatory limits. All proposed excavation sites must be evaluated for possible soil contamination. Sites that are potentially contaminated must be sampled and analysis results evaluated before excavation begins.

Five treatment facilities (TFA, TFB, TFC, TFD and TFF) have been built to remediate contaminated ground water. Four additional treatment facilities (TFE, B518, T5475 and TFG) are planned to expand . remediation efforts.

Contaminated ground water is pumped from the subsurface via extraction wells and piped to the nearest treatment facility. After treatment, the water may be reinjected into the ground, released to the storm drainage system, discharged to the Retention Basin, or discharged to an infiltration pond on adjacent Sandia property. This is a long-term cleanup effort, estimated to continue for several decades. Proposed treatment facilities are being carefully designed to maximize remediation efficiency and to minimize associated piping.

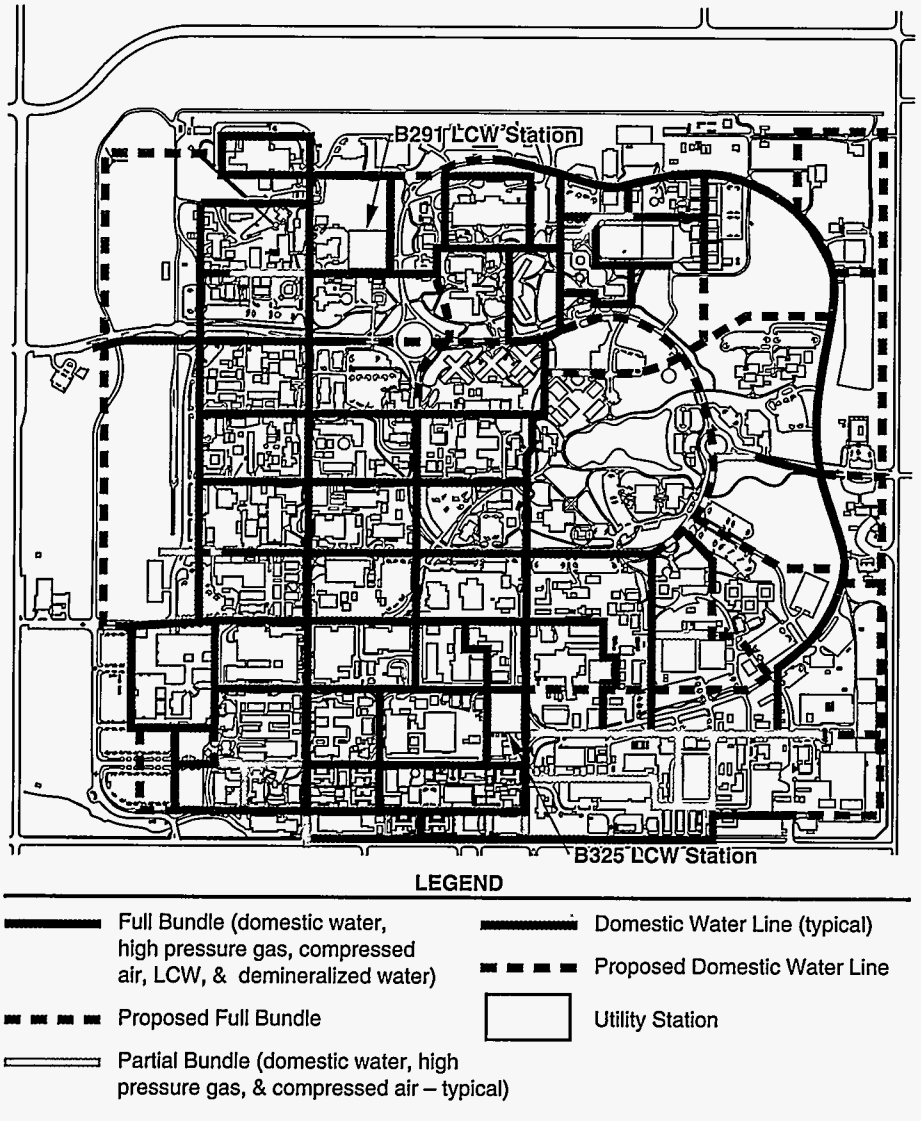


Figure 12. Mechanical utilities provide service to all facilities. Proposed extensions will create looped networks for increased reliability and efficiency.

Summary

Due primarily to the nominal amount of new facility construction anticipated, current planning at the Livermore Site relies heavily on personnel migrations from substandard to adequate facilities as space becomes available. Personnel migrations are carefully determined by functional compatibility and consistency with the security recommendations in the Classified Core Contraction Plan. Upon completion of a migration, substandard facilities are available for demolition, and the vacated sites become prime candidates for future development or site improvements.

Completion of the B132 Complex will provide an important opportunity to dispose of temporary and substandard facilities. Great care is being exercised in determining the best secondary and tertiary backfill moves into the remaining vacated facilities. Facility backfill decisions will be aided by applying the newly-developed FAaRS and by consciously pursuing the site development goals previously outlined.

Site 300
Experimental Test Site

Overview

Development of the Site 300 Experimental Test Site began in 1955. Today, Site 300 provides the staff and facilities to conduct non-nuclear experimental tests that are cost effective, and technically and environmentally sound. In addition, the site strives to maintain the flexibility and advanced capabilities necessary to support future LLNL initiatives.

Site 300 offers unique facilities and sophisticated technical capabilities for a wide range of diagnostics, testing and processing. These are available for Laboratory experimenters, other federal organizations, and industry.

Site 300 plays an important role in the DOE weapons stockpile stewardship and management program. Site 300 supports the Laboratory position as lead laboratory for high explosives in the DOE Complex. It is also a candidate for limited production of the non-nuclear explosive component in nuclear weapons. As fewer resources are devoted to weapons research, development, and testing, it will become more important to take maximum advantage of the existing facilities and core nuclear weapons capabilities.

If the current nuclear testing moratorium is continued or a comprehensive test ban treaty is signed, Site 300 testing facilities will play an even more important role than in the past. There could be a near-term increase in Site 300's hydrodynamic testing workload. Integrated testing of stockpile designs will be conducted using radiography and the extensive hydrodynamic capability. Computational capabilities will be improved in the areas of maintaining and improving weapons safety. As the stockpile ages, Site 300 hydrodiagnostic test facilities will be used to assess effects of deterioration and the need for remanufacture.

Site Description

In January 1995, 244 people worked regularly at Site 300. The site is 2790 hectares (6893 acres), or about 28 km² (11 square miles), located 27 km (17 miles) east of the LLNL Livermore site (see Figure 13). It consists of two remote firing areas, chemistry formulating facilities, a materials processing area, thermal and vibration facilities, a General Services Area (GSA) and other unique facilities used to conduct a wide range of tests and experiments. Access to the site is facilitated by nearby Interstate Highway 580 connecting the site to the San Francisco Bay Area and Interstate Highway 5, California's principal north-south route. Located in both Alameda and San Joaquin counties, the site lies within the rolling hills separating California's Central Valley from the San Francisco Bay Area. The terrain of the site varies from plateaus to steep canyons, with on-site elevations ranging from 160 m (525 ft) to 533 m (1750 ft).

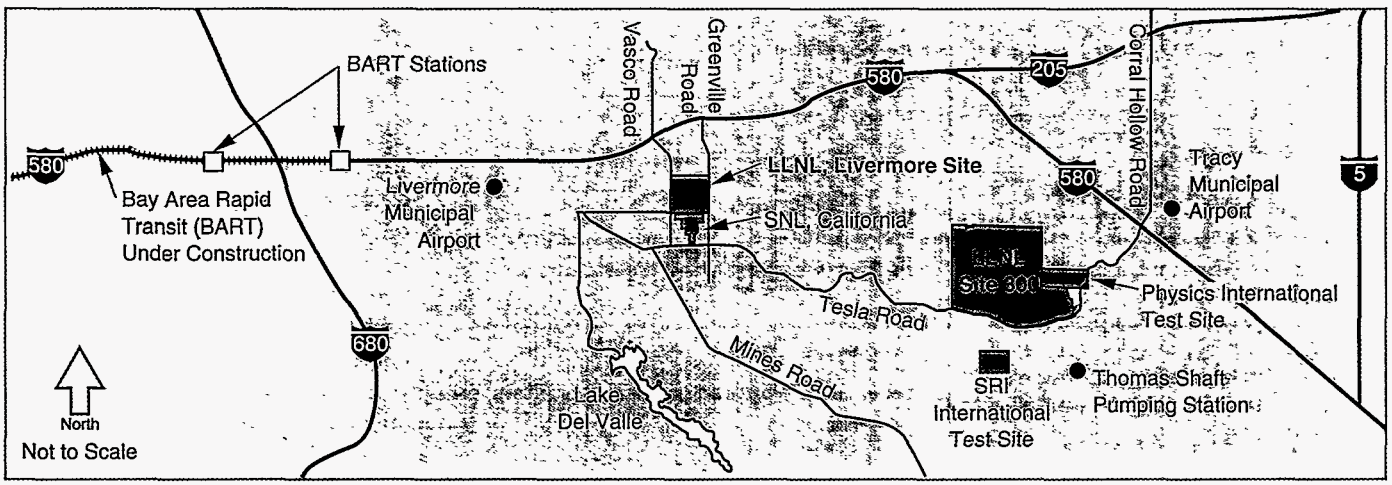


Figure 13. Site 300 is located 27 km (17 miles) east of the Livermore Site. This location is relatively isolated, yet easily accessible.

Existing Land Use

The area surrounding Site 300 is sparsely populated. The majority of the land supports sheep and cattle ranching operations, wind energy farms, and an off-road vehicle recreation area. San Joaquin County has approved, through Special Use Permits, other explosives test facilities similar to Site 300 in the area because of the remote location and relative isolation. The Physics International test site is located along a portion of the Site 300 eastern boundary, and the SRI International test site lies to the south (see Figure 14).

In 1993, a proposal was made to develop housing along certain limited areas of the northern and eastern boundary of the site. This proposal has been delayed because of the lack of developers and financial backing. Other proposals in this area have had a similar history. Providing water, sewer, and other city services has been the principal obstacle to development, together with the existence of endangered species habitat in the area.

Site 300 is principally used for research and development. Figure 16 on page 21 categorizes the five major land uses. The location, distribution pattern, and extent of these land uses are determined by the explosives safety arcs required by the *DOE Explosives Safety Manual*. Most of Site 300 is not developed and is available for compatible experimentation and testing. Many kinds of experiments have continued with minor schedule changes while intermittent explosive testing was conducted. This joint use makes Site 300 both efficient and effective by accommodating multiple research activities in a location close to the Livermore Site.

Existing Facilities

Sixty-six permanent and 10 temporary facilities provide 32,227 m² (346,904 ft²) of gross floor space at Site 300. The temporary facilities constitute only 4% of this gross square footage. Facilities are generally in good condition. Projects to provide an adequate water supply and seismic protection have been completed or are in progress. Site 300 has land and existing facilities available for a wide range of experiments.

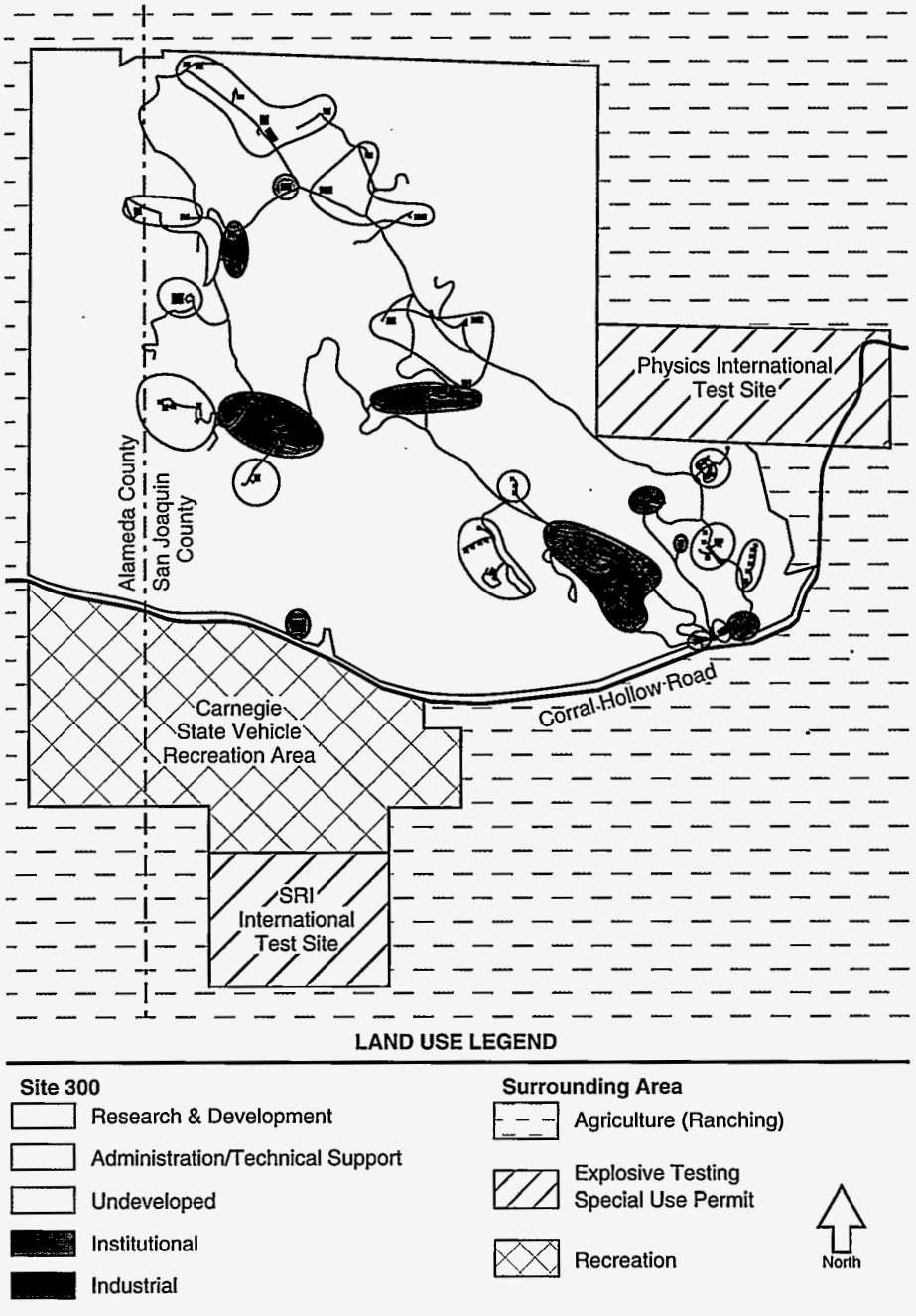


Figure 14. Existing Land Use Map. Research and development is the predominant land use at Site 300. The dispersed location pattern is conducive to varying types of experimentation.

Existing facilities include:

- The Flash X-Ray Facility provides experimental verification and analysis of hydrodynamic testing. This is the most technically advanced facility of its type in the world.
- The Super High Altitude Research Project (SHARP) allows scientists and engineers to explore the potential space, aviation, military and industrial applications of gas gun technology.
- In the process area facilities, explosive components are formulated, pressed and machined.

Security

In 1993, Site 300 implemented a new physical security configuration which greatly reduced the Limited Security Areas. Limited Security Area "islands," were created, leaving the rest of the site a Controlled Area during normal working hours. Most of the site is now accessible to a far greater number of potential users. This successful experience has proved helpful in planning the Classified Core Contraction for the Livermore Site.

Infrastructure

Existing on-site infrastructure systems support a large investment in land and specialized facilities with sophisticated diagnostic capabilities.

The domestic water system is the only site-wide mechanical utility at Site 300. Water is currently pumped from two on-site wells into 11 storage tanks. A water system improvement project completed this year upgraded some existing water lines and added an 870,642 L (230,000 gallon) water tank for additional water storage. This project will eventually change the primary source of water to the City of San Francisco's Hetch Hetchy aqueduct. However, the increasingly strict California guidelines on drinking water will make this transition to alternate source water extremely difficult. DOE and LLNL are currently working with the San Francisco Water Department to resolve the drinking water potability issue.

Table 3. Existing and Projected Utilities Usage

Utility System	Current Usage	Year 2000 Projected Usage	Current Capability
Electricity	2.7 MW	2.8 MW	20 MW
Domestic Water	65,000 GPD	70,900 GPD	756,000 GPD
Sanitary Sewer	3,200 GPD(*)	3,500 GPD(*)	7,000 GPD(*)
Compressed Air	175 SCFM	190 SCFM	225 SCFM

Unit
MW = Megawatts (1,000,000 Watts)
GPD = Gallons Per Day
SCFM = Standard Cubic Feet Per Minute

Note:
(*) General Services Area (GSA) only

A central air plant provides compressed air at 8.5 bar (125 psi) to the explosive process area. Buildings not serviced by the central air plant at Site 300 have independent compressed air units to meet their needs.

Sanitary sewage generated within the GSA is piped into an asphalt lined oxidation pond at the rate of 12,113 L (3,200 gal) per day. As a result of studies completed this past year, a contract was placed to pump the sludge from the pond and the inflow pipe. This work was completed in February 1995. The removed sludge will be disposed at an authorized landfill, and the pond will be returned to full service. It is expected that the cleaned pond will provide adequate capacity for the foreseeable future. Sanitary sewage generated outside the GSA is disposed through septic systems at individual building locations.

Electrical power is supplied on a PG&E transmission line and is metered by PG&E and Western. The two 20-MVA substations at Site 300 are linked via a 12-kV overhead tie-line. They receive 115 kV of power and have normal distribution voltage of 12 kV, with a 3-MVA system peak load. Buried copper communication wire links the Livermore Site with Site 300. Utility usage is described in Table 3.

There are currently 40 km (25 miles) of paved and 129 km (80 miles) of unpaved roads at Site 300. The current daily volume of traffic at the main gate is over 700 vehicle trips. Personal vehicles are not allowed past the parking lots located in the South/West area of the GSA.

Special Planning Considerations

Facilities, and the land to support them, must be provided to accommodate changing program requirements. At the same time, consideration must be given to budget constraints, tight schedules, development standards, and ES&H concerns. This is particularly true in the areas of testing and experimentation.

The following assumptions are made with respect to future land use:

- Site 300 is an ideal place for testing and large-scale experimentation.
- Industrial partnerships and commercialization opportunities, among other concerns, are creating a need for more "Open Areas" or non-restricted space at LLNL, including Site 300.
- Site 300 is an Environmental Protection Agency (EPA) Superfund site, a designation that will not be changed for some time.
- In the future, limited amounts of explosives for nuclear weapons may be produced at Site 300.
- Lands at Site 300 include unique habitats and ecosystems that must be protected and sustained for future generations.

Ecosystem Management

Testing of all weapons components at Site 300 must be done in an environmentally acceptable manner.

Site 300 hosts five major biotic communities comprising a diverse ecology of upland flora and fauna species. In the southern half of the property, hillsides are steep and rugged and provide proper habitat for coastal sage scrub and blue oak woodland communities. The northern half of the site, where a controlled burn occurs every year, is identified as an interrupted distribution of native and introduced grassland communities. The 292 hectares (723 acres) of native cismontane grassland at Site 300 represents a unique and scarce northern California resource. Riparian woodland communities exist where seeps and springs are present. Corral Hollow Creek provides the greatest concentration of riparian habitat. Two vernal pools have been identified at the site; these provide specialized habitats for rare native species.

Site 300 is a rich and largely undeveloped environment that contains flora and fauna of national and state significance. Their presence reflects the valuable habitat to be found at Site 300. Examples include: 2 mammal species, 2 amphibian species, 2 reptile species, 15 bird species, and an insect habitat (*Blue Elderberry*).

A federally- and state-listed endangered plant, the large-flowered fiddleneck (*Amsinckia grandiflora*) is a native species at Site 300. Although there have been no confirmed sightings of the federally-endangered San Joaquin kit fox (*Vulpes macrotis mutica*) at Site 300, the property lies within the northern range of the species and kit fox sightings have occurred on adjoining property.

Evaluation of culturally significant sites at Site 300 is proceeding. One area of the historic Carnegie Townsite is located within Site 300.

The Site 300 Environmental Restoration Project includes ongoing remedial investigations, feasibility studies, and remedial actions. This restoration is conducted under the joint oversight of the federal EPA, California Central Valley Regional Water Quality Control Board, and the California Department of Toxic Substances Control under the authority of a Federal Facility Agreement. NEPA and wetlands assessments may be required prior to project site development actions.

Facility Upgrades

The capability to meet additional diagnostic requirements at the high-explosives firing facilities must be expanded. Phase I of the Revitalization Program has made significant progress towards providing future experimentation capability at Site 300.

Facility and infrastructure upgrades such as fire suppression, communication, and electrical power distribution systems must be pursued to provide modern and safe facilities capable of handling emergency events. The process area will eventually require replacement of obsolete machining equipment and facilities to meet both new demands and increased regulatory requirements. This would make excellent use of facilities that would provide limited production capability as necessary to maintain the current weapons stockpile.

One objective of the explosives testing program is to conduct a portion of future testing activities at Site 300 in a contained facility. The proposed Contained Firing Facility would meet the needs of active research and development programs, and future environmental regulations. Much larger land areas were required when land use was previously based on open-air firing. The Contained Firing Facility may allow continued development in an area previously restricted as a safety zone.

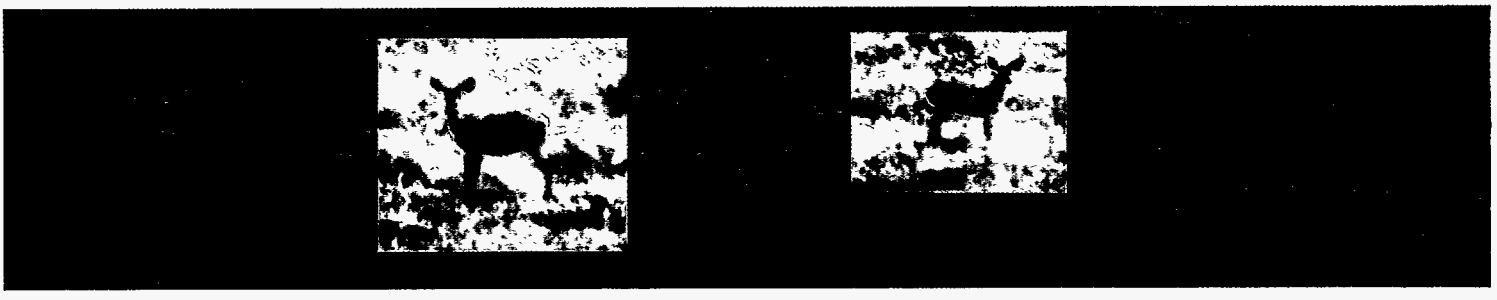
Opportunities and Constraints

The sites most suitable for future development at Site 300 have:

- Good road access
- Less than 15% slopes
- Ample utilities and services
- Sufficient area for a wide range of development options
- Adequate space for future expansion

Figure 15 on page 20 shows areas of environmental suitability for future land development (greater than 10 acres). This map is not a comprehensive representation because of its large scale. The map shows four potential areas most suitable for development in slope or gradient ranges from 0 to 15%:

- Western General Services Area (GSA): Area D-1 consists of two 6 to 8 hectare parcels (15 to 20 acres) with excellent access from both within the Site 300 road network and Corral Hollow Road. They offer the best opportunity for expanding the GSA.
- Northern Boundary: Although presently restricted by an explosives safety zone, Area D-2 will be available for development when the Contained Firing Facility is built.



- Northern Valley: Area D-3 contains a variety of sites along existing roads with good access to utilities.
- West Central: Area D-4 is served by a road and utility infrastructure and is the closest remote site to the main entrance and GSA.

All Site 300 explosives facilities have explosives-safety zones around them. All construction, modifications, or reuse of facilities or utilities within these safety zones must comply with DOE/DOD safety requirements. Temporary as well as permanent construction or modifications are also subject to review. However, many areas within some existing zones have been and may be used for temporary, non-explosives experimentation and testing subject to nearby explosives operations restrictions.

Master Plan

Site 300 offers significant opportunities based on its vast potential for future uses. In addition to the Laboratory development goals listed on page 5, Site 300 is pursuing the following development goals:

- *Preserve and extend the capability to safely test explosives while protecting the environment.*
- *Build facilities to provide improved safety features and enhance technical capabilities.*
- *Foster and promote the viability of Site 300 as an experimental test location.*

Figure 16 is the Site 300 Master Plan. It shows the four land uses, undeveloped lands, and the locations of proposed projects. Site 300 is a valuable national asset and an irreplaceable LLNL resource. Large areas of the site could be developed for all phases of experimentation, research, development, and testing. Proximity to the Livermore Site is an important factor.

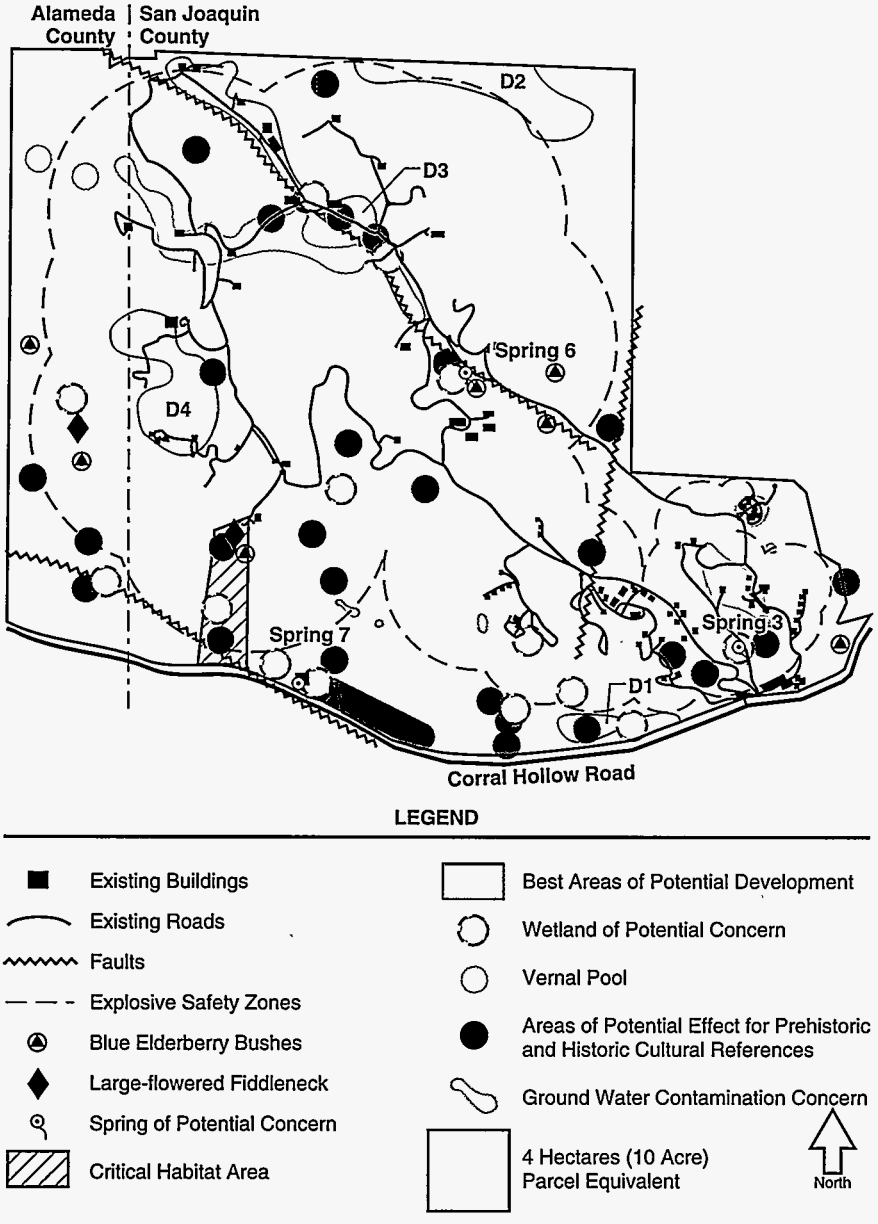


Figure 15. There are four major potentially developable areas at Site 300. Site 300 can be used while sustaining its ecological diversity.

Proposed Projects

Construction projects presently funded and proposed for Site 300 are shown on the Master Plan, Figure 16. The projects described below are considered very important to the long-term viability of Site 300:

- The Contained Firing Facility is scheduled for funding in FY96 (see page 5 for project details).
- The High Explosive Machining Facility is scheduled for funding in FY99 to support the production of high explosive components.
- Various infrastructure projects are planned to support the overall site effort. These include the Fire Station/Medical Facility in FY97, and the Site 300 Facilities Revitalization Phase II in FY2001.
- The Explosive Waste Storage Facility (EWSF) and Explosive Waste Treatment Facility (EWTF) continue to be important facilities in support of the explosives program. Both facilities have General Plant Project funding commitments from DOE's Defense Programs and Environmental Management organizations. Applications for operating permits for both facilities are currently being processed.
- Additional projects (such as new magazine storage space and a modernization of production facilities) will support the production of the high explosive components in nuclear weapons.

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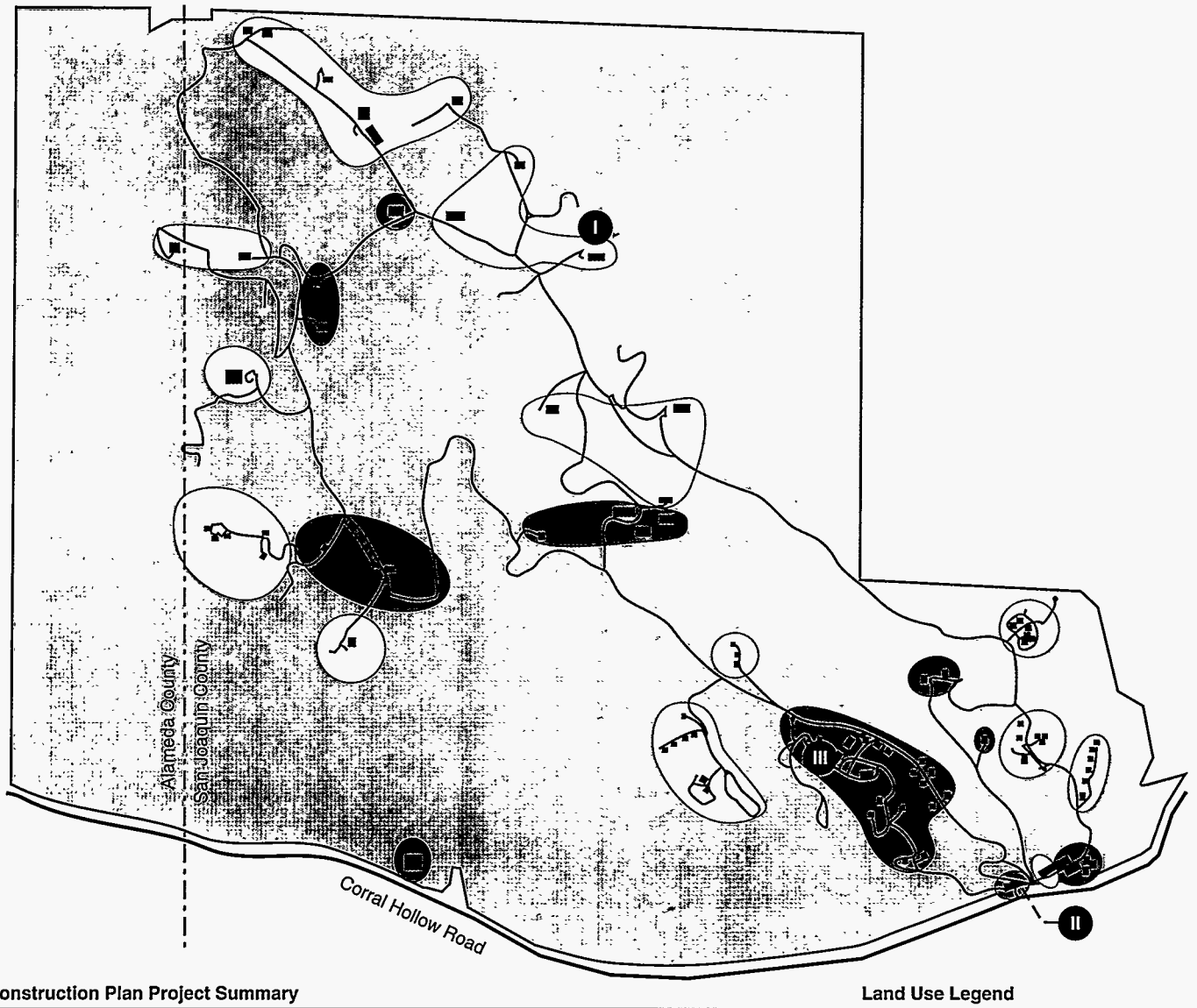

Construction Plan Project Summary

Project Key		FY Start	$M TEC
Funded Line-item Projects:			
	Site 300 Facilities Revit. Proj., Phase I	90	27.4
Proposed Line-item Projects:			
I	Site 300 Contained Firing Facility	96	49.7
II	Fire Station and Medical Facility	97	5.2
III	High Explosive Mach. Facility (HEMF)	99	23.5
IV	Site 300 Facilities Revit. Proj., Phase II	01	39.0

Sitewide projects

Notes: 1) Coordinated with Capital Assets Management Process (CAMP), as of 4/10/95
2) TEC is Total Estimated Cost

Land Use Legend

- Research & Development
- Administration/ Technical Support
- Undeveloped
- Institutional
- Industrial

14 Hectares (10 Acre) Parcel Equivalent

North

Figure 16. Site 300 Master Plan. Future land use at Site 300 reflects four proposed line-item projects, including the Contained Firing Facility.

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