THOMAS JEFFERSON
NATIONAL ACCELERATOR FACILITY

Jefferson Lab

TEN-YEAR SITE PLAN
FY 2009 – FY 2018

July 2007

Jefferson Lab is managed and operated for the U.S. Department of Energy
By Jefferson Science Associates, LLC
Under Contract No. DE-AC05-060R23177

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Cover Photos: From top left clockwise; City of Newport News Applied Research Center (ARC), Accelerator Site with three experimental halls at bottom, CEBAF Center (main administration building), and Commonwealth Funded FEL Facility

Acronym List

ACI	Asset Condition Index (1-FCI)
ARC	Applied Research Center
AUI	Asset Utilization Index
BES	Office of Basic Energy Science
CAS	Condition Assessment Inspections
CEBAF	Continuous Electron Beam Accelerator Facility
CFC	Chlorofluorocarbons
CHL	Central Helium Liquifier
CSC	Computer Sciences Corporation
DM	Deferred Maintenance
DOD	Department of Defense
DOE	Department of Energy
DVP	Dominion Virginia Power
EEL	Experimental Equipment Lab
EFD	Excess Facilities Disposition
EH&S	Environmental Health & Safety
EM	Environmental Management
ERL	Energy Recovering Linacs
ESnet	Energy Sciences Network
F&I	Facilities & Infrastructure
FCI	Facility Condition Index (DM/RPV)
FEL	Free Electron Laser
FIMS	Facility Information Management System
FNAL	Fermi National Accelerator Laboratory
FTE	Full Time Equivalent
FTS	Federal Telecommunication System
FY	Fiscal Year (1 October to 30 September)
GeV	Giga (billion) electron volt
Gpm	Gallon Per Minute
GSA	General Services Administration
GPP	General Plant Project
HEP	High Energy Physics
HVAC	Heat, Ventilation, and Air Conditioning
ICW	Industrial Cooling Water
IFI	Integrated facilities and Infrastructure
IGPP	Institutional General Plant Project
ILC	International Linear Collider
IWS	Intermediate Water System
ISDN	Integrated Services Digital Network
JLab	Thomas Jefferson National Accelerator facility
JSA	Jefferson Science Associates, LLC
K	Thousand
kV	Kilovolt
kW	Kilowatt
LAN	Local Area Network

LCW	Low Conductivity Water
LF	Linear Feet
LINAC	Linear Accelerator
LQCD	Lattice Quantum Chromodynamics
MARS	Management Analysis Reporting System
MCC	Machine Control Center
MII	Maintenance Investment Index (Actual Maintenance Cost/RPV)
M	Million
MCC	Machine Control Center
mbit/sec	Million bits per second
MeV	Million electron volts
MGD	Million gallon per day
MOU	Memorandum of Understanding
MW	Megawatts
MVA	Million Volt Amps
MV/m	Megavolts/meter
NASA	National Aeronautical and Space Administration
NP	Office of Nuclear Physics
OSF	Other Structures & Facilities
PA	Public Address
PSI	Pounds per square inch
PVC	Polyvinyl Chloride
QA	Quality Assurance
QCD	Quantum Chromodynamics
R&D	Research & Development
RBIF	Facility for Rare Isotope Beams
RHIC	Relativistic Heavy Ion Collider
RIC	Rehab & Improvement Cost
RPAM	Real Property Asset Management
RPV	Replacement Plant Value
SC	Office of Science
Sec	Second
SF	Square Feet
SLI	Science Laboratory Infrastructure
SNS	Spallation Neutron Source
SREL	Space Radiation Effects Laboratory
SRF	Superconducting Radio Frequency
SURA	Southeastern Universities Research Association, Inc
TBD	To Be Determined
THz	Terahertz
TJNAF	Thomas Jefferson National Accelerator Facility
TRIC	Total Rehab & Improvement Cost
TYSP	Ten Year Site Plan
VARC	Virginia Associated Research Campus
VGS	Vision, Goals, and Strategy
WAN	Wide Area Network

A. Executive Summary

Overview of Jefferson Lab's Programs and Real Property Assets

The Thomas Jefferson National Accelerator Facility (TJNAF or Jefferson Lab), located in Newport News, Virginia, is a single-program laboratory supporting Department of Energy's (DOE) Science Strategic Goal and six of seven Strategic Plan goals of the Office of Science. TJNAF, operated as a Nuclear Physics user facility, provides worldwide unique capabilities for the study of hadronic physics, and maintains core competencies in nuclear physics and accelerator technologies to support not only its own research program, but broader Office of Science missions (e.g., Spallation Neutron Source (SNS)) as part of the national lab system, applying these technologies in the national interest (e.g., Free Electron Laser (FEL)). The TJNAF Business Plan describes planned activities for the Laboratory over the next five years that contribute to the DOE and Office of Science goals and objectives and advance our nation's position as a leader in the physical sciences. The Ten Year Site Plan (TYSP) is developed to support those mission-related activities described in the TJNAF Business Plan.

TJNAF is located on a 169.5 acre federal reservation. The majority of the reservation, including three structures (97,000 SF), was transferred from National Aeronautics and Space Administration (NASA) to DOE in 1987. Subsequently, DOE initially constructed 362,900 SF of new facilities, including the Continuous Electron Beam Accelerator and support facilities.

The most recent major construction project has been a 64,160 square-foot addition to the CEBAF Center completed in January 2006. It provides greatly needed office and cafeteria space in addition to an expanded high-power computer center and made possible the demolition of 31,959 square feet (in FY05 & FY06) of high–maintenance substandard trailer space. The TJNAF deferred maintenance backlog was reduced by over $3.2M as a result of completing this CEBAF Center addition.

The Replacement Plant Value of DOE owned buildings and real property trailers as of 30 October 2006 were $139M. TJNAF will sustain a maintenance investment level of 2% of replacement plant value in FY07, FY08 and the out years. TJNAF's deferred maintenance backlog at the end of FY06 was $8.8M, resulting in an ACI of 0.94 (adequate). A deferred maintenance reduction initiative was implemented in FY06 continued in FY07 with FY08 cost planned at $900,000. The FY08 GPP funding request is $2.0M.

TJNAF's facilities and infrastructure recapitalization and modernization needs include: additional technical, experimental, and storage space; renovation of the Test Lab to improve safety and efficiency; updating of building equipment and code updates; and new office space to consolidate staff and allow elimination of deteriorated trailers and shipping containers used for storage and termination of leased office space offsite. The recently submitted Technology and Engineering Development Facility project along with the Lab commitment to increase GPP investment from $800K to $2M per year will be a giant step forward to alleviate many of these issues. Additional GPP funding of $1-2M is considered necessary to recapitalize the site facilities and make improvements to meet program requirements. Funding from the Department of Defense and other agencies is being sought to provide the necessary facilities for growth of the Free Electron Laser (FEL) program.

B. Overview of Site F&I

Thomas Jefferson National Accelerator Facility (TJNAF) was built, managed and operated for over 20 years by the Southeastern Universities Research Association (SURA) for DOE's Office of Science. Facility operations began in 1995 with the completion of the Continuous Electron Beam Accelerator Facility (CEBAF), a unique international electron-beam user facility for the investigation of nuclear and nucleon structure based on the underlying quark structure. Effective 1 June 2006, the management and operations contractor of the Lab transferred to Jefferson Science Associates, LLC (JSA). JSA is a partnership of the previous JLab operator Southeastern Universities Research Association Inc. (SURA) and Computer Sciences Corporation's (CSC) Applied Technology Division.

At the end of FY06, a total of 617 JSA (regular, part-time, casual, and student), 12 DOE, 11 State employees and six contract employees were employed at the site, occupying site facilities. Jefferson Lab serves a physics research user population of about 2,000 from the United States and numerous other nations. In FY06, an average of 313 users per month was provided on site support. In total, TJNAF has 498,986 SF of DOE-owned buildings and real property trailers with 80% of facilities less than 20 years old as shown in Figure B-1. TJNAF's AUI is 1 (excellent) and the deferred maintenance backlog is $8.8M, resulting in an ACI of 0.94 (Adequate).

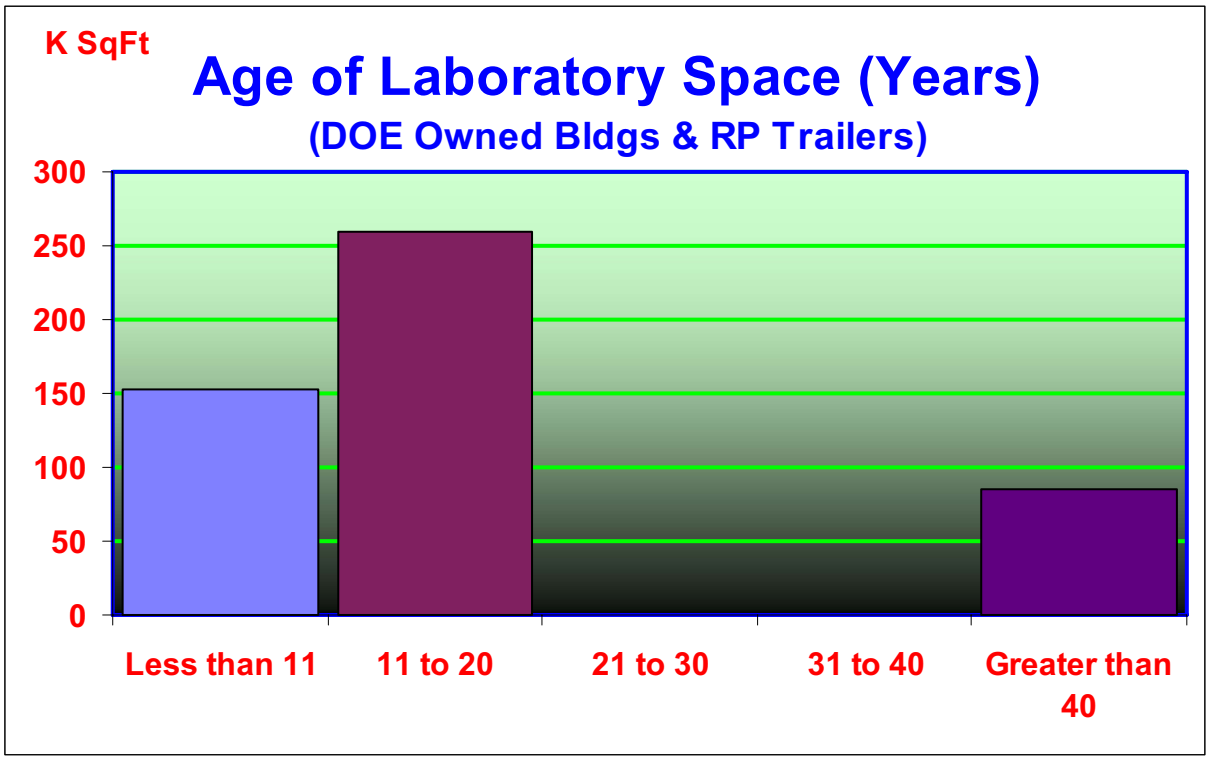

Figure B-1

TJNAF covers 169.5 acres of DOE-owned land that was obtained from several former users/owners. One hundred ten acres were the site of the former NASA Space Radiation Effects Laboratory (SREL) where a 600 million electron volt synchrocyclotron was operated from 1964 to 1984. The SREL, associated parking, cooling towers, and small building annex occupied 10 acres of the total former site with the remaining 100 acres being heavily wooded and undeveloped. The existing building and land

were transferred from NASA to DOE in 1987 with a reimbursement to the General Services Administration (GSA) in the amount of $2.3 million, which was funded by the City of Newport News. The SREL building is currently called the Test Lab and is one of the largest buildings at TJNAF.

Adjacent and to the east of the former NASA property is an 83.65 acre parcel previously owned by the U.S. Department of Defense then the U.S. Department of Education for which the City of Newport News reimbursed GSA $1.498 million in 1982. The City of Newport News gifted 44.6 acres of this property to SURA in support of the contract between SURA and DOE. SURA sold the acreage to DOE for $1 in January 1987. The City of Newport News then gifted another 51.5 acres to SURA in 1988. In 1993, 7.9 of these acres were transferred to DOE by SURA, a portion of which was a US Air Force BOMARC Missile Site that existed during the 1950's and was abandoned in the early 1960's. In 2007, an additional 7 acres were transferred to DOE in support of the 12 GeV Construction project.

SURA retained the remaining 43.6 acres, adjacent to the Jefferson Lab site, for a 42-room Residence Facility owned and operated by SURA and for future Lab-related activities. The SURA Residence Facility, built with funds from the City of Newport News is available for use by guests, visitors, users, and graduate students associated with the Lab.

North of the DOE-owned land is an 8 acre parcel referred to as the Virginia Associated Research Campus (VARC) which is owned by the Commonwealth of Virginia and leased to SURA and sub-leased to DOE for use in support of Jefferson Lab. A total of 4.8 of these acres containing the VARC and Forestry buildings are subleased to DOE. Both the SURA and VARC property are included in overall site planning. The Existing Facilities Drawing (Attachment 1) illustrates the property line boundaries.

A 31,176 SF Free Electron Laser (FEL) Facility was constructed on DOE land with funds provided by the Commonwealth of Virginia and transferred to DOE in 1997. See bottom left Cover photo.

Jefferson Lab, as of 1 October 2006 consisted of 66 DOE owned buildings, two state leased buildings, 19 real property trailers, and 10 other structures and facilities totaling 728,998 square feet (SF). Included are 17,917 square feet of real property trailers with an average age of 13 years that provide offices to approximately 50 employees. A list of the facilities is in Attachment 2. In FY06 FIMS additions include the CEBAF Center Addition, a Fabric Storage Building, Lead Storage Building, and two Mobile Equipment Storage Buildings adding a total of 73,079 SF and removal of 30,772 SF of older real property trailers.

To the northwest, adjacent to Jefferson Lab, JSA leases 43,332 SF of office and lab space from the City of Newport News located in the Applied Research Center (ARC). (See upper left cover page) In addition to these facilities, Jefferson Lab has 73 personal property trailers (22,384 SF) used for storage and located on TJNAF property and 7,000 SF of off-site leased storage space. The total operating budget for the Lab in FY07 is $103.6M. Lab space distribution by GSA Use Codes is shown in Table B-2:

Table B-2. Lab Space Distribution (Oct 2006)

GSA Use Code	Description	Owned – Gross SF				Leased – Gross SF	Total SF
		Building	Real Property Trailers	Personal Property Trailers	OSF Category 3000	Building	
10	Administration	107,981	10,472			76,766	195,219
20	School		1,327				1,327
40	Storage	37,368	660	22,384		7,000	67,412
50	Industrial Bldgs	7,235					7,235
60	Service Bldgs	4,373	3,518				7,891
70	Research & Development	323,311	1,940		192,792	4,199	522,242
80	Other	378					378
Total		480,646	17,917	22,384	192,792	87,965	801,704

Figure B-3 shows the use and condition of laboratory space. The failed office and storage space is the result of real and personal property trailers.

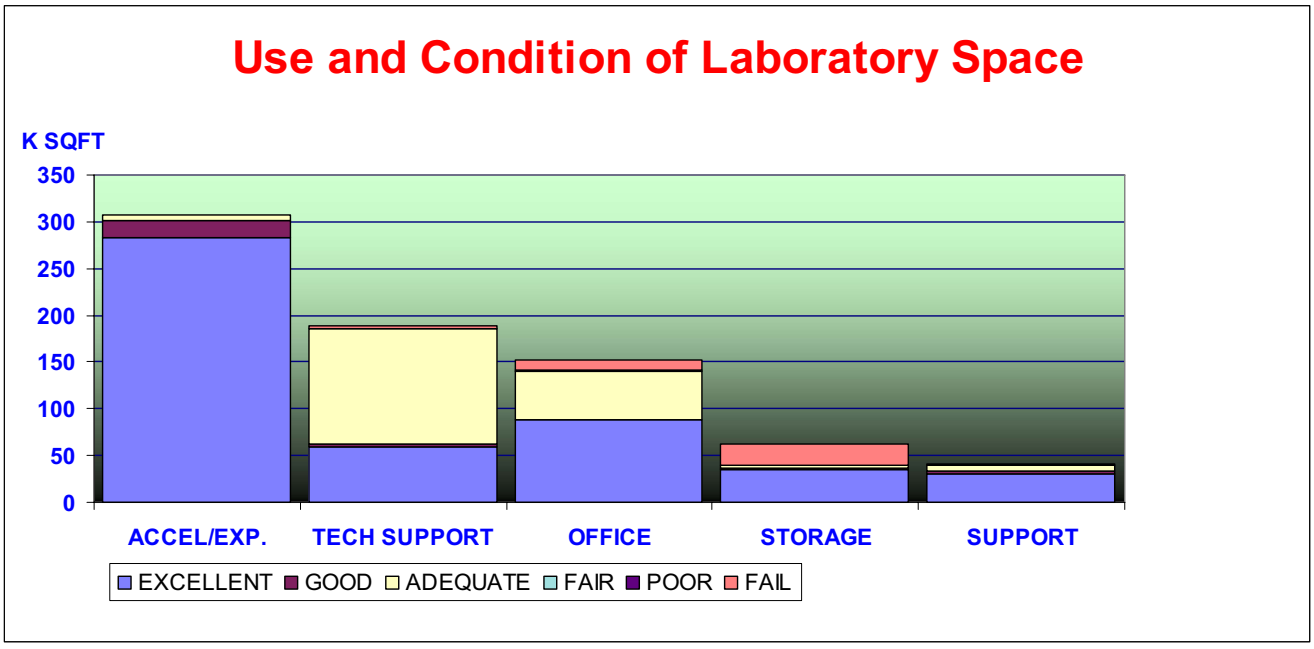

Figure B-3

C. Current and Future Missions for the Site

Mission and Overview

Jefferson Lab contributes to DOE and Office of Science strategic goals by conducting forefront science, applying core competencies to advance science and national goals, producing annually one quarter of all U.S. nuclear physics Ph.D.s, and enhancing math and science education for our community. The Continuous Electron Beam Accelerator facility (CEBAF) has an international user community of 1,180 researchers whose work has resulted in scientific data for 138 experiments, more than 219 *Physics Letters* and *Physical Review Letters* published, and 638 publications in other refereed journals. Collectively, there have been more than 20,000 citations for work done at Jefferson Lab.

Laboratory Focus and Vision

TJNAF has a central role in the field of nuclear physics, both in the U.S. and worldwide. TJNAF's present and future program relies on maintaining its role as the world leader in hadronic physics and superconducting accelerator technologies. These core competencies enable TJNAF to deliver its mission and customer focus, to perform a complementary role within the DOE laboratory system, and to attain its vision for scientific excellence and pre-eminence in the structure of nuclear building blocks, the underlying quark-gluon structure of the nucleus; and symmetry tests including the weak charge of the proton to test predictions of the Standard Model. In addition to Nuclear Physics, JLab contributes to enabling technologies and emerging fields – photon science and electron-light ion colliders – including advance radiofrequency superconductivity, 2K cryogenic engineering technology, photon science, advanced high power free electron lasers, energy recovering linacs (ERLs), and electron-light ion collisions at ultra-high luminosity.

Business Lines

Capabilities, aligned by business lines, shown in Table C-1 distinguish TJNAF and provide a basis for effective teaming and partnering with other DOE laboratories, universities, and private sector partners in pursuit of the laboratory mission. These business lines and the distinguishing capabilities outlined in the table below provide an additional window into the mission focus and unique contributions and strengths of TJNAF and its role within the Office of Science laboratory complex.

Table C-1. Business Lines and capabilities

Business Lines	Distinguishing Capabilities	Distinguishing Performance	Mission Relevance
Nuclear Physics – Research	• Continuous beams of polarized high-energy electrons for studies of the quark structure of matter; • State-of-the-art equipment & detectors; • Continuous Electron Beam Accelerator Facility, Hall A, Hall B (CLAS), Hall C.	Worldwide unique user facility for studies of nuclei and nucleons using the electromagnetic probe, with spatial resolutions from large nucleus to a fraction of a nucleon's diameter; Highest intensity in the world for highly polarized continuous electron beams with the energy and helicity correlated properties necessary to explore the details of nucleon structure; Detector and data acquisition capabilities coupled with these beams provide the highest luminosity capability in the world for these experiments.	Explore Nuclear Matter- from Quarks to Stars; Understand the structure of the nucleon and nucleonic matter.
Nuclear Physics – Theory Center	• High Performance Computing Effort in Lattice Quantum Chromodynamics (LQCD).	World-recognized theory group; Software development used worldwide (Chroma); First calculations of moments of GPD's.	Understand the structure of the nucleon and nucleonic matter; Deliver computing for the frontiers of science.
Superconducting Radio Frequency (SRF) and Related Accelerator Physics	• Experience building SRF for CEBAF & SNS; • Energy Recovery Techniques; • Worldwide unique capability in 2K cryogenic technology.	Large-grain Niobium operating at an accelerating field of 45 MV/m –world record achieved with minimal processing; Benchmarking exercise, concluded that JLab is a world leader par with DESY; World record in Energy Recovery Linac Technology demonstrated via operating a 1MW class electron beam with 10 mA current and 100 MeV energy with only tens of kilowatts of klystron power.	Understand the structure of the nucleon and nucleonic matter; Provide the Resource Foundations that Enable Great Science.
Photon Science and Technology	• ERL-based Free Electron Laser; • Potential kW to MW class lasers; • Micromachining; • Infrared Free Electron Laser. • High Power THz facility.	Unique assets of ultra-fast pulses with broad tunability at unprecedented power levels with continuous/high repetition rate operation; World record of 14 kW average power laser at infrared wavelengths with a few hundred femtosecond pulse length.	Provide the Resource Foundations that Enable Great Science.

Major Activities

The following is a set of major activities that TJNAF is pursuing to support aspects of the DOE mission and build on core strengths and capabilities of the laboratory. The Office of Science is examining all of these potential activities that are at different stages of development. Some are currently underway and some are mere concepts at this time. For those still in the conceptual phase, TJNAF has indicated significant interest and is viewed as having current supporting research and mission focus to pursue such activities. Budgets, as well as technical advice from its major scientific advisory committees will ultimately contribute to decisions about which activities are actually

incorporated into JLab's scope of work. The DOE's Five Year Plans provides greater insights into these activities in terms of various five-year budget scenarios.

The major activities at JLab are:

1. 6 GeV Experimental program: Exciting opportunities to add to our understanding of the quark structure of matter will be supported with several major installation experiments.

2. 12 GeV CEBAF Upgrade: Upgrade CEBAF, a unique research facility and world leader in hadronic physics. The scope of the proposed project includes doubling the accelerator beam energy, doubling the capacity of the Central Helium Liquefier (CHL) adding a new experimental Hall (D) and associated beamline, and upgrading the equipment in existing experimental Halls. The upgrade is a near-term priority in the Office of Science Facilities for the Future of Science plan and will allow experimental study of the confinement of quarks and address the question, "why are quarks never found alone?" Confinement is a remarkable and not understood feature of quantum chromodynamics. The only planned or existing facility that can test this prediction is the 12 GeV CEBAF.

3. Excited Baryon Analysis Center: TJNAF's world-recognized theory group provides a critical foundation for its experimental program. The Excited Baryon Analysis Center allows enhanced analysis and understanding of experimental results to help lead to a profound understanding of the spectrum of excited baryons and hence the nature of confinement, including the way excited hadronic matter modifies the nonperturbative QCD vacuum. The Office of Science's Strategic Plan for Nuclear Science states that connecting the observed properties of baryons with the underlying framework provided by QCD is one of the central challenges of modern science and a proposal to establish an Excited Baryon Analysis Center was submitted to DOE that would build a network of all relevant theoretical and experimental groups worldwide to agree on a coherent program of data analysis and to develop new theoretical tools.

4. Lattice Quantum Chromodynamics (LQCD) Computing: Expand existing High Performance Computing Effort in Lattice Quantum Chromodynamics (LQCD) is essential to understand QCD in the confinement regime and contribute to national scientific computing enterprise. Success will mean that TJNAF has calculated the consequences of nonperturbative QCD with unprecedented accuracy in order to test its predictions against the precise new data provided by the 6 GeV CEBAF now and the 12 GeV Upgrade coming in the future. Funded under the auspices of the Department of Energy's SciDAC activity, the US theory community has developed the computational infrastructure to employ lattice QCD to solve a spectrum of problems in nuclear and particle physics with TJNAF playing a pivotal role.

5. International Linear Collider (ILC) R&D: Develop enabling technologies in support of International Linear Collider (ILC). Since the announcement in 2004 of the technology choice for the ILC, TJNAF has been actively engaged in preliminary discussions on the ILC project and as a member of numerous ILC Working Groups including a recent formal role in the ILC Global Design Group and in MOUs with the principal ILC coordinating lab in the U.S., Fermi National Accelerator Laboratory. TJNAF's experience and expertise in Superconducting Radiofrequency (SRF) technology will not only enable future scientific accelerators (ILC, etc.), but accelerators for basic science, defense, bioscience and nano-technology, and potential commercial materials processing (Free Electron Laser).

6. Free Electron Laser (FEL): Free-electron lasers being developed at Jefferson Lab will offer a wide spectrum of opportunities in discovery-class basic and applied science, and in manufacturing. Jefferson Lab operates a kilowatt-class high average-power, sub-picosecond free-electron laser, covering the mid-infrared spectral region based on an energy recovered linac. It also operates a 100 W broadband THz facility. Both facilities are best-in-class in the world. The JLab FEL User Facility offers research opportunities extending far outside the confined spectral regions available elsewhere, both in photon energy and high electric field in the fields of materials science, chemistry, and the life sciences. It allows fundamental understanding of the dynamic mechanisms underlying materials behavior, by allowing matter to be studied under conditions of controlled energy deposition and response. Specifically, the FEL presents unprecedented opportunities for studies of protein folding and protein specific function (photosynthesis, metabolic pathways), to complex materials, including non-Fermi metals, superconductors, and semiconductors. These same experiments, but at high electric fields, allow an entirely new regime of behavior to be studied, and novel materials and properties to be created. Further, the high power THz facility allows real-time imaging to be explored for medical and security applications. As these experiments proceed, a growing partnership of high-technology manufacturers, start-up companies, research universities, government, the Commonwealth of Virginia and the U.S. Navy are expected to benefit.

7. Support of Other Office of Science Labs:

Research and technology development at the Lab contributes to 7 of 10 accelerator projects in the Office of Science 20 year Strategic Plan. Specifically, Lab advances enable mission accomplishment in the following areas:

- Nuclear Physics: Cryomodule refurbishment; new cryomodules; RHIC and RBIF SRF cavity development/testing; high current injector R&D; equipment design, assembly and testing; accelerator power, magnet, vacuum design, assembly and testing; cryogenic subsystem design, assembly and testing.
- Basic Energy Science: SNS cryomodule and cryogenic subsystem design, assembly, testing and support.
- High Energy Physics: ILC cavity engineering, development and testing.
- Work for Others: High current cryomodules; high current injector R&D; general engineering design, assembly and testing.

The funding and staffing levels shown in Table C-2 depict an overall growth at Jefferson Lab consistent with activities and initiatives outlined in the Business Plan. The projects described in the TYSP provide the necessary facilities and infrastructure for the research programs detailed in the

Business Plan. It is expected that all current facilities will be fully utilized in their current configuration, modified for reuse as indicated by the identified projects, or removed from the site.

Table C-2 Summary of Expected Program Funding and Staffing ($M) (excluding construction**)**

	FY 06	**FY 07**	**FY 08**	**FY 09**	**FY 10**	**FY 11**	**FY 12**	**FY 13**	**FY 14**	**FY 15**	**FY 16**	**FY 17**	**FY 18**
Funding:													
SC – BES													
SC – HEP	0.9	1.9	1	2	3.5	2	2	2	2.1	2.1	2.2	2.3	2.4
SC – BER	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
SC – NP	80.4	80.1	88.7	91.5	94.3	96.7	98.3	98.0	117.9	129.6	134.1	138.8	143.6
SC – ASCR													
SC – Fusion													
SC – WDTS	0.3	0.4	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8
SC – S&S	1.1	1.4	1.3	1.4	1.4	1.5	1.5	1.6	1.7	1.7	1.8	1.8	1.9
Total SC	**83.3**	**84.2**	**92.0**	**95.8**	**100.2**	**101.3**	**102.9**	**102.8**	**122.9**	**134.7**	**139.5**	**144.3**	**149.3**
Other DOE	0.4	0.1	0.3	0.2	4.3	4.2	4.3	4.4	4.6	4.7	4.9	5.0	5.2
Work for Others	10.3	9.8	10.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Total $:	**94.0**	**94.1**	**102.8**	**105.5**	**114**	**115**	**116.7**	**116.7**	**136.9**	**148.9**	**153.8**	**158.9**	**164.1**
Total Staffing: (FTE's) w/o 12 GeV	581	621	633	642	703	624	585	535	615	647	653	653	653

Assumptions:

SC- NP Inflation assumption is 3.5% per year starting in FY09 (FY07 is appropriation and FY08 is target)

Table C-3 Summary of Construction and Total Funding and Staffing ($M)

	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18
Program Funding	**94.0**	**94.1**	**102.8**	**105.5**	**114.0**	**115.0**	**116.7**	**116.7**	**136.9**	**148.9**	**153.8**	**158.9**	**164.1**
Construction													
SC-12 GeV	4.5	9.5	14.5	28.5	59	62	66	43.0	18	2.0			
SLI - TEDF				3.7	12.8	16.3	33.2						
Total $:	**98.5**	**103.6**	**117.3**	**137.7**	**185.8**	**193.3**	**215.9**	**159.7**	**154.9**	**150.9**	**153.8**	**158.9**	**164.1**
Program Staffing	581	621	633	642	703	624	585	535	615	647	653	653	653
12 GeV staffing	19	58	70	50	60	130	130	118	38	6			
SLI - TEDF staffing				1	1	2	2						
Total Staffing: (FTE's)	600	679	703	693	764	756	717	653	653	653	653	653	653

Planned Research Program Funded Projects

12 GeV CEBAF Upgrade: Project scope includes doubling CEBAF's beam energy, construction of a new experimental hall (Hall D) including experimental equipment and associated beam line and Hall D Counting House, and upgrades to the experimental equipment in the existing three experimental Halls. The conventional facilities for the 12 GeV CEBAF Upgrade are needed to meet three requirements: (1) 12 GeV accelerator operations, (2) approximately double the central helium liquefier capacity (CHL #2), and (3) provide housing and utilities for operations of a new experimental hall.

The conventional facilities needed to support the 12 GeV accelerator operations are primarily utility upgrades of low conductivity water (LCW) and power. The LCW system will be expanded to provide cooling for additional magnets, increased heat load in existing magnets, additional RF zones, and additional power supplies. New electrical substations will be installed to meet the additional power requirements of 12 GeV accelerator operations. To support these utility system upgrades, additions to two existing accelerator service buildings are required to house new LCW equipment and DC power supplies – about 3,600 square feet (SF) total.

The existing Central Helium Liquifier (CHL) Building will be expanded by about 4,800 SF to house additional compressors, the industrial cooling water (ICW) and upgraded power. New cooling towers and pumps will be installed. Two new 5 MVA unit substations will be installed. No additional parking will be provided.

New facilities and utility distribution will be provided for the new experimental hall (Hall D). The complex will consist of an experimental hall, a counting house, beam dumps, cryogenics plant, and service buildings – about 16,000 SF. The site is located at the northeast end of the existing accelerator tunnel and includes an extension of the tunnel, approximately 6,800 SF, to house the new beam transport line and tagger magnet. Required utility connections and extension of existing distribution systems include domestic water, sanitary sewer, electricity, and telecommunications. New utilities and distribution lines are required for LCW, chilled water, and fire protection. Incidental parking will be adjacent to the new buildings.

The 12 GeV CEBAF Upgrade has a planned increase of 31,200 SF to the Jefferson Lab conventional facilities and the associated Replacement Plant Value (RPV) is approximately $30 million. Over 50% of this RPV is associated with utility distribution systems, site work, and other structures. No existing facilities will be demolished as part of the project. Jefferson Lab currently has enough space banked to offset 12 GeV CEBAF Upgrade planned construction.

12 GeV operations will have a minimal impact to Jefferson Lab's long term staffing. Office space for the new Hall D staff was included in the recently completed CEBAF Center Addition. User space is included in the new Hall D Counting House. Jefferson Lab's temporary staff will increase during 12 GeV CEBAF Upgrade's peak construction years. Concepts have been developed to accommodate temporary fluctuations in on-site staff. These concepts will be refined once more is known about funding and the timing of the Accelerator and Hall shutdown schedule.

D. Meeting Facilities and Infrastructure (F&I) Performance Requirements

D.1. Vision, Goals, and Strategy (VGS)

Vision
Jefferson Lab's vision for Facilities and Infrastructure is to provide functional and cost effective facilities to support the assigned mission. DOE Guidance for the management of facilities and infrastructure is:

Maintain a Maintenance Investment Index (MII) of at least 2%
Maintain a long term Asset Condition Index (ACI) of at least 0.98 for mission critical and 0.95 for mission dependent facilities
Eliminate excess facilities
Meet Energy savings goals mandated by the Energy Act of 2005 and EO 13423
Develop and propose an alternate investment strategy for obtaining needed facilities tied to the recent SC Infrastructure Initiative

Goals
The Facilities and Infrastructure goals are

- Provide a safe, healthy, secure, "preferred" working environment for laboratory employees and visitors. Keep current with technological changes as they support the mission.
- "Right size" facilities to the type and quality of space and equipment needed to meet mission needs. Collocate activities and organizations to the extent possible to enhance effectiveness.
- Maintain existing facilities sufficiently to ensure building functionality and make alterations to realize energy and cost savings as well as operational efficiency.
- Provide office and technical space corresponding to manpower projections. Provide quality training and conferencing facilities. Eliminate, to the extent possible the use of trailers for office space.
- Design facilities readily adaptable to changing research requirements and technologies.
- Eliminate substandard storage space and structures that have reached the end of their useful lives.
- Eliminate leases that do not lead to building ownership and minimize off-site leases.

A gap analysis was conducted to determine whether the type and quality of current space and equipment are adequate to support mission needs and provide a working environment that is safe, healthy, and secure. Shortfalls of our current facilities have been identified and are categorized below:

Inadequate work space: Currently staff is working out of accelerator service buildings and aging trailers with many of the groups not collocated, or not located near their work. These problems can be traced back to shortages of this type of space since original construction. The situation continually worsens due to the deteriorating condition of the trailers which were intended to be a temporary space as well as an increase in staffing and evolution of the accelerator over the past several years. The trailers could be replaced, but due to cost, it is not a

wise life cycle investment to use trailers to satisfy a steady state requirement. The service buildings were not designed for occupancy and therefore do not meet the goal of "preferred" working environment. In addition, some of the people currently located in service buildings will have to be relocated since those buildings will be used for equipment as originally intended, for the 12 GeV CEBAF Upgrade. The size of this problem is in the range of 22,000 to 27,000 SF.

Additional experimental setup space. Due to the overwhelming success of CEBAF and increased experimental capabilities, there remains a large experimental backlog consisting of increasingly more complex setups, some taking up to six months to stage. Jefferson Lab lacks sufficient staging space to accommodate these setups. To make the best use of "machine" time, these setups occur outside the experimental halls thus minimizing transition time between experiments. In addition many of the experiments are scheduled for hall time in separate segments, which sometimes requires the setup to be removed from the hall and stored and/or modified before the next scheduled segment. An additional 6,000 SF of high bay space would allow the Lab to increase experiment scheduling efficiency. High bays proposed as part of the two technical support buildings as well as backfilling of existing space, vacated as a result of this construction, will fulfill this need.

Storage. Jefferson Lab currently has two off-site warehouses, one on-site storage building, and nearly 22,000 SF in 73 shipping containers used for storage. Experimental equipment is typically shipped (domestic and international) to the Lab by the research-sponsoring institution for assembly. The components are collected and then moved to an experimental setup area for assembly. At the conclusion of the experiment, devices are stored for future use, disassembled and stored for return shipment to the sponsoring labs or institutions, or excessed. Off-site storage isn't practical because of the size of the material and the relative cost to transport the material repeatedly over public roads. Steady state storage requirements should be met using onsite facilities with surge requirements being met with temporary on-site structures or off-site leases. Both steady state (about 20,000 SF) and surge (about 10,000 SF) storage needs exist.

Utilities & Infrastructure. The roadway and utility systems have been essentially unchanged since completion of the initial construction in 1992. Site utilities drawings are shown in Attachment 3. With the increase of personnel at the site, there is a need for additional roadways to improve the safety and efficiency of internal vehicular movement. This is particularly important during periods of heightened security. Currently during these periods, vehicles have to go out one security checkpoint and enter a second to transit from one side of the campus to the other. Minimal sidewalks were part of the original construction, leaving individuals to walk on the major streets at the Lab to get from the campus to the accelerator site buildings. Visitor parking is inadequate to serve the many conferences and meetings held at the Lab.

Any excess capacity in the low conductivity and cooling-water system built during the original 4 GeV construction has been utilized for the current 6 GeV state to the extent that there are shortages in several areas. In addition, the lack of sufficient emergency electrical power during Hurricane Isabel in September 2003 caused a loss of all liquid helium, which allowed the accelerator to warm up. This event caused a 5-week delay in the experimental program. NP funded installation of an emergency generator that protects the critical systems for power

outages up to 36 hours. Another project is needed to prevent the loss of helium for power outages longer than 36 hours.

At least two times during the past five years the backup of stormwater on the property has been a problem. A stormwater study was completed in 2003 that identified numerous maintenance and improvement projects to sustain future development. Regulations require there not be an increase in the quantity of stormwater leaving the site as a result of new construction. Maintenance projects include cleaning of channels will be accomplished with indirect maintenance funds. The first stormwater retention pond was completed in 2005 to support current construction including CEBAF Center Addition Phase I. One additional pond is currently under construction. An additional project is needed to widen drainage channels and installation of one more stormwater retention pond.

Education/Visitor Space. Jefferson Lab has from its beginning had a strong tie with the community. This is largely due to the education program the Lab delivers to primary, middle and secondary school students. DOE's strong commitment to science education is expected to keep our programs at the forefront of the labs general efforts. If additional funding becomes available for these programs, additional facilities will be required. In addition, the Lab currently does not have facilities to make permanent science displays available to the general public or a central location to receive visitors.

Physical Security. Efficient registration of visitors and protection of government property will be enhanced by redesigning the campus main entry point and expanding the fenced controlled area boundary. Current DOE foreign visits and assignments directives require DOE laboratories to identify and register non-U.S. citizen visitors to DOE labs. JLab's multiple entry points (One on Jefferson Avenue and three on Hogan Drive) make registration extremely challenging. A redesigned main entry point could channel vehicle and pedestrian traffic to a central processing location. In addition, the redesign could vent traffic on both sides of the Lab to key Jefferson Avenue and Canon Blvd. thoroughfares. Facility property protection could be enhanced by expanding the controlled area to contain all the industrial and radiological facilities to more efficiently conduct property protection inspections and reduce hazards.

Other/New programs. Experience with SNS and Renascence cryomodule research and development has shown that the existing infrastructure is not configured to minimize the risk of contamination during production, the leading cause of poor cavity performance. During SNS production less than a 50% pass rate achieved on the first test due to contamination problems, with a specification of 16 MV/m, requiring a lot of re-work and re-testing. Most cavities passed on the second or third processing cycle. Modest upgrades, particularly in the area of process controls, are expected to be adequate to support the performance needs of the 12 GeV CEBAF Upgrade, RHIC, and RBIF projects. For the International Linear Collider the requirement is >90% pass rate on the first test at more than double the gradient. This will require improved clean room facilities, work flow, water systems and processing methods.

Strategy

The Lab's infrastructure strategy is discussed below for staffing in general and for each major business line. Timing of construction is tied directly to final budgets.

General approach to staff levels

Under a +3.5% budget scenario, Table C-3, there is a long-term staff increase of about 53 personnel between FY09 and FY18 from FY06 levels. The Alternate Investment Plan (See Section E) provides the most efficient effective means of accommodating this long term growth. If that is not possible other less efficient and effective means will be utilized. Variations during this period will be handled within existing space by varying space standards and assignment of space. Additional off-site leases or delay in disposal of trailers being replaced by more permanent structures will be used to accommodate staff levels above this budget scenario as required. Delays in funding identified projects will lead to retention of existing trailers at the end of their life cycle and/or obtaining additional trailers costing about the same per square foot cost as more permanent structures.

Continuation of the 6 GeV program

Provide Adequate Work Space

First priority is to provide adequate technical space for those currently in service buildings, trailers, and collocate technical groups currently dispersed both on and off site. This will be provided through the construction of Technology and Engineering Development Facility under the Science Lab Infrastructure Initiative. Construction of CEBAF Center Wing D will replace the remaining aging trailers around the Test Lab The completion of these projects will reduce the value of deferred maintenance by $4.9M.

Additional experimental setup space

Technology and Engineering Development Facility provides a high bay height to accommodate cryomodule fabrication currently in Building 98, making their previous space available for experimental setup. Technology and Engineering Development Facility will also provide additional experimental setup space. A general purpose building is currently being procured that will be used to meet surge requirements.

Storage

The current effort is to reduce the overall storage requirement by excessing material not identified for use in specific future projects. Currently DOE prohibits recycling of material ever having been in an accelerator tunnel or experimental halls whether or not the material is activated. Until clear guidance is issued to quantify when materials are not considered activated, potential cash value must be treated as a liability. Existing storage areas in the EEL Mezzanine and Physics Storage Building have been reconfigured to increase capacity and be centrally managed.

Areas for storage of critical spares are incorporated into the Technology and Engineering Development Facility. A RADCON storage building for segregation and processing of shipments for disposal of activated materials plus two general storage buildings is planned for FY08. A new shipping & receiving building at the site perimeter is proposed for FY13-FY14 and will include general storage.

Utilities and Infrastructure

Electrical Systems – The primary cable and switch gear serving the Test Lab, in place since 1965, is scheduled for replacement in FY08 as part of the deferred maintenance reduction program. Closely coordinated with this work will be the upgrading of the Dominion Virginia Power (DVP) transformer serving the campus portion of the site. The underground primary and secondary electrical distribution for the accelerator site is near its expected life expectancy. Replacement is scheduled for FY12-FY14. Adequate emergency generator and switching capacity exists to maintain critical systems during partial site outages or outages less than two days. Additional capacity is required to maintain the CHL during extended outages to prevent the accelerator from warming up. JLab has been in discussions with suppliers to provide the capability to connect 10 MW of leased generators during the extended outage period. Cost for installation for the necessary electric switchgear for this capability is show in Attachment 8.

Industrial cooling systems – Cooling towers are nearing or past their life expectancy. Projects are identified over the next six years to replace these aging cooling towers.

Major Heating, Ventilating, and Air Conditioning (HVAC) Systems – HVAC systems in four major buildings have passed their life expectancy, shown high wear and maintenance requirements, or the system installed is no longer efficient for the space it serves. The Test Lab HVAC system will be replaced as part of the Technology and Engineering Development Project. HVAC systems in the Counting House and EEL buildings will be replaced during a general rehab of these buildings. Systems in CEBAF Center will be replaced as part of the proposed CEBAF Center Complex Addition/Upgrade line item project. These projects are identified in Attachment 4.

Low Conductivity Water (LCW) System Controls – Controls for the LCW system need to be replaced due to obsolescence. Maintenance replacement parts are becoming more difficult to obtain. A project is identified in Attachment 4 over the next five years to replace LCW System Controls.

Roads, Sidewalks and Parking – The original site was constructed with minimal sidewalks and no clear separation of vehicular and pedestrian circulation. Additional sidewalks were recently completed to alleviate some of the higher interface areas. Additional roadways are planned to provide improved vehicular traffic flow and eliminate head-in parking along major roadways. Additional parking is planned to accommodate conferences and planned additional staffing.

Stormwater Management – A minimum of two additional stormwater management ponds and drainage channel improvements are planned to accommodate planned construction. The State of Virginia Department of Environmental Quality and the City of Newport News design guidance, enacting the Chesapeake Bay Act, maintain that the amount of water leaving the site as a result of any construction is not to increase.

Security

Physical Security - Efficient admission of authorized visitors, inspection of vehicles and protection of government property will be enhanced by redesigning the campus main

entry point and expanding the controlled area boundary. Federal Management Regulations advise agencies to control entry to Federal property and inspect to deter and mitigate hazards. DOE foreign visits and assignments directives require DOE laboratories to identify and register all visitors to DOE labs. JLab's multiple entry points (One on Jefferson Avenue and three on Hogan Drive) and traffic flow are not conducive to effective access control and make registration of visitors extremely challenging. A redesigned main entry point could safely channel inbound traffic to a central processing facility. In addition, the redesign could reduce traffic congestion by dispersing outbound traffic to two adjacent city thoroughfares instead of the current one. Facility property protection could be enhanced by expanding the controlled area to contain new industrial and radiological facilities that are of higher risk and vulnerable to theft, hazards, and mishaps by unauthorized, and untrained persons.

Site Wide Emergency Notification – Weather and other emergency events during the past few years have revealed a need to upgrade the Site Wide Information System (SWIS) to include real-time emergency weather updates and populate the system to the "entire" site, not just certain buildings. In addition we are investigating a site wide emergency notification system. Estimates indicate the cost are below the capital funds threshold and will be purchased with indirect operating funds in the next two years.

Main Entrance Gate - The site lacks a central entry point for vehicle traffic and traffic egress is limited to one city thoroughfare, Jefferson Avenue. During business hours there are currently four entrances to the Site. While gates are closed at these entrances after hours, the main entrance splits into two roads and lacks a facility to register visitors. Effective entry control becomes increasingly difficult during periods of increased threat when identification checks and vehicle inspections are required before entry to the Site. Installation of a gatehouse at a central entry point along with a redesign of campus roads will provide the Site with a single manned entrance and the ability to disperse traffic to two city thoroughfares (Jefferson Ave. and Cannon Blvd) instead of one. A project is identified for FY18 in Attachment 8 to install a central entry point facility and rerouting of campus roads.

Controlled Area Boundary Fence – The Accelerator controlled area is fenced to control and limit entry to those who are trained and have official need for entry. New facilities, high risk materials, and radiological hazards have resulted in a need to control access to more facilities in the industrial, research and development areas of the Site. Adjusting the controlled area boundary will have a secondary purpose of enhancing property protection capabilities at areas where vehicle inspection inspections will deter theft of government sensitive property. A controlled area boundary fence has been notionally sited and included in Attachment 8.

Continued SRF work for others

The present Superconducting Radio Frequency (SRF) technical infrastructure systems – including clean rooms – represent historical compromises that do not efficiently support the performance quality now required of accelerator cryomodule designs. The planned Technology and Engineering Development Facility will greatly improve SRF research and development as well as production of new and refurbishment of existing cryomodules capabilities. The project

scope includes the replacement of the 40+ year-old electrical and mechanical systems, correct building code compliance items including resolution of mixed occupancy use issues in the existing facility and reduce the value of deferred maintenance by $4.3M. The project will also provide the additional room needed to increase process layout which is expected to result in increased efficiency and improved safety.

CEBAF upgrade to 12 GeV

All of the conventional facilities required for construction and operation of CEBAF at 12 GeV are included as part of the 12 GeV CEBAF Upgrade project. The conventional construction includes 31,200 SF of new space including an extension to the tunnel and a fourth experimental hall. Any additional temporary staff will be accommodated in existing space or trailers scheduled for removal may be held for an additional period of time. See discussion under Section C for more detail.

Continued growth of the LQCD program

TJNAF is currently part of a multi-lab SciDAC sponsored LQCD program and National LQCD Facilities program that utilize computer clusters to run numerical simulations of Quantum Chromodynamics (QCD) in a space-time lattice. Recently announced allocations provide significant additional computing clusters at JLab to be coupled to the JLab experimental program. Computing space is available, however, additional uninterruptible power and cooling will be required to support the anticipated additional 1 MW load. Projects are included in Attachment 4 to meet these requirements.

Continued growth of the FEL program

Light sources based on Jefferson Lab's superconducting electron-accelerating technology are now being developed worldwide. The technology is expected to dominate the development of the next generation of light sources by the US DoE, and indeed throughout the world. Jefferson Lab's FEL program staff will play a central role in the design and review processes that accompany this deployment and will further develop the technology and its applications at JLab. This will constitute a major technology transfer effort. In addition, it is expected that as the technology matures; it will play a major role in additional technology transfer activities such as the processing of plastics, synthetic fibers, advanced materials, and metals as well as components for electronics, micro technology, and nanotechnology. Prospective products include durable yet attractive polymer fabrics for clothing and carpeting; cheap, easily recyclable beverage and food packaging; corrosion-resistant metals with increased toughness; mechanical and optical components with precisely micro machined features; micro circuitry; and electronics for use in harsh conditions. Finally, extensions of the FEL to 250 nanometer in the ultraviolet light range are planned as well as expansion of the THz activities.

An addition to the existing facility as well as a stand alone FEL off site are planned with construction funding being provided from non-DOE sources.

D.2 Process for Identifying F&I Needs and Development of Plans to Meet the VGS

The process for identifying the lab's facility and infrastructure needs is continuous and includes elements such as facility condition assessments, facility work prioritization meetings, safety inspections and reviews, customer requested work, space utilization reviews, and facility maintenance

along with DOE strategic plans, budgets and guidance. Facility condition assessments are currently conducted on a three year schedule by a cross functional team consisting of engineers, environmental health & safety staff, as well as representatives for the occupants. Final reports are available electronically to JLab staff on the web. Customer representatives meet quarterly with Facilities Management to review and prioritize facilities requests and identify new work items or any space requirements. Safety related items are managed through a Corrective Action Tracking System (CATS) identifying facilities related issues. A work management system tracks all facility related requests. An Infrastructure Committee meets regularly to review priorities and resolve infrastructure work or space issues, reporting progress to Key Management.

At least once per year Facilities Management meets with the Lab Director, Chief Operating Officer and Key Management to identify high level facility needs to meet the current mission as well as long term mission changes. Follow-up discussions are then held with middle managers to define short term requirements for current missions and planned changes. Options for closing any gaps are presented and discussed. This data is outlined in terms of scope and cost and distributed for review and prioritization. The prioritized project list, FY09 Integrated Facilities and Infrastructure (IFI) Crosscut Budget Submission (Attachment 4), is then presented to the Lab Director and Key Management for approval.

The deferred maintenance list is reviewed to verify alignment with DOE definitions for Deferred Maintenance and Rehab and Improvement Cost (RIC). Projects are prioritized based on their impact to the mission.

The Ten Year Site Plan is updated per the latest provided guidance and coordinated with the Thomas Jefferson Site Office and the Office of Science prior to being submitted for approval.

D.3 Land Use Plans

As suggested in the DOE guidance the Land Use Plan for TJNAF has been rolled up into this Ten Year Site Plan (TYSP). In order to save time and effort and to facilitate the approval process, the land use plan will continue to be a part of the TYSP annual update. The Jefferson Lab Master Plan (Attachment 1) provides a 10-Year vision of land use at TJNAF. It has not materially changed since last year.

D.4 Excess Real Property

All real property currently held by TJNAF is fully utilized with the exception of the Block House Structure. This asset is a four wall structure comprised of activated shielding blocks that has been used to store activated material awaiting disposal. It is envisioned that this structure will be dismantled with a portion of the shielding blocks being used for the planned Hall D shielding and the remainder disposed of in a landfill or reused at other sites. Additional details are provided in Attachment 7.

D.5 Long Term Stewardship

There are currently no Long Term Stewardship Activities at Jefferson Lab.

D.6 Replacement Plant Value (RPV) Estimates

The RPV estimate in Table D-1 for FY08 budget submission is based on the RPV value in FIMS at the end of FY05 (Column A). The RPV for the following years are escalated 2.3%. The construction estimate for facilities completed during the fiscal year less the FIMS RPV value for any facility eliminated during the FY (in this case FY08) are added to the beginning RPV. Additions and eliminations are based on construction projects identified in Attachment 4: FY09 Integrated Facilities and Infrastructure (IFI) Crosscut Budget Submission.

Table D-1 Replacement Plant Value Estimates

	A	B	C	D
	RPV of existing facilities at beginning of FY	Estimated Additions in FY	Total Estimated RPV at end of FY (Column A + Column B)	Escalation (1.023 * Column C)
FY 04	$ 109,883,439	NA	NA	NA
FY 05	$ 120,171,142	NA	NA	NA
FY 06	$ 139,360,885			$ 174,400,321
FY 07	$ 174,400,321		$ 174,400,321	$ 178,411,528
FY 08	$ 178,411,528	$ 3,640,000	$ 182,051,528	$ 186,238,714
FY 09	$ 186,238,714	$ 1,800,000	$ 188,038,714	$ 192,363,604
FY 10	$ 192,363,604	$ 8,824,000	$ 201,187,604	$ 205,814,919
FY 11	$ 205,814,919	$ 9,966,000	$ 215,780,919	$ 220,743,880
FY 12	$ 220,743,880	$ 54,072,000	$ 274,815,880	$ 281,136,645
FY 13	$ 281,136,645	$ 1,520,000	$ 282,656,645	$ 289,157,748
FY 14	$ 289,157,748	$ 250,000	$ 289,407,748	$ 296,064,126
FY 15	$ 296,064,126		$ 296,064,126	$ 302,873,601
FY 16	$ 302,873,601		$ 302,873,601	$ 309,839,694
FY 17	$ 309,839,694	$ 4,700,000	$ 314,539,694	$ 321,774,107
FY 18	$ 321,774,107		$ 321,774,107	$ 329,174,911

D.7 Maintenance

The below table indicated the planned annual facilities maintenance funding level to meet the SC 2% MII goal as well as no additional maintenance being deferred.

Table D-2 Lab's Site Maintenance Funding Plan

	A	B	C	D	E	F	G
	RPV	SC Goal (minimum 2% of RPV)	Planned Site Direct Funded Maintenance in FY	Planned Indirect Funded Maintenance in FY	Total Planned Site Maintenance Funding (Column C +Column D)	MII Calculation (E as a % of A)	Explanation if Funding Plan does not meet goal or results in deferred maintenance
FY 07	$109,883,439	$2,197,669	$51,000	$3,018,000	$3,069,000	2.8%	N/A
FY 08	$120,171,142	$2,402,423	$52,000	$3,580,000	$3,632,000	3.0%	N/A
FY 09	$174,300,321	$3,486,006	$53,000	$4,048,000	$4,101,000	2.4%	N/A
FY 10	$178,411,528	$3,568,231	$55,000	$3,568,000	$3,623,000	2.0%	N/A
FY 11	$186,238,714	$3,724,774	$56,000	$3,725,000	$3,781,000	2.0%	N/A
FY 12	$192,363,604	$3,847,272	$57,000	$3,847,000	$3,904,000	2.0%	N/A
FY 13	$205,814,919	$4,116,298	$58,000	$4,116,000	$4,174,000	2.0%	N/A
FY 14	$220,743,880	$4,414,878	$60,000	$4,415,000	$4,475,000	2.0%	N/A
FY 15	$281,136,645	$5,622,733	$61,000	$5,623,000	$5,684,000	2.0%	N/A
FY 16	$289,157,748	$5,783,155	$63,000	$5,783,000	$5,846,000	2.0%	N/A
FY 17	$296,064,126	$5,921,283	$64,000	$5,921,000	$5,985,000	2.0%	N/A
FY 18	$302,873,601	$6,057,472	$65,000	$6,057,000	$6,122,000	2.0%	N/A

D.8 Deferred Maintenance Reduction (DMR)

TJNAF's deferred maintenance backlog at the end of FY06 was $8.8M, and the RPV was $139,360,885 resulting in an ACI of 0.94 (adequate). This matches the actual FY06 Deferred Maintenance and RPV with deferred maintenance broken down by the following asset types:

		Mission Critical	Mission Dependent
• DOE Owned Buildings	$4.57M	$4.44M	$0.13M
• Real Property Trailers	$1.92M	-	$1.92M
• Other Structures	$2.31M	$2.24M	$0.07M
	$8.8M		

While the ACI remains below 0.95 there has been progress. Completion of the CEBAF Center Addition project in FY06 made it possible to demolish 31,959 square feet of trailer space and reduce the Lab's deferred maintenance backlog by over $3.2M. Forty-nine percent of the remaining building deferred maintenance will be eliminated upon completion of the Technology and Engineering Development Facility. One hundred percent of the real property trailer deferred maintenance will be eliminated upon completion of the projects outlined in this plan which will result in a healthy level of deferred maintenance for JLab. Table D-3 indicates the actual ACI for FY06 based on criticality as well as Office of Science goals for FY07 and FY08.

Table D-3 ACI based on Mission Dependency

	RPV		ACI Goals		
Mission Dependency of Asset:	FY 2006	FY 2006 Actual	FY 2006	FY 2007	FY 2008
Mission Critical	$127.7M	0.948	0.960	0.962	0.964
Mission Dependent	$12.1M	0.825	0.946	0.947	0.948
Total	$139.4M	0.937	N/A	N/A	N/A

Table D-4 indicates the minimum deferred maintenance reduction funding for the Lab per the guidance based on the funding levels described under Attachment 4. This table uses estimated RPVs based on the budget cycle (FY04 DM numbers for FY07). It is expected that the ACI value will be above 0.95 by the end of FY09 and therefore TJNAF will no longer be required to spend at the minimum maintenance reduction funding level.

Table D-4 Estimated DM and ACI Based on Site DMR and Other Funding

	A	B	C	D	E	F	G	H	I	
FY	DM from FIMS or Estimated	Estimate of DM Growth1	SC DMR Funding Target (from the Table in Section II, B.2. DMR)	Lab Planned DM Reduction Funding2	Portion of Column D from IGPP or Major Repairs3	DM Reduction: Other Contributions (Line Item Projects) (ESPCs)4	Expected DM at the end of the Fiscal Year (A+B -D-F)	DM Escalation= (DM in Column G * 1.0235)	Estimated RPV	Estimated ACI (use estimated DM from G and estimated RPV from I {ACI = (1-
7	$8,801,728	$200,000	$ 396,000	$130,000			$8,871,728	$9,075,778	$109,883,439	0.92
8	$9,075,778		$ 906,000	$915,000			$8,160,778	$8,348,476	$120,171,142	0.93
9	$8,348,476		$ 1,321,000	$900,000			$7,448,476	$7,619,791	$174,300,321	0.96
10	$7,619,791			$400,000			$7,219,791	$7,385,846	$178,411,528	0.96
11	$7,385,846						$7,385,846	$7,555,720	$186,238,714	0.96
12	$7,555,720			$545,000			$7,010,720	$7,171,967	$192,363,604	0.96
13	$7,171,967					$4,325,000	$2,846,967	$2,912,447	$205,814,919	0.99
14	$2,912,447						$2,912,447	$2,979,433	$220,743,880	0.99
15	$2,979,433						$2,979,433	$3,047,960	$281,136,645	0.99
16	$3,047,960						$3,047,960	$3,118,063	$289,157,748	0.99
17	$3,118,063					$500,000	$2,618,063	$2,678,279	$296,064,126	0.99
18	$2,678,279						$2,678,279	$2,739,879	$302,873,601	0.99

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The Lab believes it is a good management practice to maintain some deferred maintenance backlog equal to about 2% of the Lab's RPV to force a prioritization of maintenance work to promote good use of funds and to act as a "flywheel" to absorb unused annual corrective maintenance budget.

The majority of the deferred maintenance is the result of the age and condition of the Test Lab and aging real property trailers. This plan proposes to replace all current real property trailers with permanent structures and use real property trailers in the future only to accommodate temporary requirements. The remaining trailers will be eliminated after the completion of the following proposed projects listed in Attachment 4.

Proposed Project	**SF Eliminated**	**Deferred Maintenance Reduction**
Technology and Engineering Development Facility	11,900	$4,325,000
CEBAF Center Wing D	4,980	$520,000

Table D-5 list those deferred maintenance reduction projects planned for FY08 and FY09.

Table D-5 Planned Deferred Maintenance Reduction Projects

(DM Reduction vice cost to accomplish Year shown when accomplished vice year funded)	FY08 ($000)	FY09 ($000)
Test Lab Primary Electrical	540	
CHL Cooling Water Piping	100	
CHL Overhead Bridge Crane	20	
Storm Drainage Maintenance & Repair	100	120
Accelerator Service Buildings & CHL Siding Repair	60	
Road Repair & Maintenance	30	
FEL Retaining wall and walkway	40	
CHL Interior Finishes	25	
North Access Cooling Tower Replacement		430
North Access LCW Piping Replacement		355
MCC Reroof		80
MCC HVAC Replacement		100
Lab Planned Totals	915	1,085
SC DM Targets	906	1,321

D.9 Recapitalization & Modernization

D.9.a Institutional General Plant Project (IGPP)

There is currently no plans to implement IGPP Program at JLab. Nuclear Physics will provide at least $2M GPP funding per year.

D.9.b Line Items

Below is a general discussion of the Prioritized List of Line Item Projects found in Attachment 7.

Technology and Engineering Development Facility This project will renovate the 88,900 SF Test Lab that houses the Institute of Superconducting Radio Frequency Science and Technology. This facility, built in 1965, was originally designed to support a NASA mission, and was retrofitted to meet NP needs. The project will streamline the production process, renovate or replace obsolete infrastructure and relocate critical production and testing facilities to more appropriate locations. Functional improvements will be incorporated in many areas, such as clean rooms, chemistry facilities, laboratories and shops to enable advancements in SRF technologies that are required for future DOE science programs. The renovation will also support production of advanced cryomodules. The mechanical and electrical systems are more than 40 years old and numerous components in these systems are no longer commercially available. An HVAC renovation to replace these systems and upgrade all systems to full electronic control will improve maintainability and energy management capabilities. As this equipment continues to degrade and becomes unreliable, it poses increasing risk of fire or arc flash hazards. Renovation of the electrical distribution system will increase safety and enable improved load distribution and flexibility for future power utilization. To bring the building up to current safety and accessibility standards a number of upgrades are required to stairways, walkways, guardrails, the fire alarm system, fire doors, fire walls, door hardware, and signage. The project will reduce energy consumption in the existing facility by approximately 20% and provide a quality work environment that will enable advancements in SRF technologies required for the future DOE science programs.

This project will fund the construction of an 101,150 SF Engineering and Staging Complex to house critical technical functions including: 1) performing accelerator and experimental halls equipment maintenance; 2) designing, fabricating, assembling, testing, staging and maintaining experimental apparatus and cryogenic cooling systems; and 3) providing accessible safety and health, environmental, and quality staff to support field work activities. The facility will be positioned near the experimental halls for optimal efficiency and to enhance support to the Users. It allows for workflow and productivity improvements through the collocation of the Lab's engineering functions and related ESH&Q staff, all who are currently spread across the Lab.

This project addresses a current lack of workspace that will be compounded in the near future by planned growth in Physics' experimental program and accelerator operations and R&D. Construction of this facility will also enable the relocation of staff from trailers that are characterized as inefficient, poor quality work environments that do not currently meet commercial standards.

CEBAF Center Complex Addition/Upgrade: The project modernizes CEBAF Center, the hub of the Lab, with construction of 82,000 SF in one additional wing (Wing E) as well as the rehabilitation of 67,300 SF of current space in the facility. The project accommodates: overcrowding; relocation of staff and Users currently in leased space; and planned staff growth. The facility will enhance the growing User community by collocating Users of each Hall with the Physics scientists and staff for that Hall. In addition, it would allow for the relocation of the library from leased space to the User area for more convenient usage. It also provides for a communications infrastructure that ensures reliability and supports increased operational demands for data. Finally, additional conference space, cafeteria expansion, and addressing current parking shortages will help to facilitate larger conferences at the Lab. These additions will enable the correction of safety and productivity concerns in Wings A, B and C where office space currently assigned to numerous Physics staff members and Users is 50-70% less than the Lab's space standards based on industry. Staff is currently overflowing into common areas.

D.9.c GPP

The FY09 IFI Crosscut Budget, Attachment 4, indicates those GPP projects proposed under the target funding scenario provided by DOE-SC. There are a number of other projects needed to adequately support TJNAF's mission and the DOE-SC vision. A full listing of proposed projects under an alternate investment plan scenario is presented in Attachment 8. This listing aligns with the Jefferson Lab Master Plan, Attachment 1.

D.10 Site Space Bank Analysis

The Space Bank Analysis in Table D-6 is based on the budget profile indicated in Attachment 4. Construction under the Alternate Investment Plan would require additional offset.

Table D-6 Space Bank Analysis

	A	B	C	D
Fiscal Year	Expected Additions (sf)	Expected Removals (sf)	Net Change (A minus B)	Available Offsetting Space at the Site (sf)
FY 06	NA	NA	NA	155,972
FY 07			-	155,972
FY 08	17,800		17,800	138,172
FY 09	750		750	137,422
FY 10	13,642		13,642	123,780
FY 11	11,493		11,493	112,287
FY 12	8,789		8,789	103,498
FY 13	101,150	(22,000)	79,150	24,348
FY 14	250		250	24,098
FY 15 **	82,000		82,000	-57,902
FY 16			-	-57,902
FY 17	13,800	(5,000)	8,800	-66,702
FY 18			-	-66,702

** This project is part of the mortgage of the Science Lab Infrastructure Initiative

D.11 Performance Indicators and Measures .

FY07 Performance Measures

Measure 7.1.1 Asset Condition Index (ACI).
Measure 7.1.2 Extent Contractor validates accuracy of data in the Facilities Information Management System (FIMS).
Measure 7.1.3 The efficiency and effectiveness of contractor efforts for sustainment, recapitalization, and acquisition of required facilities and infrastructure to support laboratory programs.
Measure 7.2.1 The TYSP is recognized by funding entities as providing a sound strategy for acquisition of required facilities and infrastructure to support future laboratory programs.
Measure 7.2.2 Cost Performance on Projects ≥ $100K.
Measure 7.2.3 Scheduled Performance on Projects ≥ $100K.

Proposed FY08 Performance Measures

Measure 7.1.1 Asset Condition Index (ACI).
Measure 7.1.2 Extent Contractor validates accuracy of data in the Facilities Information Management System (FIMS).
Measure 7.1.3 The efficiency and effectiveness of contractor efforts for sustainment, recapitalization, and acquisition of required facilities and infrastructure to support laboratory programs.
Measure 7.2.1 The TYSP is recognized by funding entities as providing a sound strategy for acquisition of required facilities and infrastructure to support future laboratory programs.
Measure 7.2.2 Cost and Schedule Performance on Projects ≥ $100K.

D.12 Energy and "Sustainability" Management

The Energy Policy Act of 2005 has extended the previous requirements and modified other requirements to the year 2015. Executive Order 13423 Strengthening Federal Environmental, Energy, and Transportation Management sets additional goals for agencies. We believe these requirements and goals are achievable at Jefferson Lab. Mission growth will cause the Laboratory energy budget to expand as capacity is increased for higher beam energy and associated computational needs. Lab plans and noteworthy activities in this area are noted below:

Energy Reduction

As shown in Table D-7 the Lab has already achieved a 20% reduction in energy use, reaching the 2005 Energy Policy Act goal for 2015 in 2006. Each of the buildings currently being reported for energy consumption was upgraded in 2003 under a series of energy savings projects. Future modifications to save the remaining energy will be more difficult to attain. Maintenance will continue to be a key component of the energy efficiency of thermal systems. Optimum use of power

will be implemented and be specifically geared to reducing operating hours to match Laboratory needs.

Table D-7. Energy Consumption

Energy Consumption (BTU/GSF).	Baseline	Actual	Target				Achieve Target
	FY 2003	FY 2006	FY 2007	FY 2008	FY 2009	Long Term	
2005 Energy Policy Act. 20% reduction from 2003 baseline by 2015.	128,457	102,579				102,766	Goal 2015 Actual 2006
EO 13423 3% annual reduction or 30% reduction by 2015.	128,457	102,579				89,920	2015

The table covers non exempt buildings only

Progress will also continue to reduce energy consumption in exempt buildings such as the EEL and Test Lab where incorporation of improved efficiency systems is expected to produce similar energy reductions.

Green house gas reduction - The Lab has replaced all CFC chillers except one. This chiller will be replaced in FY10 when the Computer Center attains full capacity with the addition of two new chillers in a satellite chiller plant and the existing CFC chiller eliminated. The Lab uses natural gas for heating, which is the most economical, least polluting and lowest greenhouse effect fossil fuel that is available.

Electrical Metering - Advanced metering is required to be installed on all buildings by 2012. Projects are planned for FY2007 and subsequent years with all metering in place by 2010 at a total cost of $350,000.

Sustainable Design –The Energy Policy Act of 2005 new buildings designed to 30% below American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) Standards or International Energy Code if life cycle cost effective.

EO 13423 requires new construction and major renovation of agency buildings comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. All future new non-exempt buildings will be designed to satisfy this requirement and exempt buildings will incorporate these same principles.

Green Power - Both the Energy Policy Act of 2005 and EO 13423 require renewable electricity consumption. Jefferson Lab will meet its renewable energy requirement through the purchase of

Renewable Energy Certificates through the Defense Logistics Agency, Defense Energy Support Center.

Reduce water consumption - EO 13423 requires reduction in water consumption intensity, relative to fiscal year 2007, by 2 percent annually through the end of fiscal year 2015. Jefferson Lab is negotiating with the local utility to obtain approximately 0.1 MGD initially and 0.2 MGD anticipated in 2012 of reclaimed water for cooling and irrigation. If successful the project will reduce current potable water consumption 70%. The Lab would be responsible for installation of a distribution system on site to each of the cooling towers. Costs are estimated at $350-500K. Reclaimed water usage cost is expected to be 75% of that for potable water

Projects in Table D-8 below will assist the Lab to meet the goals of EO 13423:

Table D-8. EO 13423 Related Projects

Project	Funding	Year	Element
12 GeV	Line Item	FY2009-FY2012	Sustainable Design
Technology & Engineering Development Facility	SLI	FY2010-2012	Sustainable Design
Building Meters	GPP	FY2007-FY2009	Electrical Metering
Cooling Tower Reclaimed Water Line	GPP	FY2009	Reduce water consumption

D.13 Leasing & Third Party / Non-Federal Funded Construction of New Buildings

There are currently two leases greater than 10,000 for office space as shown in Table D-9. Both are adjacent to DOE property. In addition there is currently one warehouse lease less than 10,000 SF located about a mile from the site.

Table D-9. Current Leases

Name	Use	SF	# Employees	Future Plans
ARC Building	Office & Lab	44,342	156	Base lease expires FY08, extend lease until CEBAF Center Addition Phase 2 is funded. Currently the Lab plans to extend for 5 years.
VARC	Office	34,739	75	Lease cost $1 per year; Lab is responsible for all operating and improvement costs. Continue to use indefinitely.

Potential Leases. Two potential leases are shown in Table D-10. Shipping & Receiving/Storage Building is under evaluation for construction using Program GPP Funding and/or Lease. This is the only planned facility that currently lends itself to third party financing due to the availability of land at the property boundary. Construction of the shipping/receiving facility relocates this function from a lab building in the center of the campus to the site perimeter, correcting both security and safety concerns. This project is currently identified as an Alternate Investment Plan, redirect of SC-NP operating funds to GPP.

This Ten Year Site Plan is based on a +3.5% budget scenario. If funding for operations were closer to the proposed budget levels additional office, technical, and laboratory space could be required. If this requirement materializes, the City of Newport News has indicated a willingness to construct up to 50,000 SF of space adjacent to the Lab for long term lease. Additional space in the current lease facility, ARC Building, is currently not available.

Table D-10. Potential Leases

Name	Use	SF	# Employees	Estimated Start Date
Storage Building	Warehousing	10,000	0	FY07
Shipping & Receiving/Storage Bldg	Shipping/Receiving/Warehouse	21,000	10	FY15
ARC II	Additional office, technical, lab space	25,000	60	FY12

The character of the site and relatively small land area does not lend itself well to non-federal funded construction of new buildings. In terms of meeting long term needs, there is less of a long term impact

on the Lab's operating budget to own verses leasing. TJNAF has obtained significant amounts of third party financing in the past to meet infrastructure needs and for energy savings projects. From a life cycle cost standpoint, TJNAF currently has a reasonable amount of financial liability from third party financing without taking on additional third party financed construction projects.

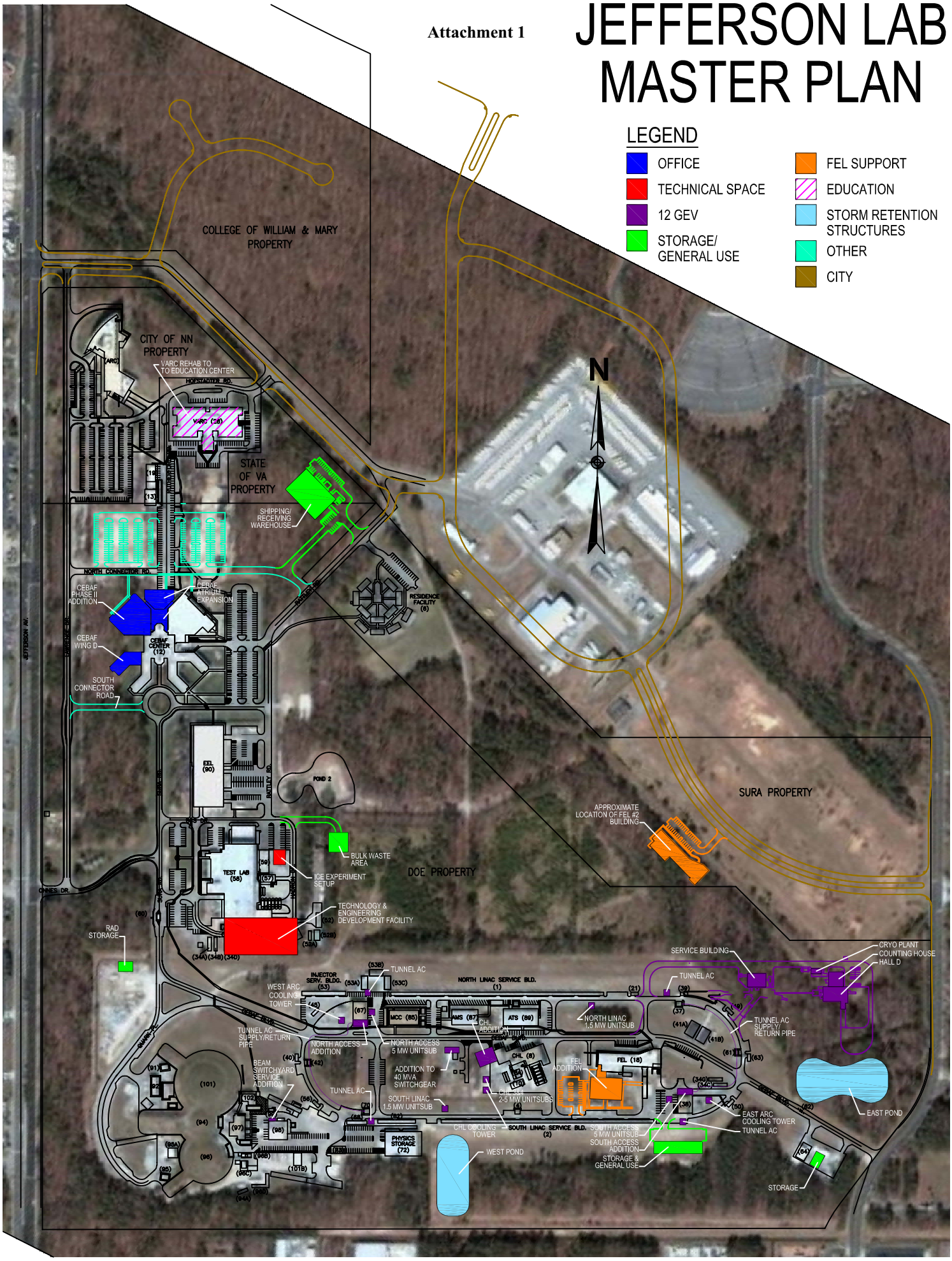
E. Site's Alternate Investment Plan for GPP and SLI Line Items and Excess Facilities Disposition (EFD)

The majority of the Lab's facility and infrastructure needs would be met with completion of the Technology and Engineering Development Facility and CEBAF Center Complex Addition/Upgrade as line item projects and the increased Lab funding to $2M GPP annually as part of the Science Laboratory Infrastructure Initiative. The remainder of the GPP projects listed in Attachment 8 will require additional funding. In the past, sufficient GPP funds were not available to provide for these long term needs.

On average an additional ~$1.5M per year is needed in GPP type funds over the next 10-year period to implement the projects listed in Attachment 8.

Attachment 1

JEFFERSON LAB MASTER PLAN



Attachment 2

List of Facilities

Property Type	Property ID	Property Name	MARS Asset Type	Owned or Leased	Gross SF	Replacement Plant Value (RPV)	Deferred Maintenance (DM)	Rehab Cost (RIC)	Age	Year Acquired	Year Built	Summary Condition
Building	001	North LINAC	680	Owned	12,850	$2,025,780	$35,847	$9,793	17	1990	1990	Excellent
Building	002	South LINAC	680	Owned	12,850	$2,025,780	$37,489	$9,793	17	1990	1990	Excellent
Building	004	Exit Stair 4	680	Owned	487	$270,392	$8,935	$6,835	17	1990	1990	Good
Building	007	Exit Stair 1	680	Owned	487	$270,392	$9,438	$6,835	17	1990	1990	Good
Building	008	Central Helium Liquifier	501	Owned	16,971	$9,857,254	$148,580	$49,401	17	1990	1990	Excellent
Building	008A	CHL Pump House	501	Owned	731	$636,235	$4,380		14	1993	1993	Excellent
Building	012	CEBAF Center	501	Owned	130,437	$32,431,498	$154,239	$26,638,542	18	1989	1989	Excellent
Building	013	FM Storage Shed	501	Owned	2,990	$261,841	$1,971		8	1999	1999	Excellent
Building	016A	BEAMS Storage Shed	501	Owned	68	$5,955	$0		13	1994	1994	Excellent
Building	018	Free Electron Laser	501	Owned	31,176	$11,334,393	$6,570	$23,760	10	1997	1997	Excellent
Building	021	North Extractor Service	680	Owned	460	$100,612	$8,835	$351	17	1990	1990	Adequate
Building	031	Acid Neutralization	501	Owned	1,071	$434,280	$0	$105,000	18	1989	1989	Excellent
Building	033	Chemical Storage	501	Owned	612	$248,160	$876		18	1989	1989	Excellent
Building	034	Material Handling Equipment Storage I	501	Owned	2,250	$197,038	$0		1	2006	2006	Excellent
Building	037	Exit Stair 2	680	Owned	487	$270,392	$12,315	$6,835	17	1990	1990	Good
Building	038	South Access	680	Owned	6,075	$3,356,600	$10,587	$348,630	17	1990	1990	Excellent
Building	039	East ARC Service	680	Owned	460	$100,612	$6,146	$351	17	1990	1990	Adequate
Building	040	West ARC Service	680	Owned	460	$100,612	$6,695	$351	17	1990	1990	Adequate
Building	042	Exit Stair 6	680	Owned	259	$143,802	$12,342	$6,661	17	1990	1990	Adequate
Building	045	West ARC Service	680	Owned	548	$119,860	$7,436	$418	17	1990	1990	Adequate
Building	049	East ARC Service	680	Owned	548	$119,860	$8,227	$418	17	1990	1990	Adequate
Building	050	East ARC Service	680	Owned	548	$119,860	$7,738	$418	17	1990	1990	Adequate
Building	052	Radiation Control Testing	501	Owned	1,326	$518,660	$9,808	$56,305	42	1988	1965	Excellent
Building	053	Injector Service	680	Owned	3,150	$655,437	$4,581	$2,401	17	1990	1990	Excellent
Building	054	Radiation Control Calibration	501	Owned	1,017	$397,796	$0		13	1994	1994	Excellent
Building	054A	Property Storage Canopy	501	Owned	540	$47,289	$548		13	1994	1994	Excellent
Building	056	West ARC Service	680	Owned	460	$100,612	$7,310	$351	17	1990	1990	Adequate
Building	057	Cryogenics Test Facility	501	Owned	2,301	$900,028	$15,546		19	1988	1988	Excellent
Building	058	Test Lab	501	Owned	95,902	$37,511,722	$2,934,290	$9,330,221	42	1987	1965	Adequate
Building	058B	Oil Storage Shed	501	Owned	241	$21,105	$17,121		42	1987	1965	Fail
Building	059	Accelerator Tech Shop	501	Owned	3,648	$694,998	$31,484		19	1988	1988	Good
Building	060	Guard House	501	Owned	160	$128,392	$2,187		13	1994	1994	Excellent
Building	061	Exit Stair 3	680	Owned	259	$143,802	$4,267	$6,661	17	1990	1990	Good
Building	062	Canon Guard Shack	501	Owned	24	$46,543	$778		8	1999	1999	Excellent
Building	063	East ARC Service	680	Owned	460	$100,612	$6,152	$351	17	1990	1990	Adequate
Building	064	Fabric Storage 1	501	Owned	2,774	$242,926	$0		2	2005	2005	Excellent
Building	067	North Access	680	Owned	6,075	$3,099,084	$12,777	$348,630	17	1990	1990	Excellent
Building	068	West ARC Service	680	Owned	1,217	$266,185	$6,759	$927	17	1990	1990	Good
Building	070	Exit Stair 5	680	Owned	487	$270,392	$9,892	$371	17	1990	1990	Good
Building	072	Physics Storage	501	Owned	20,415	$1,787,791	$18,833	$15,559	9	1998	1998	Excellent
Building	073	Material Handling Equipment Storage II	501	Owned	1,800	$157,630	$0		1	2006	2006	Excellent
Building	082	South Extractor Service	680	Owned	2,289	$360,857	$15,210	$1,744	17	1990	1990	Good
Building	085	Machine Control Center	501	Owned	7,625	$2,681,860	$96,209	$5,811	17	1990	1990	Good

Attachment 2

List of Facilities

Property Type	Property ID	Property Name	MARS Asset Type	Owned or Leased	Gross SF	Replacement Plant Value (RPV)	Deferred Maintenance (DM)	Rehab Cost (RIC)	Age	Year Acquired	Year Built	Summary Condition
Building	087	Accelerator Maintenance & Support	501	Owned	6,720	$1,280,259	$6,429	$68,631	12	1995	1995	Excellent
Building	089	Accelerator Technical Support	501	Owned	10,152	$1,934,105	$8,665	$93,147	10	1997	1997	Excellent
Building	090	Experimental Equipment Laboratory	501	Owned	53,997	$12,434,622	$785,630	$712,952	17	1990	1990	Adequate
Building	090A	Storage Shed	501	Owned	434	$38,006	$1,084		9	1998	1998	Good
Building	090B	Storage Shed	501	Owned	510	$44,662	$0		4	2003	2003	Excellent
Building	091	Hall A Beam Dump Cooling	680	Owned	630	$494,700	$3,185	$480	14	1993	1993	Excellent
Building	092	Service Building	680	Owned	2,487	$517,483	$22,891	$74,919	14	1993	1993	Good
Building	095	Hall C Beam Dump Cooling	680	Owned	630	$494,700	$3,285	$480	14	1993	1993	Excellent
Building	095A	Lead Storage Facility	501	Owned	1,600	$140,116	$0		1	2006	2006	Excellent
Building	096B	Hall B Gas Shed	501	Owned	693	$188,579	$17,508		12	1995	1995	Adequate
Building	096C	Hall C Gas Shed	501	Owned	96	$26,123	$909		12	1995	1995	Good
Building	097	Counting House	501	Owned	17,587	$6,879,092	$14,693	$668,548	14	1993	1993	Excellent
Building	098	Cryogenics Welding Shop	501	Owned	6,164	$1,561,242	$9,527	$4,698	14	1993	1993	Excellent
Building	099	Exit Stairwell	680	Owned	212	$117,707	$3,247	$6,625	17	1990	1990	Good
Building	101A	Hall A Gas Shed	501	Owned	360	$97,963	$4,061		11	1996	1996	Good
Building	102	End Station Refrigeration	501	Owned	3,040	$827,243	$4,832	$6,249	14	1993	1993	Excellent
Building	110	SMOKERS SHACK (28)	501	Owned	54	$6,656	$0		14	1993	1993	Excellent
Building	111	SMOKERS SHACK (16)	501	Owned	54	$6,656	$0		14	1993	1993	Excellent
Building	112	SMOKERS SHACK (12)	501	Owned	54	$6,656	$0		14	1993	1993	Excellent
Building	113	SMOKERS SHACK (90)	501	Owned	54	$6,656	$0		14	1993	1993	Excellent
Building	114	SMOKERS SHACK(85)	501	Owned	54	$6,656	$0		14	1993	1993	Excellent
Building	115	SMOKERS SHACK (87/89)	501	Owned	54	$6,656	$0		14	1993	1993	Excellent
Building	116	SMOKERS SHACK (97)	501	Owned	54	$6,656	$0		14	1993	1993	Excellent
Building	019	FM Maintenance Shop		DOE	2,904	$790,235			42	1985	1965	Good
Building	028	Virginia Associated Research Campus		DOE Leased	34,739	$6,370,488		$30,219	42	1985	1965	Adequate
Building	ARC	Applied Research Center		Contractor Leased	41,650	$7,637,837			9	1998	1998	Excellent
Building	ARC 351	Applied Research Center Room 351		Contractor Leased	842				9	2007	1998	
Building	ARC 628	Applied Research Center Room 628		Contractor Leased	830	$324,652			9	2003	1998	Excellent
Building	BC	Blue Crab Storage		Contractor	7,000	$613,007			22	1990	1985	Excellent
Trailer	010	Cryo Trailer	501	Owned	1,187	$199,180	$133,898		17	1991	1990	Fail
Trailer	034A	Accel Tech Trailer A	501	Owned	753	$126,354	$84,941		20	1988	1987	Fail
Trailer	034B	Accel Tech Trailer B	501	Owned	753	$126,354	$84,941		20	1988	1987	Fail
Trailer	034C	Accel Tech Trailer C	501	Owned	660	$110,749	$74,451		18	1989	1989	Fail
Trailer	034D	Accel Tech Trailer D	501	Owned	660	$110,749	$74,451		20	1988	1987	Fail
Trailer	034G	Accel Tech Trailer G	501	Owned	660	$110,749	$74,451		17	1991	1990	Fail
Trailer	035	ESH&Q Trailer	501	Owned	1,676	$281,235	$189,059		19	1988	1988	Fail
Trailer	052A	Radiation Control Trailer A	501	Owned	661	$110,916	$74,563		16	1991	1991	Fail
Trailer	052B	Radiation Control Trailer B	501	Owned	1,322	$221,833	$149,127		12	1996	1995	Fail
Trailer	052C	Radiation Control Training Center	501	Owned	1,327	$222,672	$149,691		13	1995	1994	Fail

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List of Facilities

Property Type	Property ID	Property Name	MARS Asset Type	Owned or Leased	Gross SF	Replacement Plant Value (RPV)	Deferred Maintenance (DM)	Rehab Cost (RIC)	Age	Year Acquired	Year Built	Summary Condition
Trailer	053A	Accel Installation Trailer A	501	Owned	1,187	$199,180	$133,898		12	1996	1995	Fail
Trailer	053B	Accel Installation Trailer B	501	Owned	1,187	$199,180	$133,898		12	1996	1995	Fail
Trailer	053C	Accel Installation Trailer C	501	Owned	1,187	$199,180	$133,898		12	1996	1995	Fail
Trailer	054B	FM Equipment Canopy	501	Owned	400	$67,120	$0		5	2002	2002	Excellent
Trailer	094A	Hall B Physics Trailer	501	Owned	649	$108,903	$73,210		13	1994	1994	Fail
Trailer	094B	Hall B Tech Trailer	501	Owned	1,825	$320,476			0	2007	2007	
Trailer	101B	Hall A Tech Trailer	501	Owned	1,823	$305,901	$205,642		10	1997	1997	Fail
PP Trailer	092A	Facilities Storage Shed A	725	Owned	192	$8,780	$110		9	1998	1998	Excellent
PP Trailer	092B	Facilities Storage Shed B	725	Owned	192	$8,780	$110		9	1998	1998	Excellent
PP Trailer	801	Container F21923	725	Owned	280	$12,805	$8,411		27	1995	1980	Fail
PP Trailer	802	Container Physics (90)	725	Owned	320	$14,634	$9,612		37	1999	1970	Fail
PP Trailer	803	Container SNS	725	Owned	320	$14,634	$9,612		37	1995	1970	Fail
PP Trailer	804	Container	725	Owned	320	$14,634	$9,612		22	2001	1985	Fail
PP Trailer	805	Container	725	Owned	320	$14,634	$9,612		37	2001	1970	Fail
PP Trailer	806	Container	725	Owned	320	$14,634	$9,612		37	2001	1970	Fail
PP Trailer	807	Container	725	Owned	320	$14,634	$9,612		37	2001	1970	Fail
PP Trailer	808	Container F24198	725	Owned	280	$12,805	$8,411		38	1989	1969	Fail
PP Trailer	809	Container F24319	725	Owned	280	$12,805	$8,411		38	1989	1969	Fail
PP Trailer	811	Container F219267	725	Owned	280	$12,805	$8,411		39	1994	1968	Fail
PP Trailer	812	Container F27496	725	Owned	280	$12,805	$9,612		39	1996	1968	Fail
PP Trailer	813	Contrainer F2808	725	Owned	320	$14,634	$9,612		38	1987	1969	Fail
PP Trailer	814	Container F2629	725	Owned	320	$14,634	$8,411		30	1987	1977	Poor
PP Trailer	815	Container F24197	725	Owned	280	$12,805	$9,612		39	1989	1968	Fail
PP Trailer	817	Container F219809	725	Owned	320	$14,634	$9,612		39	1996	1968	Fail
PP Trailer	818	Container F219266	725	Owned	320	$14,634	$9,612		27	1996	1980	Fail
PP Trailer	819	Container F219292	725	Owned	320	$14,634	$9,612		39	1994	1968	Fail
PP Trailer	820	Container F219281	725	Owned	320	$14,634	$9,612		39	1994	1968	Fail
PP Trailer	822	Container F216946	725	Owned	320	$14,634	$9,612		37	1994	1970	Fail
PP Trailer	823	Container F219278	725	Owned	320	$14,634	$9,612		37	1994	1970	Fail
PP Trailer	825	Container F219206	725	Owned	320	$14,634	$8,411		37	1994	1970	Poor
PP Trailer	826	Container F219207	725	Owned	280	$12,805	$8,411		37	1994	1970	Fail
PP Trailer	827	Container F219208	725	Owned	280	$12,805	$8,411		37	1994	1970	Fail
PP Trailer	829	Container F219210	725	Owned	280	$12,805	$8,411		37	1994	1970	Fail
PP Trailer	830	Container F219211	725	Owned	280	$12,805	$8,411		37	1994	1970	Fail
PP Trailer	832	Container	725	Owned	320	$14,634	$9,612		37	1994	1970	Fail
PP Trailer	833	Container	725	Owned	320	$14,634	$9,612		22	1994	1985	Fail
PP Trailer	834	Container	725	Owned	320	$14,634	$8,411		37	1994	1970	Poor
PP Trailer	835	Container F209598	725	Owned	280	$12,805	$8,411		37	1994	1970	Fail
PP Trailer	836	Container F28334	725	Owned	280	$12,805	$8,411		37	1990	1970	Fail
PP Trailer	837	Container F27925	725	Owned	280	$12,805	$8,411		37	1990	1970	Fail
PP Trailer	838	Container F2192654	725	Owned	280	$12,805	$8,411		37	1990	1970	Fail
PP Trailer	839	Container F208910	725	Owned	280	$12,805	$8,411		37	1990	1970	Fail
PP Trailer	840	Container F28063	725	Owned	280	$12,805	$8,411		37	1990	1970	Fail
PP Trailer	841	Container F210791	725	Owned	280	$12,805	$8,411		37	1991	1970	Fail
PP Trailer	842	Container F219765	725	Owned	280	$12,805	$8,411		37	1991	1970	Fail
PP Trailer	843	Container F217966	725	Owned	280	$12,805	$9,612		37	1991	1970	Fail
PP Trailer	844	Container F23501	725	Owned	320	$14,634	$9,612		37	1988	1970	Fail

Attachment 2

List of Facilities

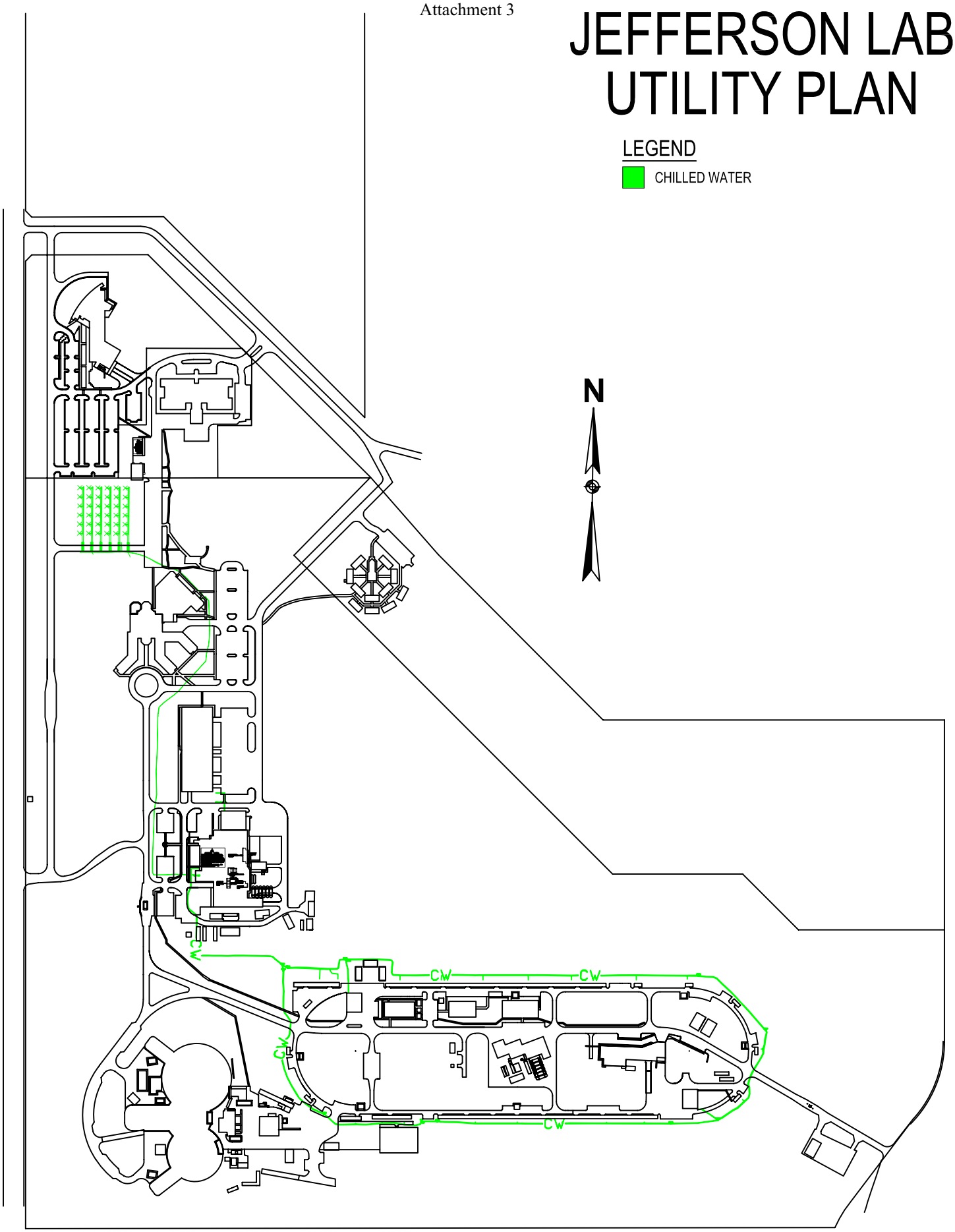
Property Type	Property ID	Property Name	MARS Asset Type	Owned or Leased	Gross SF	Replacement Plant Value (RPV)	Deferred Maintenance (DM)	Rehab Cost (RIC)	Age	Year Acquired	Year Built	Summary Condition
PP Trailer	845	Container F23502	725	Owned	320	$14,634	$8,411		37	1991	1970	Poor
PP Trailer	846	Container 4316	725	Owned	280	$12,805	$9,612		34	1989	1973	Fail
PP Trailer	847	Container F219284	725	Owned	320	$14,634	$9,612		37	1992	1970	Fail
PP Trailer	848	Container F219924	725	Owned	320	$14,634	$9,612		37	1997	1970	Fail
PP Trailer	849	Container F219276	725	Owned	320	$14,634	$9,612		37	1994	1970	Fail
PP Trailer	850	Container F219277	725	Owned	320	$14,634	$8,411		37	1994	1970	Poor
PP Trailer	851	Container F219301	725	Owned	280	$12,805	$9,612		37	1995	1970	Fail
PP Trailer	852	Container F219301	725	Owned	320	$14,634	$9,612		37	1995	1970	Fail
PP Trailer	857	Container F219280	725	Owned	280	$12,805	$8,411		41	1993	1966	Fail
PP Trailer	858	Container F219279	725	Owned	280	$12,805	$9,612		39	1993	1968	Fail
PP Trailer	859	Container F2809	725	Owned	320	$14,634	$8,411		37	1998	1970	Poor
PP Trailer	860	Container F24344	725	Owned	280	$12,805	$9,612		29	1989	1978	Fail
PP Trailer	861	Container F2628	725	Owned	320	$14,634	$8,411		37	1987	1970	Poor
PP Trailer	862	Container F24200	725	Owned	280	$12,805	$8,411		35	1989	1972	Fail
PP Trailer	863	Container F209956	725	Owned	280	$12,805	$9,612		37	1990	1970	Fail
PP Trailer	864	Container SNS	725	Owned	320	$14,634	$9,612		37	2000	1970	Fail
PP Trailer	865	Container 865	725	Owned	320	$14,634	$9,612		37	2001	1970	Fail
PP Trailer	866	Container 866	725	Owned	320	$14,634	$9,612		37	2001	1970	Fail
PP Trailer	867	Container 867	725	Owned	320	$14,634	$4,806		37	2001	1970	Poor
PP Trailer	868	Container Physics	725	Owned	160	$7,317	$9,612		5	2002	2002	Fail
PP Trailer	869	Container Hall A 869	725	Owned	320	$14,634	$9,612		4	2003	2003	Fail
PP Trailer	870	Container Hall A 870	725	Owned	320	$14,634	$9,612		5	2002	2002	Fail
PP Trailer	871	Container (F218828)	725	Owned	320	$14,634	$9,612		16	2005	1991	Fail
PP Trailer	872	Container (F221672)	725	Owned	320	$14,634	$9,612		16	2005	1991	Fail
PP Trailer	873	Container (F221671)	725	Owned	320	$14,634			16	2005	1991	
PP Trailer	874	Container (F221669)	725	Owned	320	$14,634			16	2005	1991	
PP Trailer	875	Container (F221670)	725	Owned	320	$14,634			16	2005	1991	
PP Trailer	876	Container (F221673)	725	Owned	320	$14,634			16	2005	1991	
PP Trailer	877	Container (F221674)	725	Owned	320	$14,634			16	2005	1991	
PP Trailer	878	Container 8 x 20	725	Owned	160	$7,317			17	2006	1990	
PP Trailer	879	Container 8 x 40 (PHY)	725	Owned	320	$14,634	$0		0	2007	2007	Excellent
PP Trailer	880	Container 8 x 40 (ACC)	725	Owned	320	$14,634	$0		0	2007	2007	Excellent
PP Trailer	882	Container 8 x 40 (ACC)	725	Owned	320	$14,634	$0		1	2007	2006	Excellent
PP Trailer	883	Container 8 x 40 (PHY)	725	Owned	320	$14,634	$0		0	2007	2007	Excellent
PP Trailer	884	Container 8 x 40 (ACC)	725	Owned	320	$14,634			12	2007	1995	
OSF	014	Cooling Tower	550	Owned		$586,702	$300,000		17	1990	1990	
OSF	044	Cooling Tower	550	Owned		$442,794	$300,000	$35,000	17	1990	1990	
OSF	065	Cooling Tower	550	Owned		$442,794	$300,000	$45,500	17	1990	1990	
OSF	093	Cooling Tower	550	Owned		$442,794	$300,000	$35,001	14	1993	1993	
OSF	094	Hall B (incl. truck ramp & beam dump)	680	Owned	17,706	$14,851,795	$17,520	$13,494	14	1993	1993	
OSF	094E	Equipment in Hall B	680	Owned		$46,021,425	$0		14	1993	1993	
OSF	096	Hall C (incl. truck ramp & beam dump)	680	Owned	28,415	$25,853,470	$21,353	$21,656	14	1993	1993	
OSF	096E	Equipment in Hall C	680	Owned		$8,278,215	$0		14	1993	1993	
OSF	101	Hall A (incl. truck ramp and beam dump)	680	Owned	34,861	$30,381,904	$13,797	$21,521	14	1993	1993	

Attachment 2

List of Facilities

Property Type	Property ID	Property Name	MARS Asset Type	Owned or Leased	Gross SF	Replacement Plant Value (RPV)	Deferred Maintenance (DM)	Rehab Cost (RIC)	Age	Year Acquired	Year Built	Summary Condition
OSF	101E	Equipment in Hall A	680	Owned		$14,074,840	$0		14	1993	1993	
OSF	103	ESR Cooling Tower	550	Owned		$185,973	$0		5	2002	2002	
OSF	999	Beam Tunnel Facility	680	Owned	111,810	$43,608,999	$126,900	$85,212	17	1990	1990	
OSF	999E	Accelerator Equipment	680	Owned		$299,248,150	$0		17	1990	1990	
OSF	BLOCK HOUSE	Radiation Control Block Structure	550	Owned		$74,684	$0		16	1991	1991	
OSF	COMM	Telecommunication	610	Owned		$1,629,632	$0	$210,000	23	1984	1984	
OSF	ELECTRICIAL SYSTEM	Site Wide Elect Distribution System	615	Owned		$3,165,936	$0	$2,162,070	20	1987	1987	
OSF	FENCING	Accel Site Security Fence	480	Owned		$531,831	$0	$630,000	20	1987	1987	
OSF	LCW SYSTEM	Low Conductivity Water System	650	Owned		$2,662,168	$353,288	$630,000	17	1990	1990	
OSF	MONITORING WELLS	Boundary Radiation Monitor Wells	650	Owned		$142,032	$0		18	1989	1989	
OSF	PARKING	Sitewide Parking	470	Owned		$1,850,179	$0	$422,040	21	1986	1986	
OSF	POTABLE WATER SYSTEM	Sitewide Potable Water System	650	Owned		$1,157,706	$0		20	1987	1987	
OSF	ROADS	Sitewide Roads	470	Owned		$3,026,349	$404,476	$439,454	20	1987	1987	
OSF	SEWAGE SYSTEM	Sitewide Sewage System	640	Owned		$510,477	$0		20	1987	1987	
OSF	SIDEWALKS	Sitewide Sidewalks	470	Owned		$283,300	$21,199	$88,034	17	1990	1990	
OSF	SITE PREPARTION	Site Prepartion	460	Owned		$3,205,889	$49,976	$33,395	20	1987	1987	
OSF	STORM DRAINAGE	Sitewide Storm Drainage System	460	Owned		$407,809	$282,413	$2,023,341	20	1987	1987	

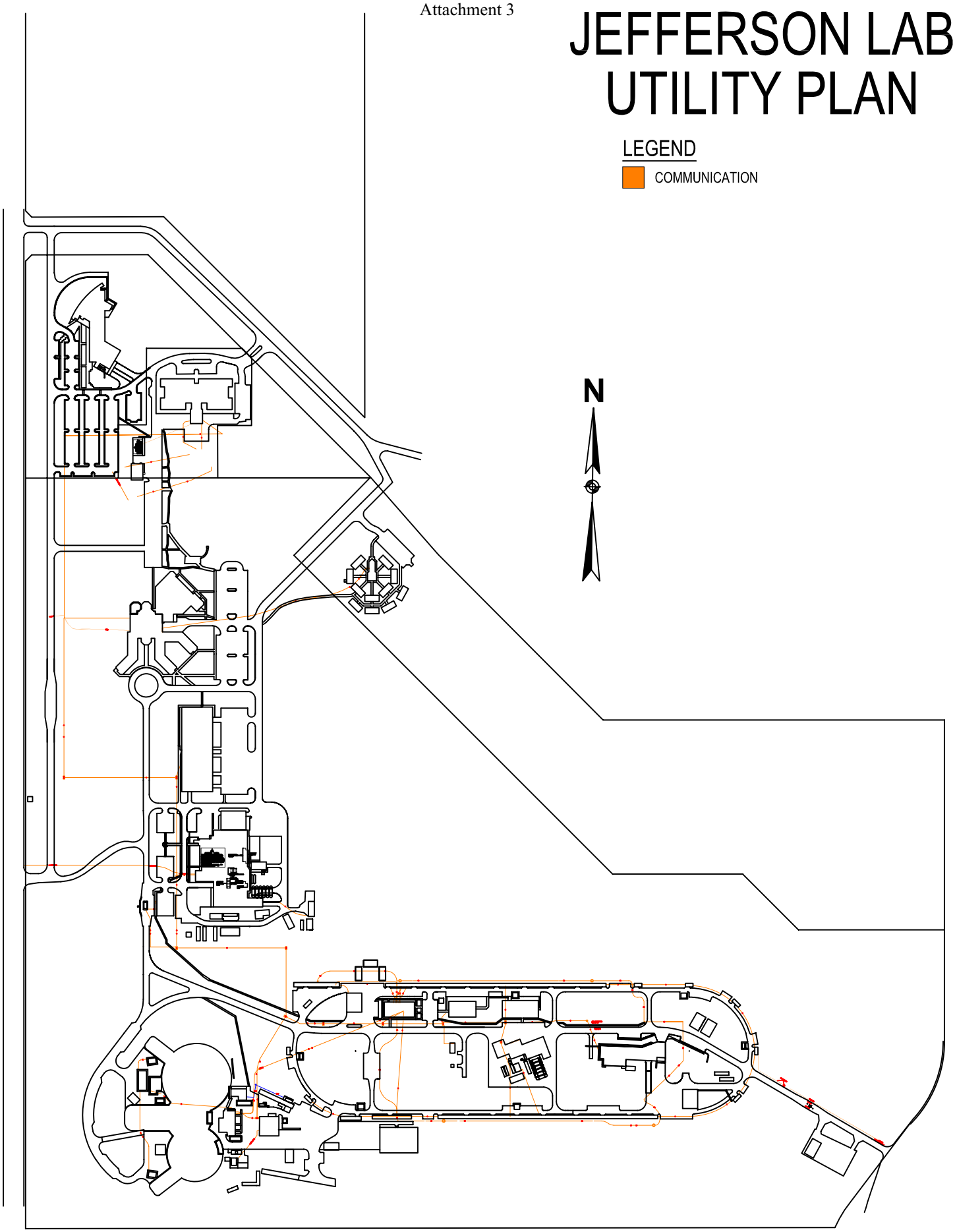
JEFFERSON LAB UTILITY PLAN



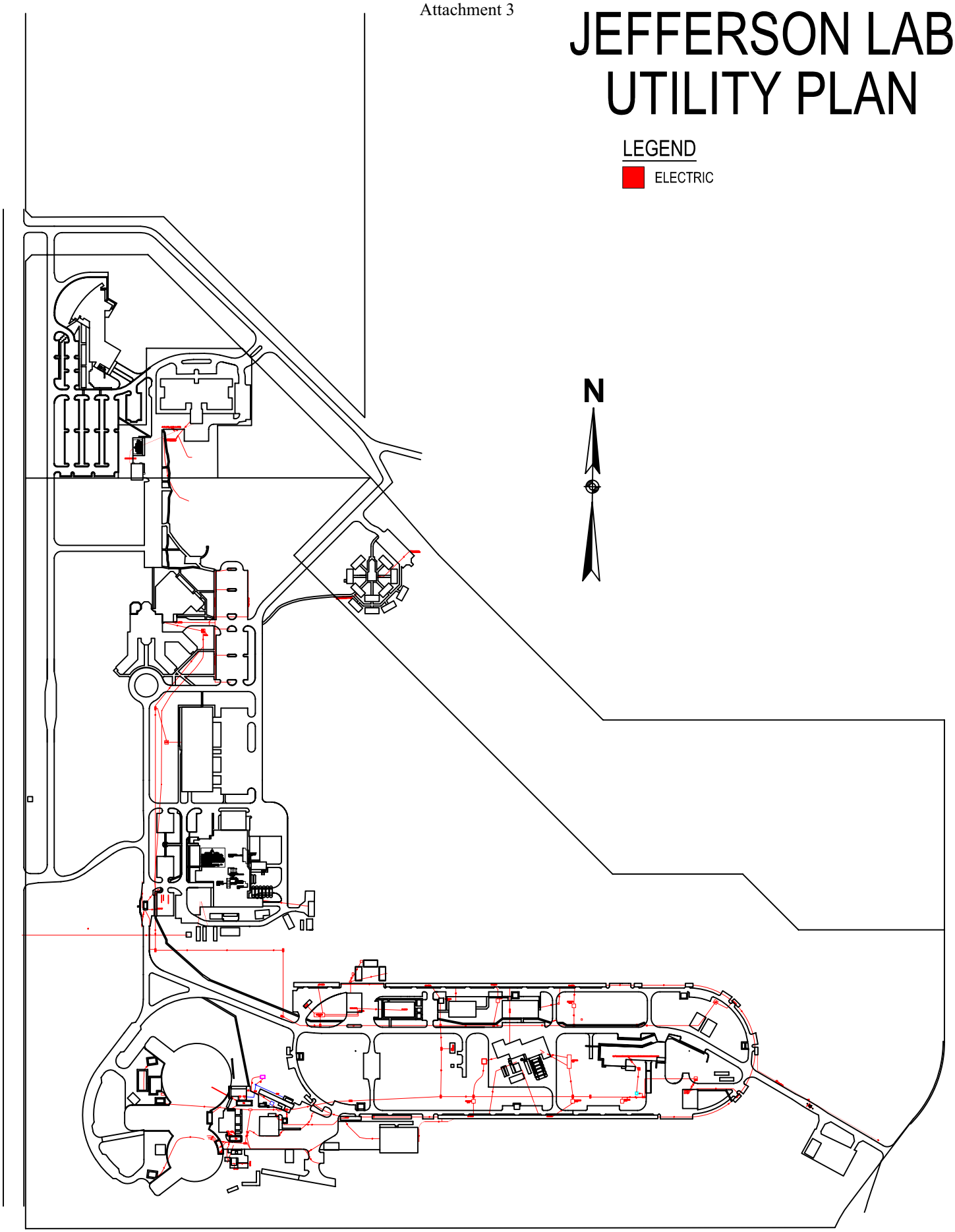
JEFFERSON LAB UTILITY PLAN

LEGEND

COMMUNICATION



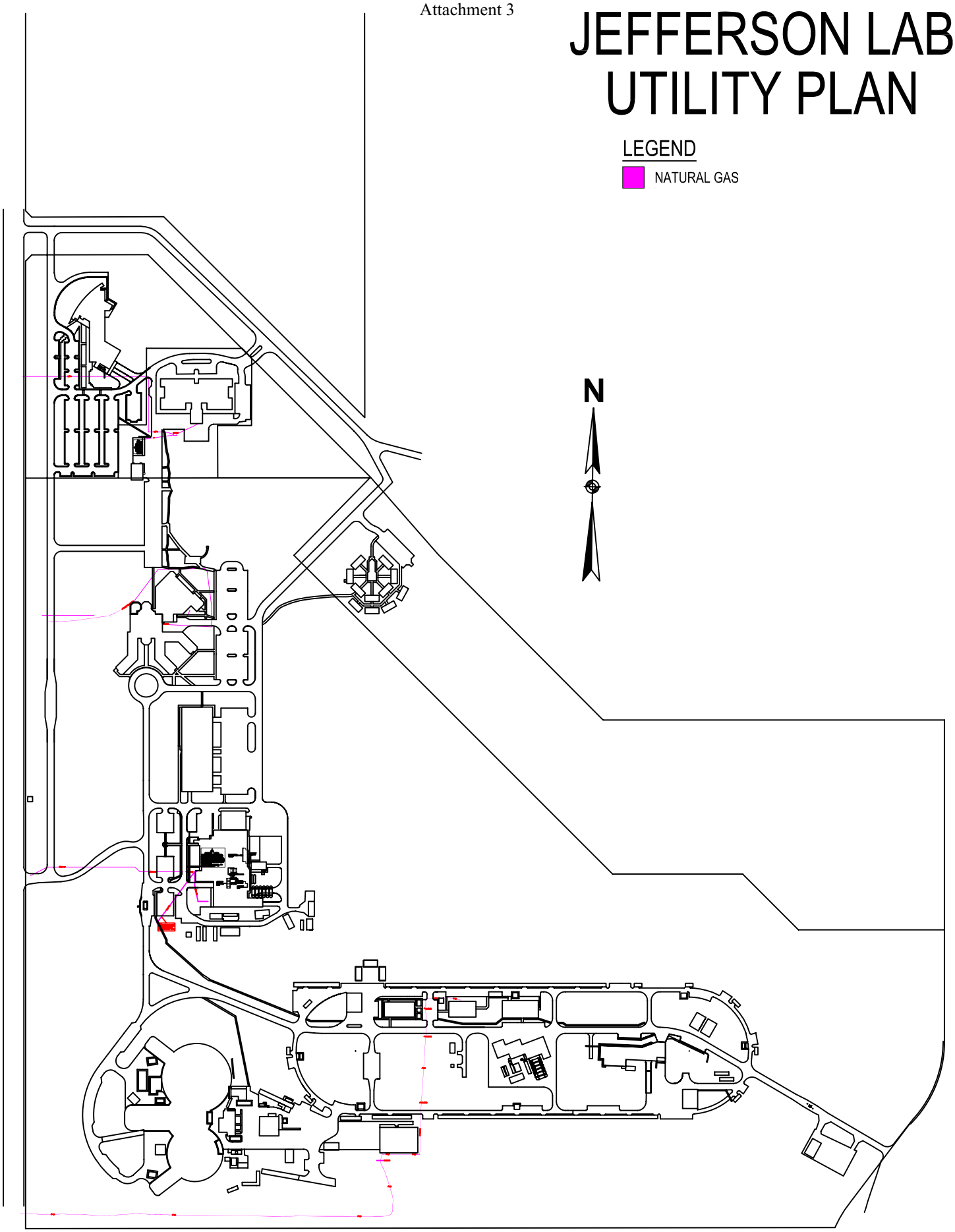
JEFFERSON LAB UTILITY PLAN



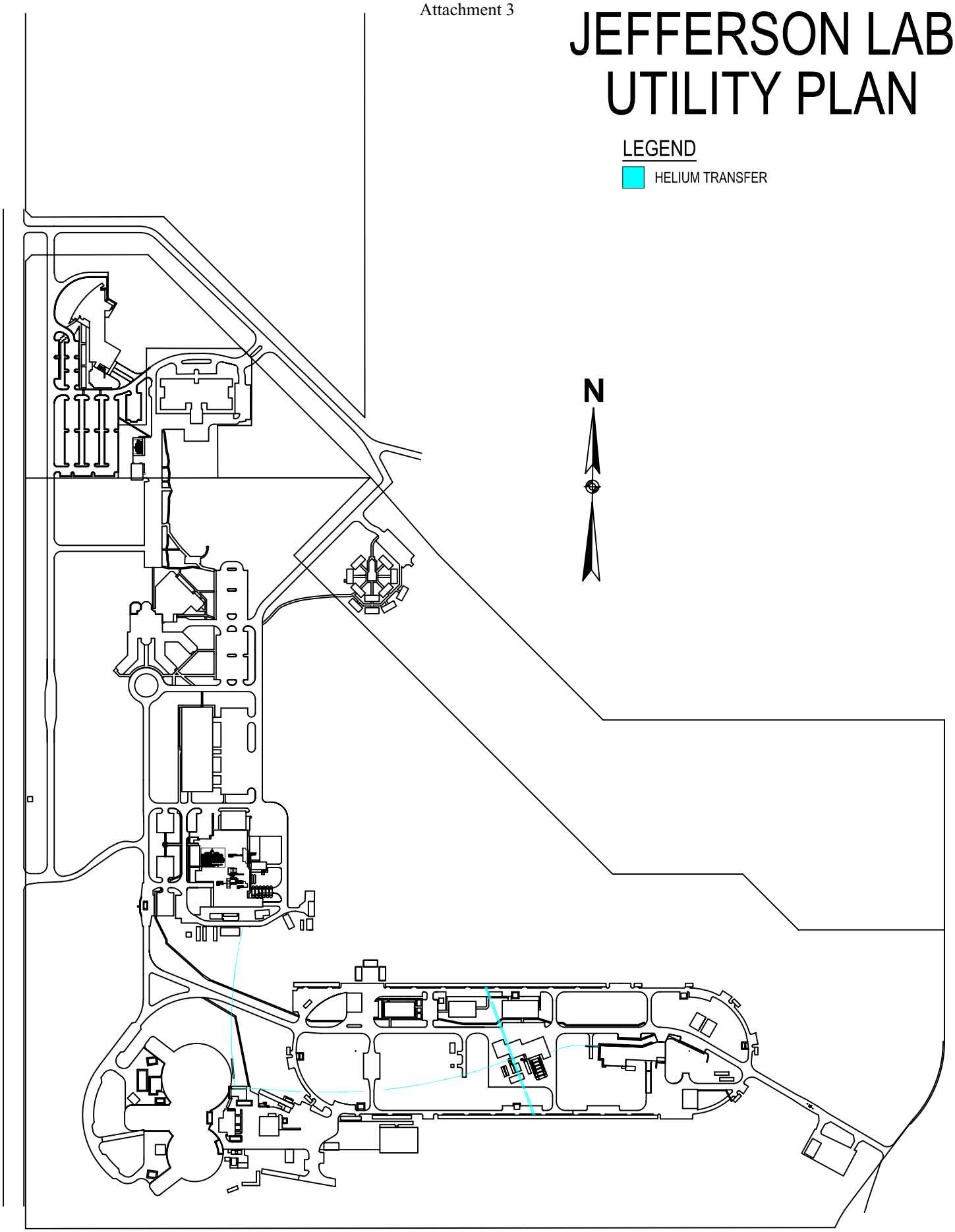
JEFFERSON LAB UTILITY PLAN

LEGEND

NATURAL GAS



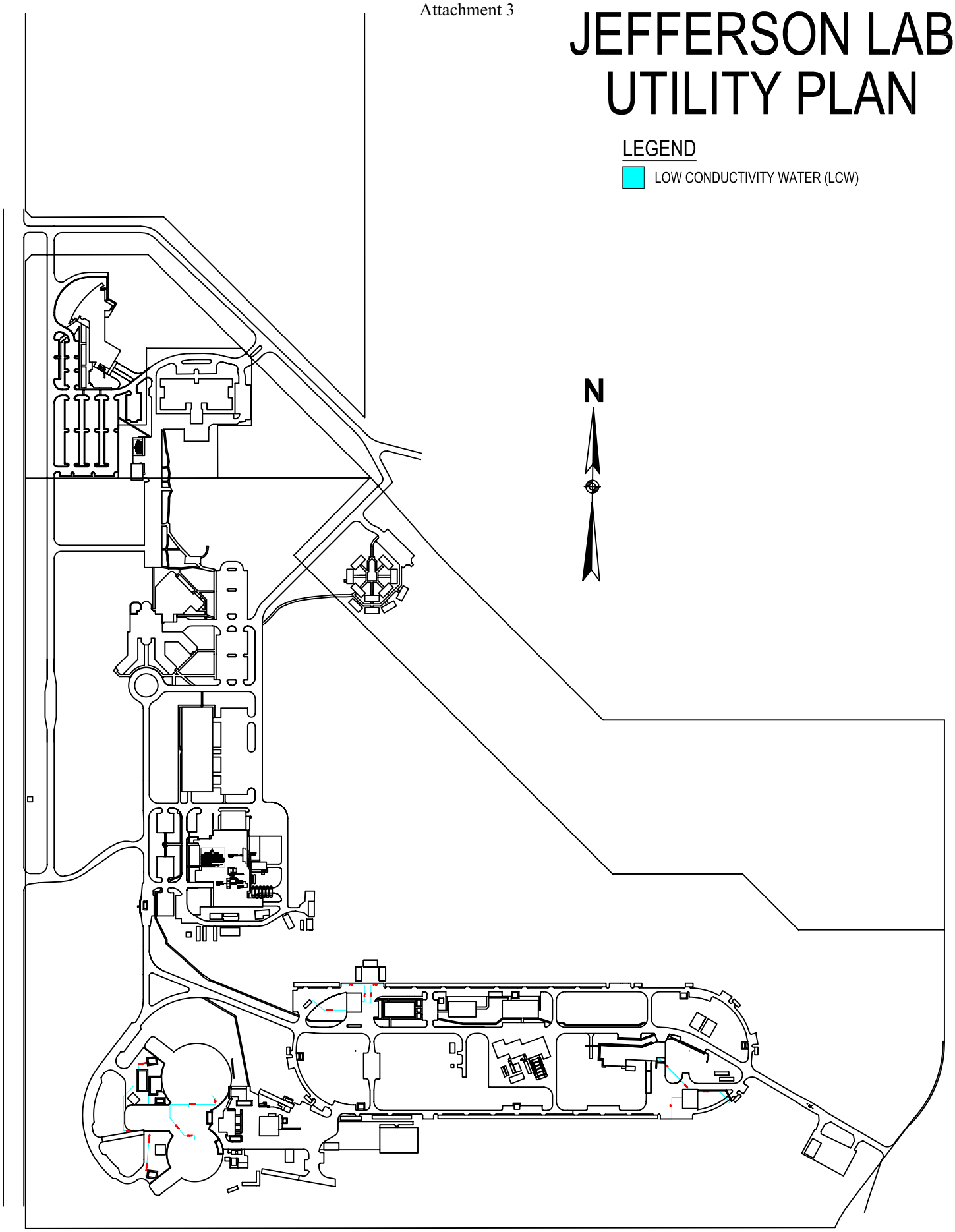
JEFFERSON LAB UTILITY PLAN



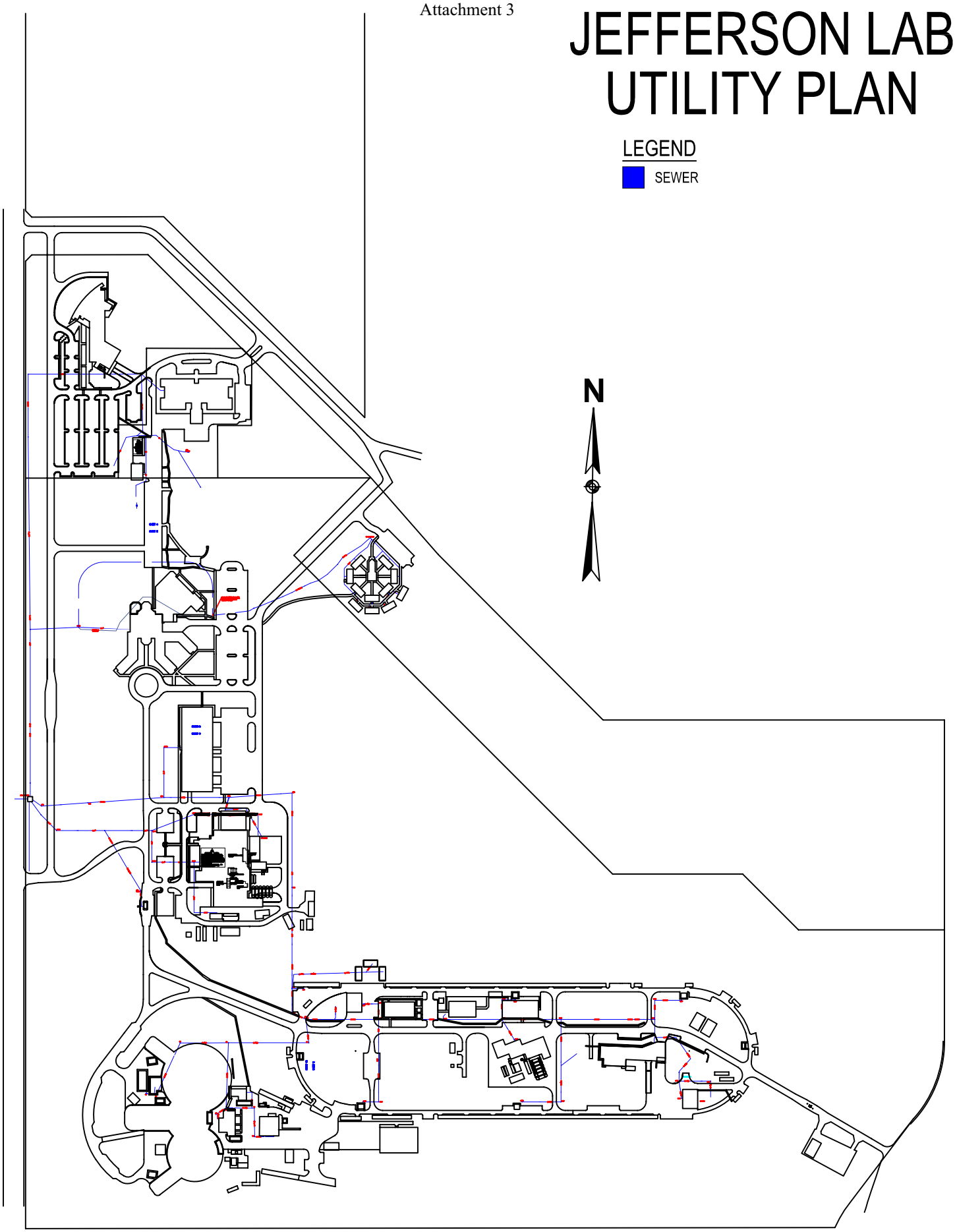
JEFFERSON LAB UTILITY PLAN

LEGEND

LOW CONDUCTIVITY WATER (LCW)



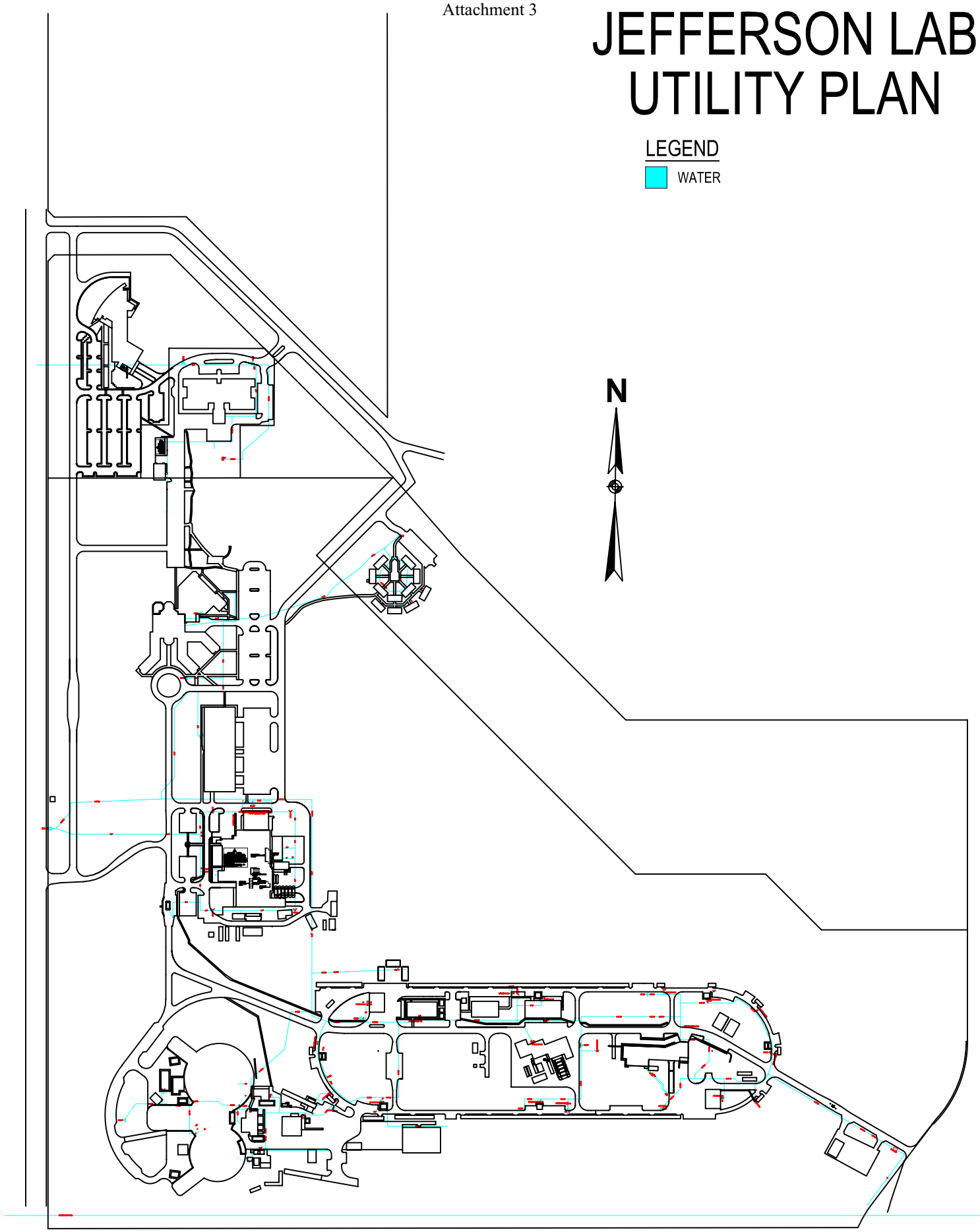
JEFFERSON LAB UTILITY PLAN



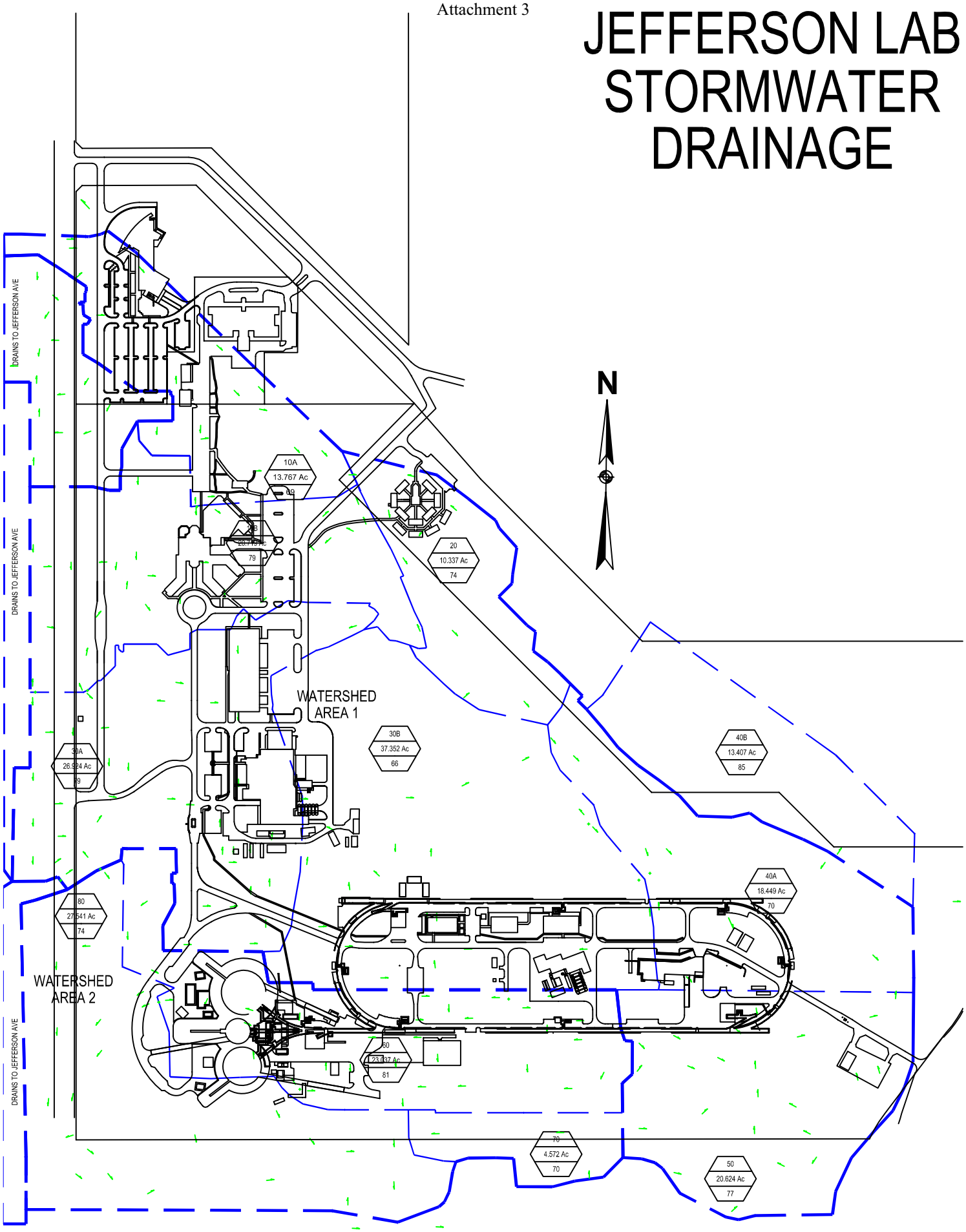
JEFFERSON LAB UTILITY PLAN

LEGEND

WATER



JEFFERSON LAB STORMWATER DRAINAGE



FY 2009-2018 CPR
Integrated Facilities and Infrastructure Budget Crosscut

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Deferred Maintenance Reduction ($000)	Gross Building Area Added	Gross Building Area Removed	FY 07 Approp. ($000)	FY 08 to Congress ($000)	FY 09 ($000)	FY 10 ($000)	FY 11 ($000)	FY 12 ($000)	FY 13 ($000)	FY 14 ($000)	FY 15 ($000)	FY 16 ($000)	FY 17 ($000)	FY 18 ($000)
SITE NAME: Thomas Jefferson National Acceleratoar Facility															
PROGRAM: Nuclear Physics															
1.0 Capital Line Item															
1.1 New Infrastructure Construction (facilities and additions)															
Technolouy And Engineering Development Facility (SLI Funded)	4,325	101,500	22,680			3,700	12,800	16,300	33,200						
CEBAF Center Complex Addition (Wing E)/Upgrade **	155	82,000								9,000	28,000	20,000			
Subtotal 1.1		183,500	22,680	-	-	3,700	12,800	16,300	33,200	9,000	28,000	20,000	-	-	-
1.2 All Other Infrastructure Projects (recap)															
None															
Subtotal 1.2		-	-	-	-	-	-		-	-	-	-	-	-	-
Total Infrastructure Line Items (1.1 + 1.2)		183,500	22,680	-	-	3,700	12,800		33,200	9,000	28,000	20,000	-	-	-
1.3 Programmatic Line Items that Add Space															
12 GeV Conventional Facilities		31,400	-	700	200	8,000	11,300	6,400	1,500						
Subtotal 1.3		31,400	-	700	200	8,000	11,300	6,400	1,500	-	-	-	-	-	-
Subtotal Line Item Projects (1.1 +1.2+1.3)		**214,900**	**22,680**	**-**	**200**	**25,000**	**24,100**	**6,400**	**34,700**	**9,000**	**28,000**	**20,000**	**-**	**-**	**-**
2.0 General Plant Project (GPP) (Include project number; funding program and whether it is programmatic or not))															
2.1 New Construction (facilities and additions)															
General Purpose Building		12,000	-	1,400	200										
RADCON Storage		3,500	-		400										
ICE Target Facility		1,500	-		500										
Computer Center Power & AC		1,000	-			400	1400								
Communications Infrastructure Upgrade		1,000	-			300	250	250			250				
Expand South Site LCW		500	-			800									
4kW End Station Refrigerator		3,600	-					1,650	1,560	1,500	280				
CEBAF Center Wing D	562	13,800	4,986									1,800	1,800	1,085	
Subtotal 2.1 New Construction GPP		36,900	4,986	1,400	1,100	1,500	1,650	1,900	1,560	1,500	530	1,800	1,800	1,085	0
2.2 All Other GPP Projects (recap including alterations and improvements)															
Building Metering (Energy Act of 2005)				110	200	120									
Fire Alarm Upgrade					400										
AC Power Reduction & Load Control					420										
North Connector Parking Lot					320										
Cooling Tower Reclaimed Water Line						300									
Accelerator Site LCW Control Upgrade							275								
Acc Site Primary/Secondary Feeder Replace	1,050								340	375	485				
Accelerator Alternate Power Feed Upgrade											900				
Counting House Rehab	630													715	385
EEL Rehab (Start)	786														1415
Miscellaneous Projects					60	80	75	100	100	125	85	200	200	200	200
Subtotal 2.2 All Other (recap) GPP				110	1,400	500	350	100	440	500	1,470	200	200	915	2,000
Subtotal GPP (2.1 + 2.2)		**36,900**	**4,986**	**1,510**	**2,500**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**
3.0 Institutional General Plant Project (IGPP)															

FY 2009-2018 CPR
Integrated Facilities and Infrastructure Budget Crosscut

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Deferred Maintenance Reduction ($000)	Gross Building Area Added	Gross Building Area Removed	FY 07 Approp. ($000)	FY 08 to Congress ($000)	FY 09 ($000)	FY 10 ($000)	FY 11 ($000)	FY 12 ($000)	FY 13 ($000)	FY 14 ($000)	FY 15 ($000)	FY 16 ($000)	FY 17 ($000)	FY 18 ($000)
None															
Subtotal IGPP Projects															
4.0 Operating/Expense for Excess Elimination and Other															
4.1 Excess Elimination (demolition, sale, lease, transfer) Show area eliminated in Gross Area column															
None															
4.1 Subtotal															
4.2 All Other															
None															
4.2 Subtotal															
Subtotal 4.0 Operating/Expense Projects (4.1 + 4.2)															
TOTAL Capital & Operating Investment:		251,800	27,666	1,510	2,700	27,000	26,100	8,400	36,700	11,000	30,000	22,000	2,000	2,000	2,000
TOTAL Overhead Investments (IGPP)		0	0	0	0	0	0	0	0	0	0	0	0	0	0

FY 2009-2018 CPR
Integrated Facilities and Infrastructure Budget Crosscut

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Gross Sq Ft.	FY 07 Approp. ($000)	FY 08 to Congress ($000)	FY 09 ($000)	FY 10 ($000)	FY 11 ($000)	FY 12 ($000)	FY 13 ($000)	FY 14 ($000)	FY 15 ($000)	FY 16 ($000)	FY 17 ($000)	FY 18 ($000)
SITE NAME: Thomas Jefferson National Accelerator Facility													
PROGRAM: Nuclear Physics													
5.0 Maintenance & Repair													
5.1 Direct Funded (by HQ or Site Program)*													
Safeguards & Security		51	52	53	55	56	57	58	60	61	63	64	65
Subtotal 5.1 Total Direct Maintenance & Repair		51	52	53	55	56	57	58	60	61	63	64	65
5.2 Indirect (from Overhead or Space Charges)		2,622	2,674	2,727	3,568	3,725	3,847	4,116	4,415	5,623	5,783	5,921	6,057
Include indirect O/E maintenance projects > $500,000													
Subtotal 5.2 Total Indirect Maintenance & Repair		2,622	2,674	2,727	3,568	3,725	3,847	4,116	4,415	5,623	5,783	5,921	6,057
Subtotal Total Maintenance & Repair (5.1 + 5.2)		2,673	2,726	2,780	3,623	3,781	3,904	4,174	4,475	5,684	5,846	5,985	6,122
5.3 Hqs Direct Funded Deferred Maintenance Reduction		-	-	-	-	-	-	-	-	-	-	-	-
Subtotal 5.3 Total Direct Deferred Maintenance													
5.4 Indirect Funded Deferred Maintenance Reduction (from Overhead or Space Charges)		396	906	1,321									
Subtotal 5.4 Total Indirect Deferred Maintenance		396	906	1,321	-	-	-	-	-	-	-	-	-
Total Deferred Maintenance (5.3 + 5.4)		396	906	1,321	-	-	-	-	-	-	-	-	-
Total Maintenance (5.1 + 5.2 +5.3 +5.4)		3,069	3,632	4,101	3,623	3,781	3,904	4,174	4,475	5,684	5,846	5,985	6,122
6.0 Indirect O&E													
6.1 Excess Elimination (demolition, sale, lease, transfer) funded from indirect funds. Show area eliminated in Gross Area column													
6.1 Total Indirect Excess Elimination													
6.2 Other Indirect Funded (includes modifications, additions, improvements, etc. that does not qualify as GPP or maintenance)													
BPA Financed Energy Projects (Loan Repayment)		572	572	572	572	572	572	379	379	379	379	379	0
6.2 Total Other Indirect O&E		572	572	572	572	572	572	379	379	379	379	379	0
6.0 Total Indirect O&E		572	572	572	572	572	572	379	379	379	379	379	0

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	**Project Number**	**Gross SF Removed**	**FY 06 Sq Ft**	**FY 07 Sq Ft**	**FY 08 Sq Ft**	**FY 09 Sq Ft**	**FY 10 Sq Ft**	**FY 11 Sq Ft**	**FY 12 Sq Ft**	**FY 13 Sq Ft**	**FY 14 Sq Ft**	**FY 15 Sq Ft**	**FY 16 Sq Ft**	**FY 17 Sq Ft**	**FY 18 Sq Ft**
SITE NAME: Thomas Jefferson National Acceleratoar Facility															
PROGRAM: Nuclear Physics															
7.0 Summary of Area Added & Eliminated by Year															
7.1 Total Area to be Eliminated Each Year															
Line Item from Block 1															
Technology and Engineering Development Facility	09-SC-7004	22,680	-	-	-	-	-	-	-	22,680					
Subtotal Line Items		22,680	-	-	-	-	-	-	-	22,680	-	-	-	-	-
GPP from Block 2															
CEBAF Center Wing D		4,986	-	-	-	-	-	-	-	-	4,986				
Subtotal GPP		4,986	-	-	-	-	-	-	-	-	4,986	-	-	-	-
IGPP from Block 3															
Not Appliable															
Subtotal IGPP		0													
Operations/Expense from Block 4.1															
None															
Subtotal Block 4.1															
Indirect Operations/ Expense from Block 6.1															
None															
Subtotal Block 6.1															
Transfer by sale or lease, or transfer to an outside federal agency															
None															
Subtotal Transfer or Lease															
Subtotal 7.1 Sapce Removed		27,666	-	-	-	-	-	-	-	22,680	4,986	-	-	-	-
7.2 Total Area to be Added by GPP, IGPP, and LI Construction		Gross SF Added	FY 06 Sq Ft	FY 07 Sq Ft	FY 08 Sq Ft	FY 09 Sq Ft	FY 10 Sq Ft	FY 11 Sq Ft	FY 12 Sq Ft	FY 13 Sq Ft	FY 14 Sq Ft	FY 15 Sq Ft	FY 16 Sq Ft	FY 17 Sq Ft	FY 18 Sq Ft
Line Item															
Technology and Enineering Development Facility		101,500							101,500						
CEBAF Center Complex Addition (Wing E)/Upgrade **												82,000			
12 GeV Conventional Facilities		31,400					12,380	12,230	6,790						
Subtotal Line Items		132,900	-	-	-	-	12,380	12,230	108,290	-	-	82,000	-	-	-
GPP															
General Purpose Building		12,000			12,000										
RADCON Storage		3,000			3,000										
ICE Target Facility		1,500			1,500										
Communications Infrastructure Upgrade		1,000				333	333	334							
Expand South Site LCW		500				500									
4kW Endstation Refigerator		3,600							3,600						
CEBAF Center Wing D		13,800												13,800	
Subtotal GPP		35,400	-	-	16,500	833	333	334	3,600	-	-	-	-	13,800	-
IGPP															
None															
Subtotal IGPP		-													
Subtotal 7.2 Area Added		168,300	-	-	16,500	833	12,713	12,564	111,890	-	-	82,000	-	13,800	-

Attachment 5 Prioritized list of Line Items Projects

Project Title	Raw CAMP Score	Gross Building Area	Low End	High End	Mid Point	PED	OPC	Year 1	Year 2	Year 3	Project Description
Technology and Engineering Development	67	101,150	$60,000	$71,400	$66,000	$3,700	$700	$35,000	$27,300		Modernizes current infrastructure that is inadequate to support JLab's current mission by renovating the Test Lab (88.9K SF) and providing ~100KSF of additional critical general space for technology and engineering for which a current space shortage exists. It will provide much needed capability and functionality for shop space, high bays, clean rooms, test stands, lay down and assembly space, and offices. The project removes about ~10 KSF of inadequate and obsolete work space in and next to a 42 year old facility plus ~12K SF of dilapidated trailers. The project will significantly improve the efficiency of workflow and provide a safer and sustainable work environment for multi-programs.
CEBAF Center Complex Addition/Upgrade	64.5	82,000	$40,000	$63,000	$57,000	$1,500	$500	$7,500	$28,000	20,000	Modernizes CEBAF Center, the hub of the Lab, with construction of 82K SF in one additional wing and rehabilitate ~68K SF of current space. The project eliminates overcrowding; allows relocation of staff and Users currently in leased space; and provides for planned staff growth. The facility will enhance the growing User community by collocating Users of each Hall with the Physics scientists and staff for that Hall. It will allow for the relocation of the library from leased space to the User area for more convenient usage, provides for communications infrastructure that ensures reliability, supports increased operational demands for data, provides additional conference and cafeteria space, and addressing current parking shortages to facilitate larger conferences at the Lab.

Attachment 6 List of Facilities to be Formally Declared Excess

Facilities planned for disposition are typically the result of construction of replacement facilities and are included in Attachment 4. Disposition is funded under both SLI and indirect projects. Projects for elimination are as follows:

Table V-5. Disposition

Project	Facilities to be eliminated	SF	Funding	Proposed FY
Oil Storage Bldg	058B	241	Indirect	FY07
Technology and Engineering Development Facility	10, 34A, 34B, 34C, 34F, 34G, 53A, 53B, 53C, 59, 94A, 94B, and 101B.	11,900	Indirect	FY14
CEBAF Center Wing D	Trailers 52A, 52B, 52C, 35	5,000	Indirect	FY17

Attachment 7 List of Excess Facility Projects

Below is a prioritized list of real property that the site would like cleaned for reuse or disposal over the planning period.

Property ID: RADCON Block Structure
Property Description: Legacy NASA shielding blocks transferred to DOE as part of Test Lab. Shielding blocks are activated but the level is currently unknown. The blocks were radiologically assayed by a NASA contractor to conduct a facility shutdown survey before the facility was turned over to the DOE. That contractor made a determination that the blocks were free from removable radiological contamination at that time. Blocks were used to construct a structure to contain activated materials awaiting disposal. Routine soil samples, taken over many years in the vicinity of these block, show no radioactive material associated with these blocks in excess of detection limits.
Operating or Not-Operating: Currently operating. Disposal plan calls for removal and disposal of stored material in FY08.
Contaminated or Not Contaminated Indicator: Some blocks (around 20% or so) were still activated or contained activated components. These blocks should not be considered "contaminated" from a radiological point of view. The blocks that have a measurable surface dose rate should be considered "volume activated" and, all blocks, measurable dose rate or not, require a DOE approved method for releasing them for unrestricted reuse.
Y**ear Declared Excess**: 2008
Gross Volume (Cubic Feet): 44,840 CF
Clean-up for reuse or disposal: On site reuse and disposal off site.
Disposal Method: Disassemble and use some blocks as underground shields for the fourth experimental hall and stabilizing on-site lay down areas. There are ongoing discussions with Virginia Department of Marine Resources concerning use of non activated concrete in the construction of off shore structures. Use of the material in this manner is dependent upon DOE approval of burial offsite in an approved landfill will be used only as a last resort due to the high cost.
Estimated Clean-up and Disposal Cost: Cost Range depending on activation level and final disposal $500,000 - $3,000,000
Estimated Date that Disposal is Complete: FY15
Funding Source: Lab overhead or supplemental funding.

Refer to Section D.11

Attachment 8

Proposed Project List

	Deferred Maintenance Reduction ($000)	Gross Building Area Added	Gross Building Area Removed	FY 07 Approp. ($000)	FY 08 to Congress ($000)	FY 09 ($000)	FY 10 ($000)	FY 11 ($000)	FY 12 ($000)	FY 13 ($000)	FY 14 ($000)	FY 15 ($000)	FY 16 ($000)	FY 17 ($000)	FY 18 ($000)
SITE NAME: Thomas Jefferson National Accelerator Facility															
PROGRAM: Nuclear Physics															
1.0 Capital Line Item															
1.1 New Infrastructure Construction (facilities and additions)															
Technology And Engineering Development Facility (SLI Funded)	4,325	101,500	22,680			3,700	12,800	16,300	33,200						
CEBAF Center Complex Addition/Upgrade **		82,000								9,000	28,000	20,000			
FEL LCW & Power **(Non DOE Funds)**		500				800									
FEL Addition **(Non DOE Funds)**		23,000			300		3,000	3,000							
FEL Vivarium **(Non DOE Funds)**		2,000													
Subtotal 1.1		209,000	22,680	-	300	4,500	15,800	19,300	33,200	9,000	28,000	20,000	-	-	-
1.2 All Other Infrastructure Projects (recap)															
None															
Subtotal 1.2		-	-	-	-	-	-		-	-	-	-	-	-	-
Total Infrastructure Line Items (1.1 + 1.2)		209,000	22,680	-	300	4,500	15,800		33,200	9,000	28,000	20,000	-	-	-
1.3 Programmatic Line Items that Add Space															
12 GeV Conventional Facilities		31,400	-	700	200	8,000	11,300	6,400	1,500						
Subtotal 1.3		31,400	-	700	200	8,000	11,300	6,400	1,500	-	-	-	-	-	-
Subtotal Line Item Projects (1.1 +1.2+1.3)		**240,400**	**22,680**	**-**	**500**	**25,000**	**27,100**	**6,400**	**34,700**	**9,000**	**28,000**	**20,000**	**-**	**-**	**-**
2.0 General Plant Project (GPP) (Include project number; funding program and whether it is programmatic or not))															
2.1 New Construction (facilities and additions)															
General Purpose Building		12,000	-	1,400	200										
RADCON Storage		3,500	-		400										
Computer Center Power & AC		1,000	-			400	1,400								
ICE Target Facility		1,500	-		500										
Communications Infrastructure Upgrade		1,000	-			300	250	250			250				
Expand South Site LCW		500	-			800									
4kW End Station Refrigerator		3,600	-				1,200	2,000	1,600						
CEBAF Center Wing D	562	13,800	4,986					1,200	1,800	1,685					
Shipping & Receiving		21,000								1,500	1,600				
Expand CTF		2,400										2,000	1,000	500	
Main Entrance Gate		200													600
Subtotal 2.1 New Construction GPP		60,500	4,986	1,400	1,100	1,500	2,850	3,450	3,400	3,185	1,850	2,000	1,000	500	600
2.2 All Other GPP Projects (recap including alterations and improvements)															
Building Metering (Energy Act of 2005)				110	200	120									
Fire Alarm Upgrade					400										

Attachment 8

Proposed Project List

	Deferred Maintenance Reduction ($000)	Gross Building Area Added	Gross Building Area Removed	FY 07 Approp. ($000)	FY 08 to Congress ($000)	FY 09 ($000)	FY 10 ($000)	FY 11 ($000)	FY 12 ($000)	FY 13 ($000)	FY 14 ($000)	FY 15 ($000)	FY 16 ($000)	FY 17 ($000)	FY 18 ($000)
AC Power Reduction & Load Control					420										
North Connector Parking Lot					320										
Cooling Tower Reclaimed Water Line						300									
Accelerator Site LCW Control Upgrade							275								
Bulk Material Handling Area							165								
West Site Waterline (Complete Fire Protection Loop)									185						
Acc Site Primary/Secondary Feeder Replace	1,050								340	375	485				
Accelerator Alternate Power Feed Upgrade										900					
North Connector Road Extension											245				
South Connector Road											200				
Hall A Power & Cooling Improvement											600				
West Site Retention Pond											900				
Rebuild Rutherford Road												300			
Counting House Rehab	630											500	600		
EEL Rehab	786												400	1800	900
10 MW Generator Switchgear													800	700	
Controlled Area Boundary Fence															1,000
Miscellaneous Projects					60	80	75	100	100	100	100	100	100	100	100
Subtotal 2.2 All Other (recap) GPP				110	1,400	500	515	100	625	1,375	2,530	900	1,900	2,600	2,000
Subtotal GPP (2.1 + 2.2)		**60,500**	**4,986**	**1,510**	**2,500**	**2,000**	**3,365**	**3,550**	**4,025**	**4,560**	**4,380**	**2,900**	**2,900**	**3,100**	**2,600**
TOTAL Capital & Operating Investment:		**300,900**	**27,666**	**1,510**	**3,000**	**27,000**	**30,465**	**9,950**	**38,725**	**13,560**	**32,380**	**22,900**	**2,900**	**3,100**	**2,600**

**** Mortgage project under Science Laboratory Infrastructure Initiative**