

Facilities and Support Functions at the NCI FFRDC

Facilities Overview

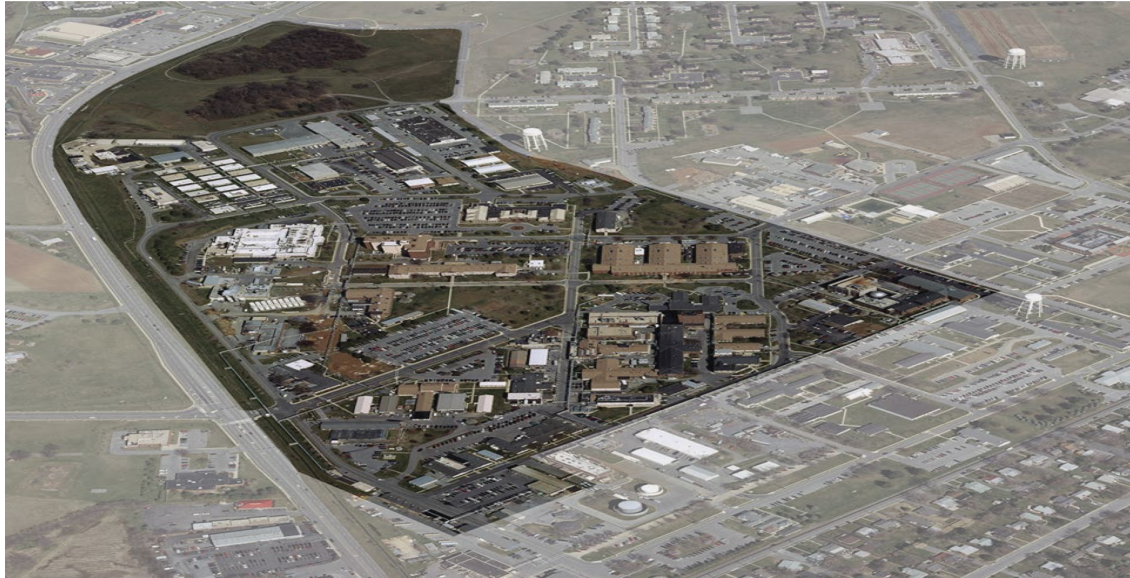
NCI Frederick and FNLCR-Leased Facilities



Vicinity Map

NCI Frederick Facilities

- Located within the perimeter fence of Fort Detrick
- Property of the NCI/NIH
- Maintained and operated by the FFRDC Contractor



Aerial campus view

Scope of work

- Facilities Operations and Management
- Utilities Operations

- Design Architect of Record (Design and construction services)



Aerial campus view

FFRDC Managed: NCI Frederick Facilities

- Transferred from DoD 1970's
- 1.3 million GSF
- 64% are > 50 years old
- 97 buildings
- 20% have been refurbished since 2013
- 68 acres
- 16% are trailers/leased
- 77% are single story



Campus View

NCI Frederick Facilities: Space Distribution

- 1.3 Million GSF, approximate as follows:
 - 850,000 SF Laboratory
 - 210,000 SF Administrative
 - 120,000 SF Vivarium
 - 110,000 SF Infrastructure
 - 25,000 SF Repository



Aerial view

Laboratory Types

- Biology
- Chemistry
- Bio engineering



New Refurbished laboratory

Infrastructure

- Buildings (maintenance and renovation)
- Boiler/Chiller Plants
- Energy management
- Industrial shops
- Information Technology
- Maintenance
- Roads/parking area maintenance (including snow removal)
- Storage
- Warehousing



Facilities support shop space. Infrastructure and industrial equipment exists to meet scientific and laboratory needs



Building attic mechanical piping and exhaust infrastructure



Building attic mechanical HVAC air handler infrastructure

Utilities Provided by the US Army Garrison

- Utilities
 - Electric infrastructure and electricity
 - Water infrastructure and water
 - Sewer infrastructure and wastewater

Depend upon the US Army Garrison for repair of utilities



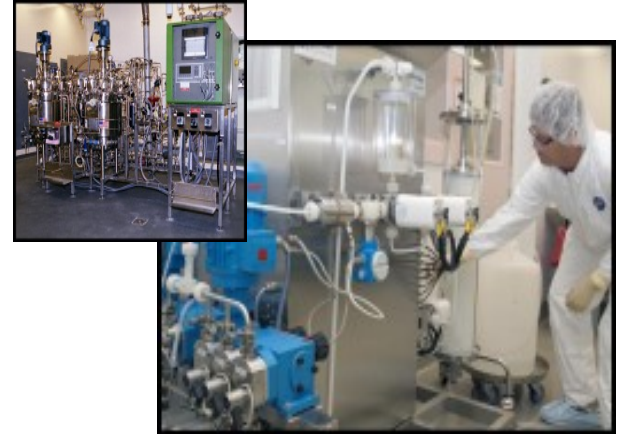
Above ground utilities

Major Technologies

- Biopharmaceuticals
- Cell Processing (e.g., ISO 7, ISO 8, ISO 9)
- cGMP
- Imaging Core
- Cryo EM facility with new Talos Arctica microscope installed



Cryo EM facility with new Talos Arctica microscope installed



Biopharmaceutical processing



SPECT/CT Imager that is part of the Small Animal Imaging Facility

Vivarium

Mostly rodents

- Dirty mice
- Conventional
- Clean Barrier (SPF)
- Gnotobiotic



Animal facility cage and preparation room



Rodent caging and racks



Animal rack and cagewash cleaning and sterilization equipment

Repository

- Conventional/Mechanical/LN2
- Robotics



Liquid Nitrogen tanks and repository infrastructure



Robotic sample retrieval and storage system

Security

- Fort Detrick perimeter managed by the Army
- NCI campus is managed by FNL in conjunction with NIH and the Army, includes
 - 24/7 Dispatch Desk to monitor campus alarms
 - Key/PIV card access management
 - Management of visitors
 - 24/7 security patrols

Amenities

- Auditorium
- Cafeteria
- Conference Center
- Gym
- Scientific Library
- Occupational Health Facility



Dinning hall / cafeteria

FFRDC/FNLCR Leased Facilities

On-campus Leased Facilities

- 3 Modular buildings; 12,000 SF
 - 6,800 SF Laboratory
 - 5,200 SF Administrative

Off-campus Leased Facilities

- 6 Buildings; 615,700 GSF
 - 422,700 SF Laboratory/cGMP
 - 137,000 SF Administrative
 - 89,600 SF Biospecimen repository



Advanced Technology Research Facility



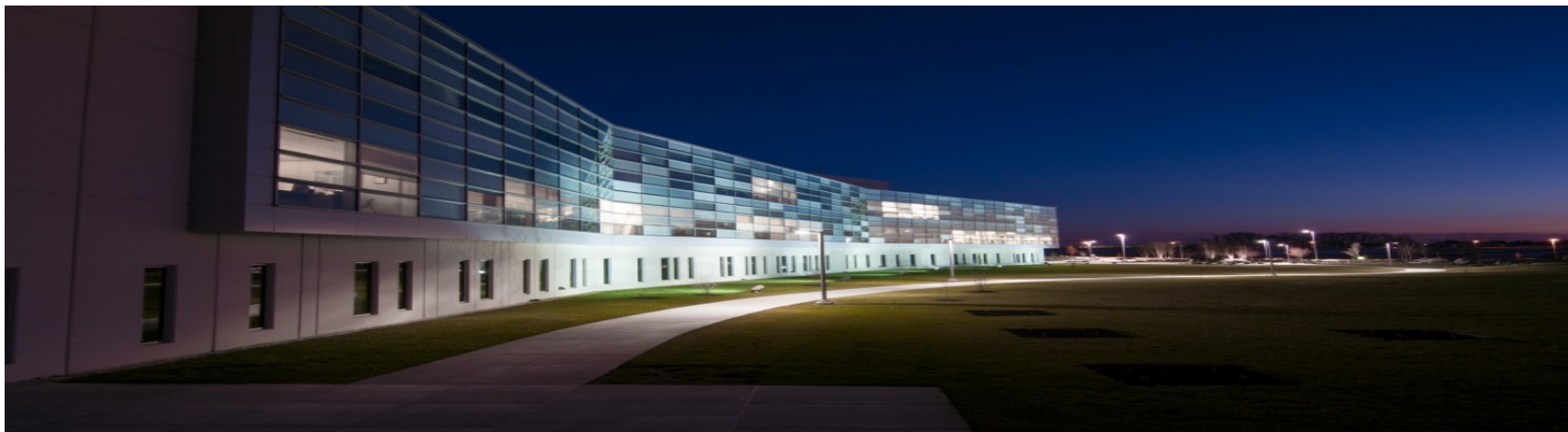
Vaccine Clinical production building



Wedgewood repository

Advanced Technology Research Facility (ATRF)

- 103,000 SF Laboratory
- 80,000 SF cGMP/Lab
- 60,000 SF Administrative
- 90,000 SF Infrastructure





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Information Technology & Cybersecurity

Network, Compute, Storage, Software, Development, FISMA and Collaborations

IT and Cybersecurity exist in multiple layers at NIH

- The FFRDC exists inside the NCI network & the NCI cybersecurity boundary
- The NCI network connects to the the NIH network
- We will cover:
 - Network
 - Compute
 - Storage
 - Software
 - Development
 - FISMA
 - IT Collaborations

Network

Service	Notes
Internet Connection	NIH - CIT is the provider
NIH Network Design	NIH - CIT is responsible
NIH Network Implementation	NIH - CIT is responsible
NCI Network Design	NCI Collaboration
FFRDC Network Implementation	FFRDC
Equipment Network Connection	FFRDC

1Gb is standard for all wired connections.

10Gb is provided upon request.

FFRDC maintains all equipment network to the wall plate.

Compute

Service	Notes
Laptops & Desktops	Centrally provided, locally configured
Scientific Desktops	Custom orders and configs
GPU Workstations	Custom orders and configs
HPC - NCI	Design, assemble, maintain, operate
HPC - NIH (Biowulf)	NIH - CIT provided HPC
Cloud Compute	Is performed in existing secure cloud environments, will need architecture, development and operations capability

Cloud is an enabling technology that requires design and implementation collaboration between FFRDC and NCI - CBIIT

Storage

Service	Notes
Object Store – Long Term Storage	Cleversafe & Cloudian
Block Storage – General Storage	Isilon
High Speed Storage	NetApp
Direct Scientific Equipment Storage	Multiple types – often provided by instrument vendors
HPC - NIH (Biowulf) Storage	Temp storage
Cloud Storage	AWS & GCP
Data Management Planning	Collaboration with scientific leads and IT providers

Software

Service	Notes
M365	Centrally provided
Oracle, SAS	Centrally provided
Scientific Software packages	Procure, secure & maintain
Software Products to run the contract	Procure, secure & maintain
LIMS and Lab Automation	Procure, secure & maintain

There are many software packages available and the FFRDC must have the capability to determine the best package for any specific scientific effort, for both performance and value. These packages must be installed and maintained according to Federal security standards.

Development

Service	Notes
Software	Using various languages – C, Python, R, Go, Rust.
Hardware	Occasional special HW needs
Development Tools (Repos, SDLC)	GitHub is provided centrally

The development of both software and hardware solutions to meet the mission of the FFRDC is a critical capability the FFRDC must deliver.

Any standard development tools that are routinely available at NCI should be utilized when possible. The FFRDC needs the capability to set up and run unique development tools for their scientific efforts.

Cybersecurity

- All Work performed for Federal Government must be performed on Authorized Federal IT systems.
- The NCI has a Chief Information Officer, CIO
- The NCI has a Chief Information Security Officer, CISO
- FFRDC IT System owners must work closely with both the NCI CIO and NCI CISO in the authorization and continual security maintenance of all FFRDC IT Systems.

FISMA

Capability	Authorizer
FISMA Low Systems	FFRDC
FISMA Moderate Systems	NCI CIO or FFRDC & NCI CIO

- All IT Systems must be Authorized to Operate before they go into Production. All systems must be kept up to date and secure at all times.
- The NCI CIO & CISO provide templates and support for managing the authorization process. The FFRDC is responsible to produce and develop FISMA authorized systems.
- IT System Security is an inheritable model. This allows the IT system owner to use all underlying security and only secure and maintain the parts that are unique to their specific IT system.

Cloud Cybersecurity

- All FISMA Moderate work must be performed on FedRAMP authorized cloud services, and requires an NCI ATO.
- The NCI CISO has a model for assessing risk and authorizing non-FedRAMP authorized Cloud services – this is for FISMA Low only

IT Collaborations

- IT at the NCI and NIH is an IT Services model.
- To ensure that this model is meeting the needs of the FFRDC, the FFRDC supplies subject matter expertise for all IT services it provides.
- These FFRDC SMEs collaborate with NCI, CIT and NIH OD service providers on FFRDC incidents and service requests, NCI capability planning, and NIH service requirements.

Consolidated view of required IT responsibilities

IT Integration & Cybersecurity Required for FFRDC

Type of IT	Capabilities
Bioinformatics IT	Statistical and mathematical approaches Informatics services (data extraction, mining, integration, application and pipeline development) Scientific software integration and/or programming Education and training Database design and maintenance Development and testing hosting services Technology development
Engineering	Consultation and solution development for scientific requirements or FFRDC business requirements Cloud computing, in collaboration with NCI - CBIIT Web and software services (web hosting and maintenance; website design and content management; application and/or software configuration, integration, development & maintenance; web/enterprise search; authentication integration.)
High-Performance Computing Services	Scientific programming Informatics support Consultation with CBIIT network team on infrastructure
Cybersecurity	DevSecOps ATOs for all FFRDC deployed systems Vulnerability management of FFRDC deployed systems As needed incident response for FFRDC deployed systems
Process Management	Using NCI policies, procedures and systems: Knowledge Management Configuration Management (software) Continuous Service Improvement IT Asset Management

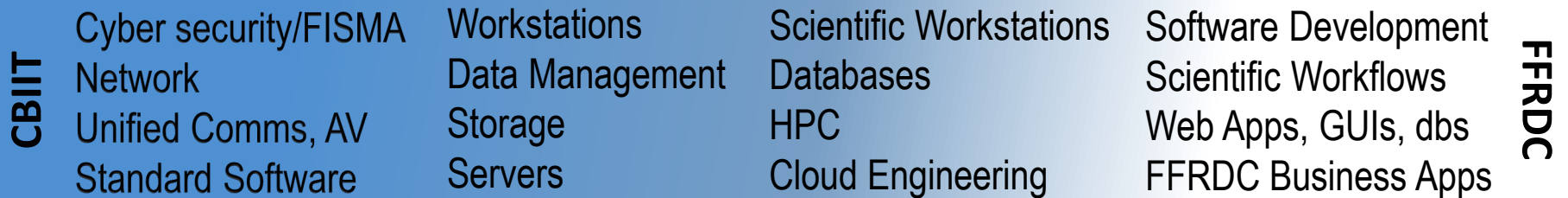
FFRDC IT Infrastructure and Cybersecurity Enables Research

Coordinated responsibilities

Accelerate FFRDC-supported research while safeguarding FFRDC IT assets

- ✓ Coordinate with NCI Chief Information Officer (CIO) & Chief Information Security Officer (CISO) to assure all work is performed on Authorized Federal IT systems and compliance with Federal regulations
- ✓ Leverage government-provided resources and processes to the greatest extent possible
- ✓ Work closely with FFRDC-supported programs to develop and implement innovative solutions
- ✓ Share best practices and innovations between the FFRDC and NCI/NIH

IT Research Infrastructure Collaboration Continuum





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Overview of FFRDC Environment, Health and Safety (EHS)

Environment, Health and Safety

- Mission
- Current Programs
 - Protective Services
 - Occupational Health Service
 - Environmental Protection and Waste Management
 - Safety Programs
 - Emergency Preparedness/COOP

Protective Services

- Access Control for Managed Buildings
 - Key Issuance
 - Electronic Access Control System
- Monitoring of Scientific Alarm Systems
- Security Patrols
- Communication of Emergency Information
- Shuttle Services
 - Daily Between NCI at Frederick and Bethesda Campus
 - Daily Between NCI at Frederick and ATRF

Occupational Health Service

- Occupational Health Clinic
- Wellness Programs
- Research Donor Program
- Health Surveillance Programs
- Training

Environmental Protection and Waste Management

- Environmental Compliance
 - State Regulatory Agencies
 - NEPA
- Waste Management
 - Chemical Waste
 - Radioactive Waste
 - Bio-Hazardous Waste
 - Municipal Waste
 - Recycling

Safety Programs

- Industrial Hygiene
- Bio-Safety
- Ergonomics
- Industrial Safety
- Life Safety
- Radiation Safety
- Construction Safety

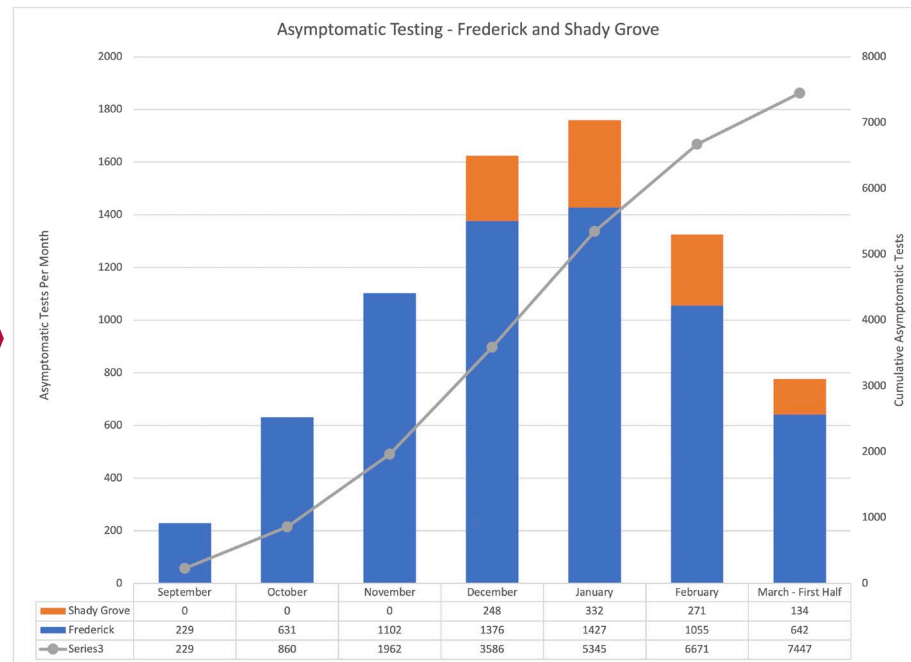
Emergency Preparedness/COOP

- Emergency Planning
- Conduct Building Evacuation Drills
- Continuity of Operations

Asymptomatic COVID-19 Testing

- Asymptomatic Testing began in September 2020
- Testing was expanded to include NCI Shady Grove in December 2020
- Participation by staff is voluntary
- Management of testing sites is a group effort by EHS
- Samples are sent to the NIH for analysis
- The OHS nursing staff receives results and manages information

Asymptomatic COVID-19 Testing





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Amenities

Operational support services for supply warehouse, property accountability, cafeteria, vehicle fleet, conference management, scientific library, scientific publications, graphics, and media

Amenities 1: General Assumptions

- Facility-wide support including research and administrative aspects of NCI Government as well as prime and resident subcontracted activities in Frederick
 - Main campus and off-site facilities in Frederick
- Estimated staff of 750 Government and over 1500 contracted
 - About 60% conducting scientific research

Amenities 2: Cafeteria & Conference Services

- Cafeteria
 - Cafeteria on NCI Campus at Frederick
Grab & Go station at ATRF
 - Breakfast and lunch menus,
snacks, and soft drinks
 - Maintenance and cleaning
services for cafeteria operation
- Conference Services
 - Frederick-specific conference planning
and implementation
 - Speaker travel and coordination with
conference support team



Amenities 3: Labware Cleaning, Logistics & Warehouse

- Labware Cleaning
 - Building-based cleaning/sterilization of labware
- Logistics and Supply Warehouse
 - Common research consumables & housekeeping supplies
 - Materials provided on cost-recovery basis
 - Main & satellite inventory management & laboratory delivery

Amenities 4: Property Accountability & Vehicle Fleet

- Property Accountability
 - Tagging and inventory management of Government-owned equipment
 - Surplus management for equipment
- Vehicle Fleet Management
 - Management of about 80 Government-owned and leased vehicles assigned to operational groups & for official travel
 - Vehicle-specific record keeping, maintenance, repair & replacement

Amenities 5: Scientific Library & Publications

- Scientific Library

- Two library sites: main campus in Frederick and ATRF
- Digital subscriptions, physical collection, and inter-library loan services
- User training, facilitation of scientific exchange



- Scientific Publications, Graphics & Media

- Publication support for posters and scientific manuscripts
- Text editing, graphics design, and media usage
- Newsletter preparation, user training



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Questions?

*All questions must be entered
into the WebEx chat*