



Facilities Presentation to the Clinical Center Research Hospital Board (CCRHB)

by
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Director, Office of Research Facilities

Friday, April 20, 2018

2:45 pm

Building 31 - Room No. 6C6



Important Developments

- Fiscal Year 2019 President's Budget request for Buildings & Facilities includes an increase from \$128.6 million to \$200 million; while this is no guarantee that funds will be appropriated, this is a positive sign that the physical plant needs of NIH are recognized
- National Academies Study:
 - Fiscal Year Labor, Health and Human Services, and Education, and Related Agencies Appropriations Bill included \$1 million for NIH to enter into a contract with the National Academies of Sciences, Engineering and Medicine to convene an *ad hoc* committee and prepare a report that assesses the capital needs of NIH's main campus.
 - September 2017: NIH entered into the agreement
 - February 2018: Committee members appointed
 - March 19-21, 2018: First meeting. Included tour of portions of Building 10 Complex led by Dr. Gilman.
 - Cautiously optimistic that this Committee will enhance the probability of additional funding.
 - Membership listed on next slide.



Ad Hoc Committee Members

Chair: Kenneth W. Kizer, M.D., M.P.H.

Distinguished Professor, Director of the Institute for Population Health Improvement (IPHI) at UC, Davis. Internationally respected health care leader elected to the National Academy of Medicine and National Academy of Public Administration.

- **Edward J. Denton, FAIA**
Former Vice Chancellor, Facilities Services, Campus Architect, and Chief Building Official at UC Berkeley
- **Don E. Detmer, NAM, MD, MA, FACMI, FACS**
Professor Emeritus and Professor of Medical Education at the UVa, Charlottesville
- **Laura Kathryn Fidler, MPH**
Senior Project Manager at AMC Strategies, LLC.
- **G. Edward (Edd) Gibson, Ph.D., P.E., M.B.A.**
School Director and Professor of the School of Sustainability and the Built Environment (SSEBE) at Arizona State University.
- **Sanjiv B. Gokhale, P.E.**
Professor of Civil Engineering and Director of Graduate Studies in Construction Management at the Department of Civil & Environmental Engineering, Vanderbilt Univ.
- **Michael Harber, P.E.**
Vice President for Facilities Management at St. Jude Children's Research Hospital in Memphis, TN.
- **Kerstin Hildebrandt-Abdikarim, MSHS**
Vice President of Research Administration, Children's Research Institute (CRI) at Children's National Health System
- **Douglas W. Kincaid, P.E.**
President and General Manager, Applied Management Engineering, Inc.
- **Thomas L. Mitchell, Jr.**
Senior Vice President/COO of FM3IS Associates, L.L.C., San Antonio, TX.
- **Kirk Pawlowski**
Director and Senior Project Manager Construction Services Group, State of Washington Educational.
- **William R. Seed**
Senior Vice President, Facility Design & Construction at Jackson Health System in FL.
- **Sarah Slaughter, NAE**
CEO and President of the Built Environment Coalition in Cambridge, MA.
- **Philip E. Tobey, FAIA, FACHA**
Senior Vice President of SmithGroupJJR



Critical Infrastructure Projects Outside the Building 10 Complex

These First Projects Enhance Patient Safety in Cases of Regional or Local Water and Electrical Power Failure – These Projects Improve our Emergency Management Posture, Whether for Natural or Man-made Events

C101326 Industrial Water Storage (IWS)



Identified Risk/Impact: Loss of municipal domestic water supply to campus/serious impact to all campus/hospital buildings functions.

Project Benefit/Risk Mitigation Strategy: Protect patients by providing 5 million gallons of make-up water (one full day under extreme conditions) for Central Utility Plant to generate steam and chilled water until municipal off-site supply is restored.

Schedule Status: Under Construction. Completion estimated: December 2018.

Funding Status: *Funded.*

C101380 Thermal Energy Storage System (TESS)



Identified Risk/Impact: Lack of chilled water to serve hospital HVAC load during loss of normal power to campus

Project Benefit/Risk Mitigation

Strategy: Increased chilled water reliability to maintain hospital operations. Acts as a 7.5 million gallon shock absorber (one full day under extreme conditions). Enables us to maintain proper temperatures and humidity levels to all patient care/infection control, meet standards and code requirement. Also, enables us to conserve energy and reduce utilities costs.

Schedule Status: Under Construction.
Completion estimated: December 2018.

Funding Status: *Funded.*

C101231 Black Start Generators



Identified Risk/Impact: Loss of steam generation/hot water/chilled water distribution due to power outage.

Project Benefit/Risk Mitigation

Strategy: Ability to start the 23MW Cogen plant and boilers to provide steam to buildings during an area power outage and mitigate risk of freezing pipes. Ability to generate chilled water using Cogeneration and Steam driven chillers. Also Cogen can power critical patient care areas in the Clinical Center.

Schedule Status: In Design. Completion estimated: June 2020.

Funding Status: *Funded.*

C104771 Utility Vault and Patient Parking Garage



Proposed Utility
Vault & Patient
Parking Garage

Identified Risk/Impact: Security Risk - power supply equipment is vulnerable to threats in current, exposed location. Single point failure. Aging infrastructure. No room to expand to support future hospital expansion

Project Benefit/Risk Mitigation

Strategy: Protects vital power supply (normal and emergency) components in reinforced structure to building 10 complex

Schedule Status: In Pre-Design, preparing documents for shovel-ready status.

Funding Status: *Not yet funded.*

Electrical Power Supply (Normal and Emergency) Replacement and Upgrade (Bldg 59/59A Replacement)



Identified Risk/Impact: CRC Emergency Generators and associated switchgear are over 20 years old. Switchgear equipment is no longer manufactured; thus, replacement parts have to be custom-made.

- Technology of 480v generators stepped up to 13.8 kV distribution is outdated, requiring step-up transformers, which pose additional single point of failure.
- Current location is prone to flooding and is a security risk.
- **Project Benefit/Risk Mitigation Strategy:** Increased reliability of power supply by upgrading to 13.8KV generators; minimized failure points and improved reliability; generators and switchgear housed in reinforced structure in proposed new U/V & PPG and outside flooding risk area.

Schedule Status: In Planning.

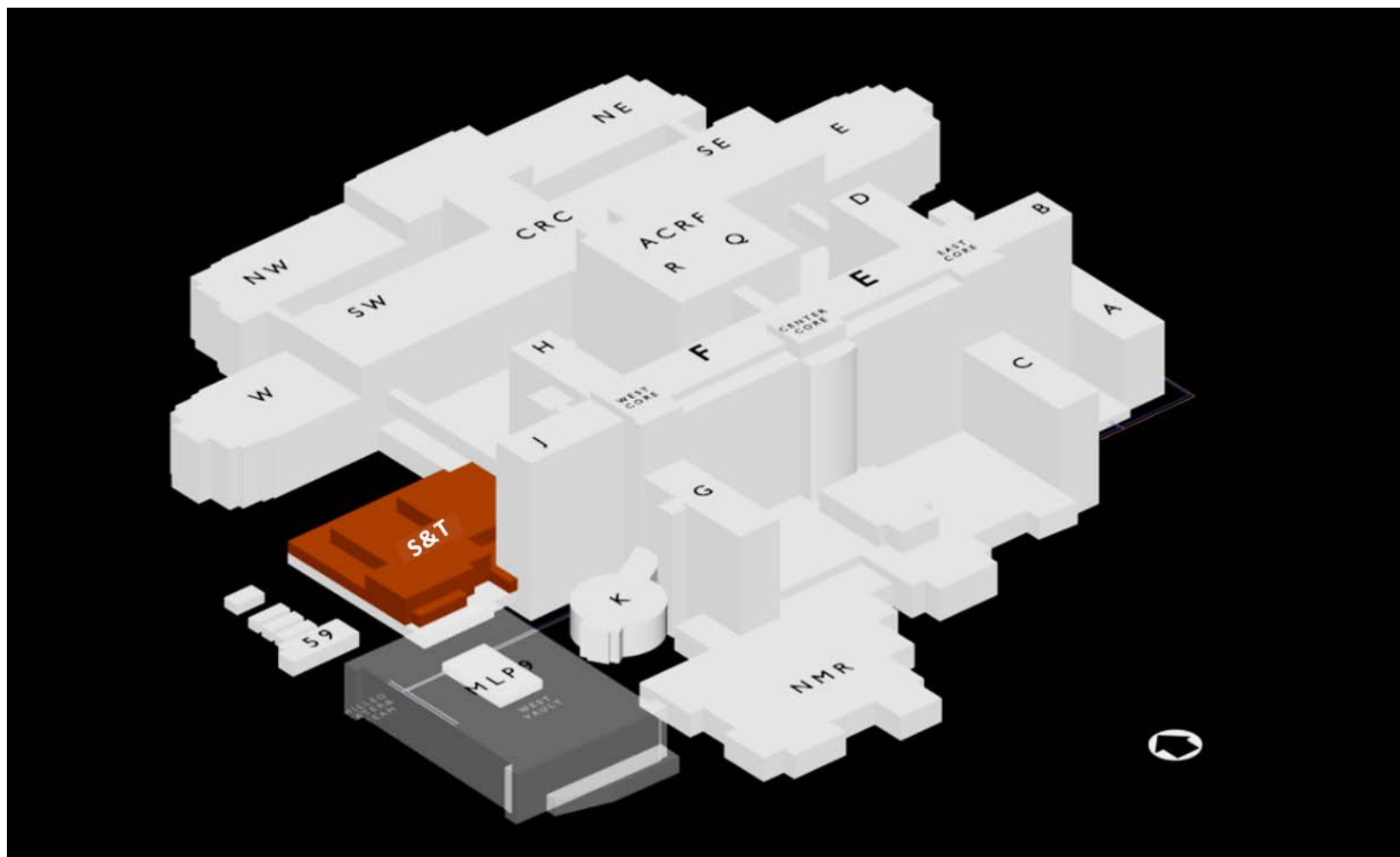
Funding Status: Not yet funded.





Critical Projects Within the Building 10 Complex

Building 10 Complex Visual Aid



C100463 Building 10 Electrical Vault 11 Upgrade



Identified Risk/Impact: Existing electrical equipment is 38 years old; increased probability of failure, poor availability of spare parts.

Project Benefit/Risk Mitigation Strategy: Improve reliability and sustainability of clinic operations and labs located in ACRF tower.

Schedule Status: Under Construction, completion in May 2018.

Funding Status: *Funded.*

C103789 Building 10 Fire Alarm Control Upgrade



Identified Risk/Impact: Fire alarm control system equipment is no longer supported by manufacturer; difficult to obtain spare parts.

Project Benefit/Risk Mitigation Strategy: Infrastructure and life safety improvement.

Schedule Status: In Construction; Scheduled for completion March 2019. Involves multiple phases (by wing and by floor).

Funding Status: *Funded.*

C102177 Atrium Fall Prevention Measures



Identified Risk/Impact: Patient safety.

Project Benefit/Risk Mitigation Strategy: Mitigate risk of suicide.

Schedule Status: In Construction.

- Second Floor to First Floor Completed.
- First Floor to B1 Floor: Scheduled for Completion in July 2018.

Funding Status: *Funded.*

Replace 6" Diameter 14th Floor Piping in ACRF



Identified Risk/Impact: Disruption to operations.

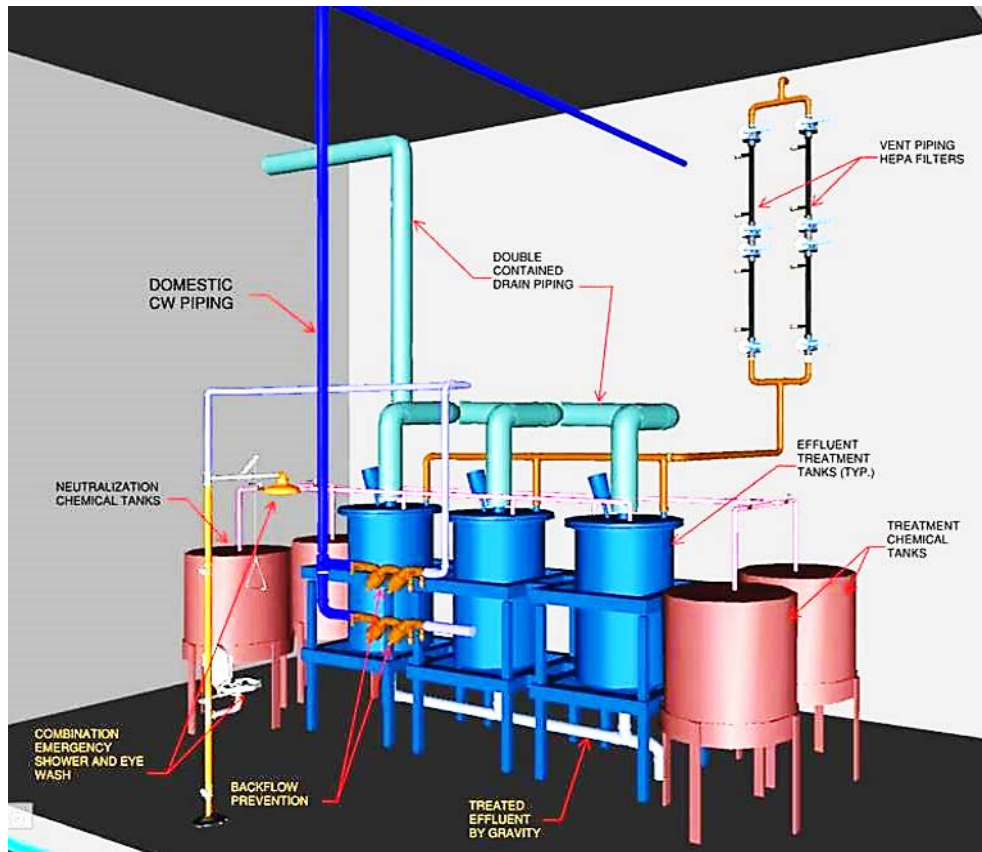
Project Benefit/Risk Mitigation

Strategy: Dramatically reduce likelihood of future floods.

Schedule Status: Summer 2018.

Funding Status: *Funded.*

C104250 Chemical-Based Effluent Decontamination System (EDS) for Special Clinical Studies Unit (SCSU)



Identified Risk/Impact: Ebola virus infected patients may generate nine liters of potentially infectious liquid waste per day. Original World Health Organization recommendations were to dispose of waste into sanitary sewer; however, subsequent studies have indicated that disinfection prior to discharge to sewage lines is prudent.

Project Benefit/Risk Mitigation Strategy: Improved safety and compliance. Disinfection of wastewater reduces risk of Ebola transmission, thus addressing public concern.

Schedule Status: In Construction. Estimated completion in December 2018.

Funding Status: *Funded.*

C105264 CRC 3SE In-Patient Hospice Family Suites



Identified Risk/Impact: New Program Supporting Patient Care.

Project Benefit/Risk Mitigation Strategy: Improved quality, safety and compliance.

Schedule Status: In construction. Demolition completed. Completion scheduled in June/July 2018.

Funding Status: *Funded.*

C100663 E-Wing Renovation, Including Cell Processing



Identified Risk/Impact: Outdated and inadequate facilities, negatively impacting mission accomplishment.

Project Benefit/Risk Mitigation Strategy: Renovated and modernized facilities to support cutting-edge research.

Schedule Status: In Preconstruction phase. Estimated completion in April 2021.

Funding Status: *Funded.*



C100663 E Wing Cross-Section and Housing Plan

Mechanical

Mechanical

CC-DTM cGMP Suite

NIAID

NIDDK

NIDDK, Mechanical

NHLBI

NHLBI, NIMH

NHLBI

NINDS, NIDDK

NIMH, Mechanical

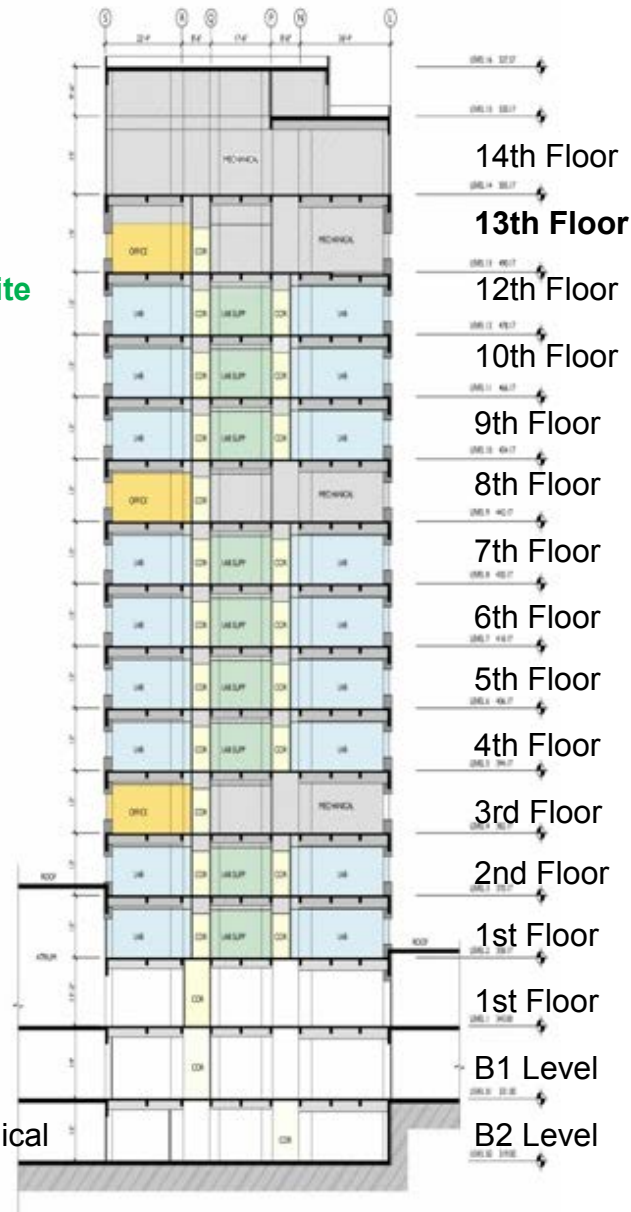
CC-DTM

CC-DTM

CC-DTM, WALS

FAES, DFOM

Cagewash, Mechanical



C100663 E Wing: Rendering of Blood Bank





C100663 E Wing: Typical Open Lab



C104935 DTM Cell Processing Modular Facility



Identified Risk/Impact: Inadequate amount of cGMP-compliant space to accomplish critical research objectives.

Project Benefit/Risk Mitigation Strategy:
New facility to support mission objectives.

Schedule Status: Design-Build contract awarded. Currently in design phase.
Estimated completion in November 2019.

Funding Status: *Funded.*

C105122 NCI Tumor Infiltrating Lymphocytes (TIL) Cell Processing Modular Facility



Identified Risk/Impact: Lack of available facilities to accomplish critical research objectives.

Project Benefit/Risk Mitigation Strategy: New facility to support Dr. Rosenberg.

Schedule Status: Design-Build contract awarded. Currently in design. Estimated completion in June 2019.

Funding Status: *Funded.*

C104514 NCI Viral Vector & cGMP Module Trailers



Identified Risk/Impact: Inadequate amount of cGMP space.

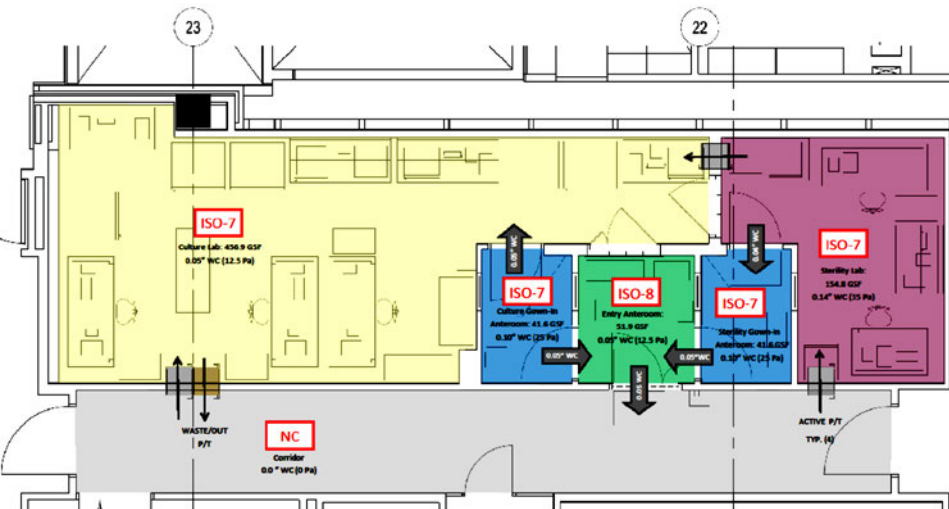
Project Benefit/Risk Mitigation

Strategy: Increased reliability of cGMP production space. Trailers support Dr. Rosenberg's Branch.

Schedule Status: TR-10B completion in June 2018. TR-10A completion in September, 2018.

Funding Status: *Funded.*

C104603 Department of Laboratory Medicine Sterility Lab



Second Floor of ACRF

Identified Risk/Impact: Lack of sterility testing facility will affect patient safety.

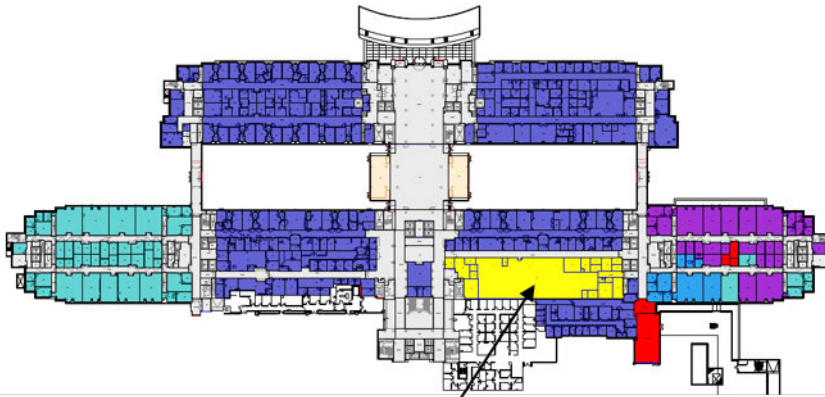
Project Benefit/Risk Mitigation

Strategy: Sterility testing on a wide-range of investigational new drugs will assure patient safety.

Schedule Status: Design-build contract has been awarded. Project completion estimated in Summer 2019.

Funding Status: *Funded.*

C104903 Permanent Intravenous Admixture Unit (P-IVAU)



P-IVAU Space
Highlighted in
Yellow.

Identified Risk/Impact: Interim IVAU is only temporary, is inadequate in size and there is no backup plan in case of a facility emergency.

Project Benefit/Risk Mitigation Strategy: Improved safety and compliance.

Schedule Status: In Design. Estimated completion in 2020.

Funding Status: *Funded.*

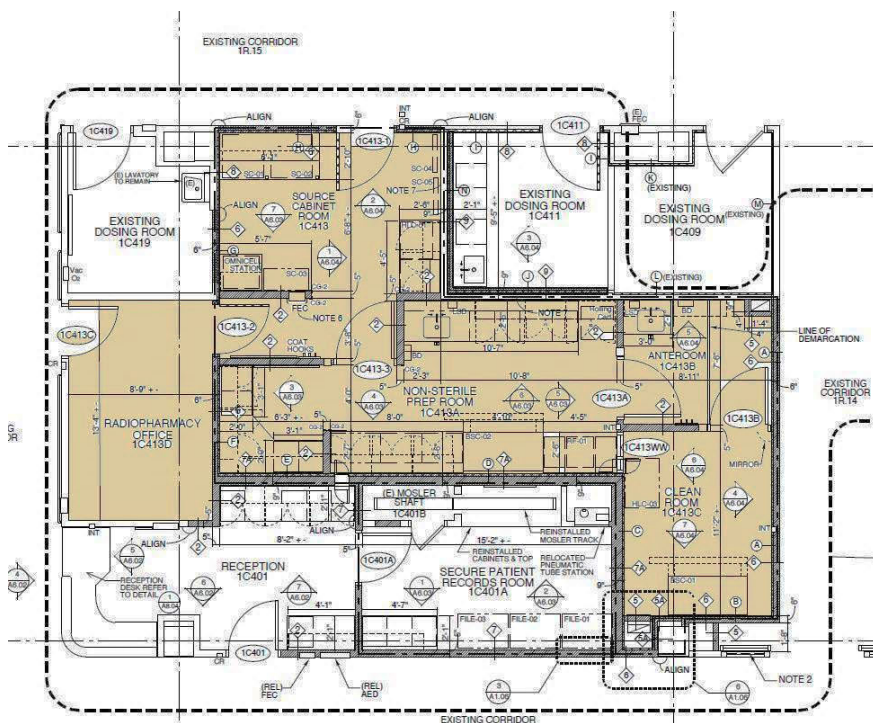
C100883 Radiopharmacy Project

Identified Risk/Impact: Existing facility was originally designed for use by CC for low risk radiopharmaceutical work only. A decision was made to add higher-risk “cell labeling” work (performed by the NCI). The existing facility was deemed to be insufficient to meet FDA and USP regulatory standards for combined production of both sterile compounding and “cell labeling” work. Project will ensure NIH meets all applicable regulations in order to provide patient safety and workforce safety.

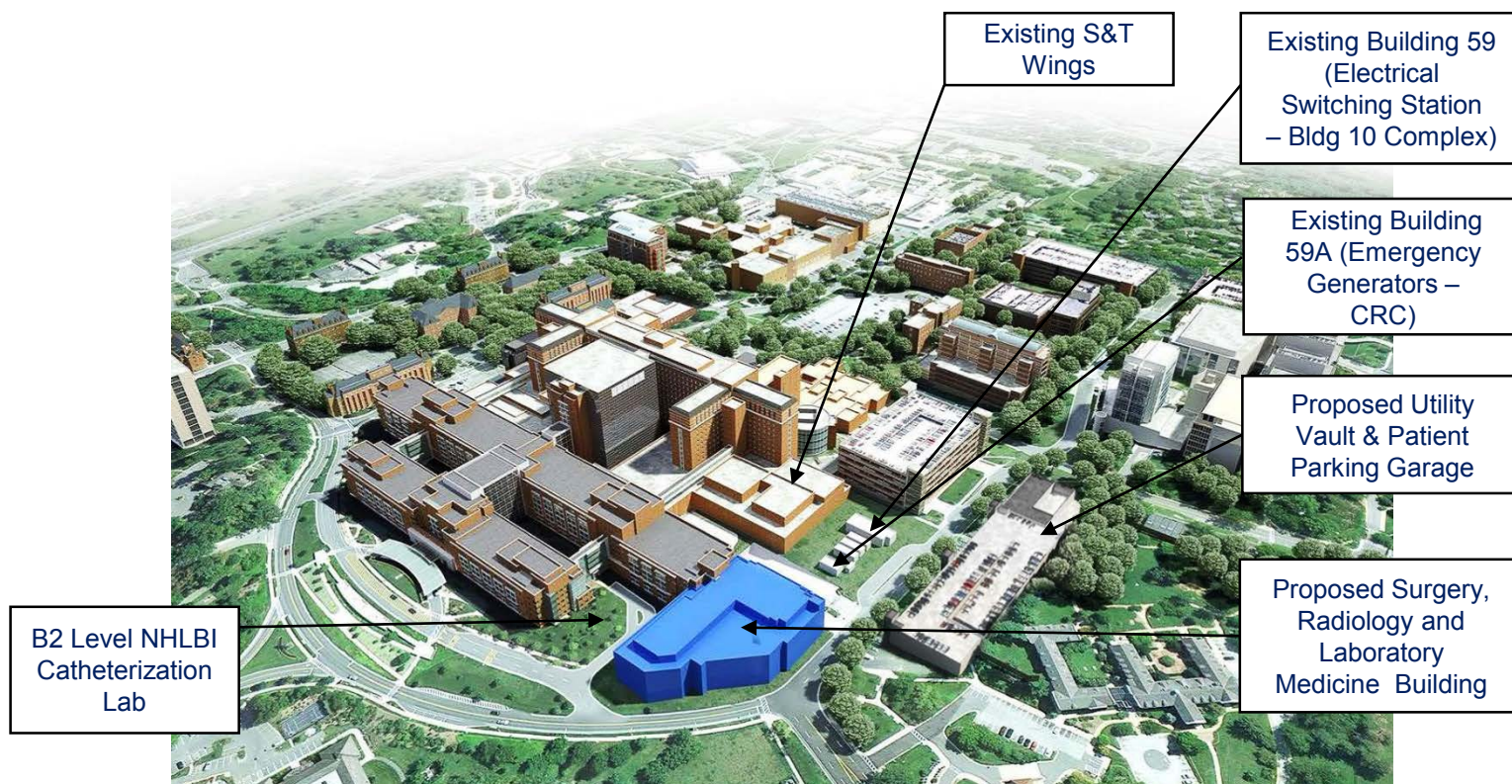
Project Benefit/Risk Mitigation Strategy: Improved patient safety and regulatory compliance. Creating a facility that will allow both radiopharmaceutical and cell labeling work with secure access and properly cascading/pressurized rooms of increasing levels of cleanliness with work will improve patient safety.

Schedule Status: User Requirements Summary underway; to completed by beginning of May. URS will determine the follow on activities and associated timeframe.

Funding Status: *Funded.*



Surgery, Radiology and Laboratory Medicine Building Utility Vault and Patient Parking Garage



C103157 Surgery, Radiology and Laboratory Medicine (SRLM) Building



Identified Risk/Impact: Clinical Center Departments of Perioperative Medicine, Laboratory Medicine, Radiology and Imaging Sciences, and the NHLBI Catheterization Lab are housed in 1980-era obsolete space with mechanical, electrical and plumbing infrastructure that is beyond economical repair.

Project Benefit/Risk Mitigation Strategy: Safe, compliant, maintainable and flexible facilities to support cutting-edge research and optimal patient care.

Schedule Status: In planning, preparing documents for shovel-ready status.

Funding Status: *Not yet funded. Dr. Gilman and Department Heads took the National Academies of Science, Engineering and Medicine Committee through the space last month.*