

**Summary of
Research Facilities Improvement Program Workshop
National Center for Research Resources
National Institutes of Health
Bethesda, Maryland
Friday, July 14, 2000**

I. Introduction

This Fiscal Year 2001 workshop, sponsored by the National Center for Research Resources (NCRR) and conducted by the NCRR Research Infrastructure (RI) area, provided a forum for information exchange on “grantsmanship” for the Extramural Research Facilities Improvement Program.

NCRR Deputy Director, Dr. Louise Ramm, opened the workshop with an overview of the Center. She highlighted grant programs of NCRR’s Clinical Research, Biomedical Technology, and Comparative Medicine areas. Dr. Sidney McNairy, director of NCRR’s fourth area, Research Infrastructure, described a variety of grant programs administered by the RI area, stating the goals and objectives of each (see <http://www.ncrr.nih.gov/resinfra.htm>). Representatives of NCRR’s Research Facilities Improvement Program, Office of Review, and Office of Grants Management, and the NIH Division of Engineering Services also presented information on pre- and post-award issues. As part of the Office of Review presentation, four members of the Scientific and Technical Review Board detailed facts and criteria considered by the application reviewers. The workshop concluded with presentations by several grantees who have successfully competed for construction (CO6) awards and have completed research facility construction using funds awarded by this grant mechanism.

II. Presentations

Extramural Research Facilities Improvement Program (RFIP)

This RFIP is one of eight grant programs administered by NCRR’s RI area. Currently there are 137 active construction awards funded by the CO6 grant mechanism.

RFI Program point-of-contact:

W. Fred Taylor, Ph.D.
Research Infrastructure
National Center for Research Resources
6705 Rockledge Drive, Room 6134 - MSC 7965
Bethesda, MD 20892-7965
Telephone: (301) 435-0766
FAX: (301) 480-3770
E-mail: taylorf@ncrr.nih.gov

RFI Program point-of-contact for engineering and architectural:

Esmail Torkashvan, P.E.

Research Infrastructure

National Center for Research Resources

6705 Rockledge Drive, Room 6136 - MSC 7965

Bethesda, MD 20892-7965

Telephone: (301) 435-0766

FAX: (301) 480-3770

E-mail: torkashvane@ncrr.nih.gov

It is useful to think of a research facilities grant application as a process consisting of three phases:

- Application Phase
 - Notice of Grant Award issued to successful applicants
 - terms and conditions are established
 - acceptance of award
- Design Phase
 - concludes with a revised notice of grant award
 - funds are then released
- Construction Phase
 - initiate bidding process at this time (not before)
 - construction
 - site visits by NIH/NCRR program official

NCRR program staff communicates with the applicant institution throughout these three phases, and NIH retains an interest in the completed facility for 20 years.

Application and Award:

- Prepare application
 - program announcement can be accessed from the Research Infrastructure area of NCRR Web site (<http://www.ncrr.nih.gov>) or in the NIH Guide for Contracts and Grants (<http://grants.nih.gov/grants/guide/index.html>)
 - supplemental instructions (also on the NCRR Web site or from RI area program staff available at 301-435-0766)
- Office of Review
 - Scientific and Technical Review Board (first level of review)
 - evaluation and score
 - summary statements are issued
- National Advisory Research Resources Council (second level of review)

- Office of Grants Management
 - notice of grant award
 - terms and conditions
- Division of Engineering Services (DES)
 - begin design phase (communication with NIH-DES is critical)

Design:

- Division of Engineering Services
- CO6 construction grants
 - schematic design
 - design development
 - final construction design documents
- Office of Grants Management
 - revised notice of grant award
 - notice of federal interest

Construction:

- Initiate Bidding Process
- Construction
- Site Visits by Program Official
- Closeout
- Yearly Progress Reports

NCRR ENGINEER:

Responsibilities of the NCRR engineer with regard to construction grants

- Consult with grantees on issues related to preparation of construction plans.
- Responsible for issues regarding the performance of the design review team.
- Construction closeout.

Issues related to the preparation of construction plans (pre-award phase)

- Provide advise regarding the design of construction plan for specific programs.
- Discuss technical issues and provide information on resources to help grantees in preparing a comprehensive application for research facilities.

Issues regarding the design review team (post-award phase)

- Provide design submittal to the review team for review at each phase of the construction design.
- Coordinate between the review team and grantee.
- Provide assistance to the review team and designers on making final decisions on conflicting issues during the submittal review phase.
- Monitor design review by the technical review team.
- Provide technical assistance to the Office of Grants Management.

Construction grant design review

- Grant application design review (pre-award).
- Construction document approval (post-award).

Grant application approval review (pre-award phase)

- Schematic line drawings.
- Drawings should clearly indicate all construction and renovation work.
- Facility location must be identified with regard to related research facilities.
- Indicate egress routes and the relationships of rooms.
- All specialized facilities and location of major equipment must be shown on the drawing.
- All safety aspects must be incorporated in the design.

Construction document approval (post-award phase)

- Technical review team reviews the schematic design, design development and construction design documents, and notifies the NCRR of satisfactory completion of design documents. This review typically takes 3 to 6 months.
- A copy of the Notice of Federal Interest that must be filed in the city's record office before the start of bidding and construction.
- NCRR approves the construction document and releases the funds to grantees to go to bid and construction.

Changes after the design is approved and award is made

- All changes to the approved design documents and/or budget must be approved by NCRR before being implemented.

Design-built contract issues

- Design-built contracting consists of a construction firm's submission of building designs to meet the grantee's performance requirements within a guaranteed maximum price (GMP).
- The grantee must obtain NIH prior approval to use the design-built method.
- GMP is not the preferred method for construction management services under NIH grants, since construction documents require additional review.
- Any changes by the design-built contractor to the approved construction document shall be resubmitted to NCRR for technical review and approval.
- On any design-built project, the grantee must ensure a firm total cost in the contract and provide that extra costs resulting from omission in drawings or estimates will be the design-built firm's responsibility.
- Refer to GMP requirements under "construction management services" for additional information on design-built contracts.

Closeout process

- NCRR will closeout the award after it determines all applicable administrative actions, terms and conditions, and required work have been completed.

- NIH staff may visit the site to ensure that the NCRF supported facility is completed in accordance with the approved construction document.
- Grantee will provide a final tabulation of gross and net assignable space supported under the award.
- Grantee will provide the actual costs of construction per gross and net square feet.
- Grantee will provide an 8-inch x 10-inch photograph of the areas supported under the award and the date of occupancy.
- A written certification signed by an authorized business official stating that the grantee has provided insurance at the full appraised value of the NCRF funded facility and will maintain such coverage throughout the period of federal interest in the facility.
- Annual reports are due from the grantee. These reports will provide a written certification that the space is being used for the purpose for which the grant was originally awarded, or for other biomedical or behavioral research activities.

Office of Review

Perspective of Scientific Review Administrator (SRA)

The Scientific and Technical Review Board (STRB) is the designated review group for C06 applications according to Public Law (PL) 103-43, Section 481A and 481B of the Public Health Service (PHS) Act.

The STRB is composed of nine charter members plus three ex officio members. These members represent expertise as scientists, architects/engineers, and veterinarians. Depending upon the number of applications received, a number of ad hoc members are recruited to cover all areas of expertise.

Upon receiving the C06 applications, the NCRF Office of Review SRA screens all applications for completeness. Incomplete applications are returned to the applicant without review.

Specifically, the following points are checked. If incomplete, then the SRA will call the Principal Investigator and request to submit the needed information under the signatures of the signers of the original application. An original and four copies of the additional materials should be submitted.

Administrative Checklist for C06:

Face Page

- Item 5: Name of PI, Dean or Equivalent.
- Item 9: NIH
- Item 10: 93.389 NIH Construction
- Item 11: Center of Excellence (COE) if funded in 1999/2000
RR-00-002, Extramural Research Facilities Construction
- Item 15: It should match line 17 of budget.

Minimum = \$500 thousand
Maximum = \$2.0 million
For COE, Maximum = \$3.0 million

Item 15g: Should match line 16 column of a budget page.

Budget

Line 10: Fixed equipment total cost (no movable equipment).
Line 17: Federal Share

Table of Contents

Program Overview

Page 4: Concise (250 words or less) overview description with long-term objectives and specific aims.

Page 5: A. Item 15b costs.

- (1) authorized but not sold bonds.
- (2) Net cash available.
- (3) Cash value of pledges with bank letter.
- (4) Contingent gifts and bequests.
- (5) Other financing methods

B. Itemized list of miscellaneous and cost from line 11.

C. Mailing address of PI.

D. Mailing address of Institutional Official.

Program Narrative - 40 pages maximum.

Table of Research Support

Current and pending grant support.

Grant number and agency.

List Principal Investigator and Direct Costs.

Project period listing beginning and ending dates.

Timetable for construction.

Description of Facility

Line drawings or schematic drawings of the space layout (not blueprints).

Location on campus.

Layout of laboratories and offices and animal rooms.

Location of fixed equipment.

Use of space by investigator or area of research.

Scales for all drawings.

Table of net square feet by program/PI.

Table of gross square feet.

Table - Summary of use of vacated space.

Tabulation of space by room type.

Tabulation of fixed equipment items.

Certifications - SF424D form.

Biographical Sketches - Only of investigators whose research will be affected by this improvement, starting with alphabetical listing (two pages).

Scientists

- Will PHS-supported science be advanced? Explain in detail how the science will be advanced.
- Is the facility appropriate for science and improvements requested to justify the needs of science being conducted?
- The application must make the case that the new facility will advance specific projects and specific planned expended research.

Architects and Architectural Engineers

Facility design:

- Ensure that safety aspects are incorporated in the design and shown in plan.
- Evaluate physical location of facility with respect to other facilities on campus.
- Describe in detail how the vacated space will be utilized.

Examples of frequent problems:

- Plans are too schematic to know routes and relations between rooms.
- Highly specialized facilities requested and support facilities are not shown (such as showers and rest rooms).
- Location of major equipment missing from plans.
- Attention to safety requirements cannot be determined.

Reviewers will consider the following factors:

- The impact of the proposed construction on existing and future PHS-supported biomedical and behavioral research, research training and/or research support activities.
- The impact of the proposed construction on the planned advancement or expansion of the research and research training activities at institutions with limited PHS support.
- Appropriateness and suitability of the proposed facilities, including safety and biohazard aspects, for the research to be conducted and/or research support and training to be provided.
- Specific deficiencies in the existing research facilities that would be remedied and the impact of the proposed project on current and future research activities.
- The appropriateness of the proposed physical location and layout of the new facility and the reasonableness of the proposed schedule, cost, and sequence for the construction.
- Adequacy of the proposed administrative arrangements with respect to institutional commitment to use the space for biomedical/behavioral research,

research training and/or research support and the capabilities of the Principal Investigator and staff for scientific and fiscal administration of the facility.

Animal Facilities Experts

- Will look at the design of the animal facilities.
- Will also look for appropriate procedures to ensure that the physical facility will be used as it is intended.

Additional Review Criteria

- Provide an organizational chart of the institution. It should define administrative authority and insure the integrity of the program vis-à-vis the established programs and their program leader.
- Fully justify cost of the construction.
- Justify need of the space for support staff.
- Explain in detail the benefits to science. If collaborative efforts, then describe exactly how it is beneficial to the scientific staff.
- Clearly define and justify new equipment and renovations.
- Clearly describe impact on PHS-funded research for both existing and future research projects.
- Ensure there no disparities between text and tables.

For an Animal Facility

- Describe in detail any biohazard issues.
- Describe veterinary support.
- Give details of training and education of veterinary staff.
- Give detailed animal census.
- Describe which animals are used for each project.
- Describe the composition and procedures of the Institutional Animal Care And Use Committee (IACUC).
- Describe who will look at design of animal facilities and who will look for appropriate procedures to ensure that the physical facility will be used as it is intended.

Characteristics of an Excellent Application:

- Collaborative Research
- Well-Organized Plan
- Centralized Facility
- Clear Line Drawings
- Biosafety Addressed
- Strong Institutional Commitment
- Well-Qualified Staff
- Limited, but Adequate Appendix

- Need Well Justified
- Well Demonstrated Impact on Research

Perspective of Scientific and Technical Review Board

Scientific Reviewer A

The purpose of the NCRR/NIH Extramural Research Facilities Construction and Animal Resource Improvement projects is to provide grants to expand, remodel, renovate, or alter existing research facilities or construct new facilities for biomedical and behavioral research and research training. It is important for individuals/institutions submitting applications to have a clear vision of the purpose of this grant mechanism in order to begin preparation of an application for support under this program. While the purpose is to provide funds for construction, renovation, etc., the objective is to enhance the biomedical/behavioral research program at that particular institution. The reviewers assess the applicant's ability to address how the proposed project will: 1) facilitate the institution's ability to conduct, expand, improve, or maintain the research activity; 2) meet national health needs in research, research training, or support facilities; and 3) meet the demonstrated needs of the institution. In addressing these rather far-reaching questions, it is important that the applicant closely examine the requirements outlined under the "Program Narrative" and the "Review Criteria" to be used by the reviewers in evaluating and rating the response. The detail requested in the announcement must be addressed within the appropriate places in the application.

While many variables can decrease the level of merit for a particular application, failure to address the program needs as they relate to the program objectives and the lack of sufficient detail within the application are major reasons for lack of enthusiasm. The contribution of the construction project to the overall enhancement of the current and future research activities at the institution must be clearly stated and documented as accurately as possible. Listing specific projects that will benefit directly from the availability of the facilities requested in the grant does this best. While institutions with major NIH/PHS support may be able to show favorable enhancements in several areas, institutions with a smaller support base, such as the Centers of Excellence and Research Centers in Minority Institutions, should also be able to document the research contributions of their institution to the overall enhancement of the public health of individuals in the United States. When animal facilities are involved, the benefit to improving animal welfare, expanding animal research activities and research knowledge, and the need for such facilities must be discussed and justified. Why is the project important to the institutional research activities and how will it contribute to the advancement of public health research? For example, facilities do not meet current federal standards due to age or change in rules and regulations and/or the research expansion is hampered due to a lack of quality space. Information must be presented in sufficient detail to allow reviewers to assess the merit of the project. The quality of animal care is also a critical factor.

A clear description of the animal care and use program affected by the proposed project must be clearly presented and any deficiencies cited by regulatory and accrediting bodies should be described in the body of the proposal. Plans for the design, construction or renovation of animal facilities must be discussed in adequate detail to allow reviewers with expertise in those areas to evaluate whether the facility will meet the objectives of the project. Budget items must be justified or they will be removed from the budget. Some applicants request design changes and/or equipment, which suggest to the reviewers that sufficient planning and expertise have not been devoted to the project, leading to a decrease in enthusiasm for the proposal.

Scientific Reviewer B

Engineering & Architectural Review Criteria:

Numerous factors are used in the evaluation of a grant proposal. The NCCR guidelines for Construction/Renovation of animal care facilities give broad outlines related to the development of a proposal. In some cases the guidelines are very specific with respect to the types of information requested. However, what may not be evident are the types of materials and information that the scientific reviewers will be looking for in your proposal. Clearly this information will range over a spectrum of interests reflected in the scientific make-up of the review committee. The purpose of what follows is to provide context and information for the types of items that are considered important with respect to the Architectural/Engineering information needed in a proposal.

An unique aspect of the NCCR animal care facilities proposals is that they represent a blend of the biological science and research with the animal-care requirements in support of the research and the engineering necessary to create a successful environment that will enhance the relationship between the research and animal care components. The items listed below in outline form are not meant to be all-inclusive but rather to indicate areas that tend to be overlooked or inadequately addressed in most proposals.

Components:

Cost - Total cost, unit cost (\$\$/ft.²)

- I. Cost per square foot - how does it relate to the complexity of the project? Is there clear justification?
- II. What alternatives were considered and the rationale for the choice(s) made. Also see "Capacity Analysis & Forecasting".
- III. Have you followed the guidelines?
- IV. Do you have actual quotes from vendors?

Architectural Layout (“blueprint”/footprint)

- V. Will we need a magnifying glass to read it?
- VI. Are the diagrams clear, legible and visually linked (to text and to expanded diagrams)?

Heating, Ventilation & Air Conditioning (HVAC) Requirements

- VII. What are the projected heat loads for things such as ventilated racks?
- VIII. How will you provide individual temperature and ventilation controls for each room? How will you control differential use rate?
- IX. How will you control humidity and if not, why not? Will you need general air filtration--if so, then to what degree?

Mechanical Requirements

- X. How do you know your electrical and HVAC systems will be adequate?
- XI. If rooms are to be pressurized how will they be controlled? What force will it take to open the door?
- XII. How will you provide for water purification and differential lighting?

“Functionality” or Traffic Flow & Usability

- XII. If you use a clean/dirty corridor approach how will this be located with respect to offices and personnel access?
- XIII. Security.
- XIV. Geographical location of facilities and location with respect to the investigators’ laboratories (transport issues, animal stress, maintaining cleanliness)

Capacity Analysis & Demand Forecasting

- XV. How do you plan to estimate the animal species and numbers needed in 3 years, 5 years, etc. Is this information linked to the types of grants, qualifications of the investigators and a historical database?

XVI. Would you expect user demand to increase linearly, exponentially, etc.?

XVII. What are the projected future capacity needs and the impact on research if this facility renovation/construction is not implemented?

The above list is not all-inclusive by any means, but indicates a general level of detail that will be needed to convince the reviewers that adequate engineering details have been considered in the overall development of the proposal.

Scientific Reviewer C

Scientific and Technical Review Board Perspective

Scientific and Technical Review Considerations

- Effect of project on existing and future PHS-supported biomedical/ behavioral research, training, or support
- Specific deficiencies in existing research facilities to be addressed
- Suitability of proposed facility for the research, training, or support conducted
- Appropriateness of proposed physical aspects of facility
- Reasonableness of proposed construction time-course, cost, and sequence

Appropriateness of administrative arrangements to institutional commitment

- Qualifications of investigator and staff for scientific and fiscal administration of facility
- Adequate schematic line drawings of the facility – clear and professional
- Justification of construction costs. Provide cost estimates
- Justification for support staff space requirements
- Clear organizational chart of institution administrative authority
- Biographical sketches of principal investigator, program director, and only investigators who will use facility

Impact of construction on PHS-funded existing and future research

- Listing of current and pending grants

- *Specific* research projects that will benefit from construction and detailed description of impact

Scientific Reviewer D

The Scientific and Technical Review Board on Biomedical and Behavioral Research Facilities Committee

G20: Developing and Improving Institutional Animal Resources.

C06: Extramural Research Facilities Constructional Projects.

REVIEW PROCESS

Each Application is Reviewed by at least three members of the Committee and/or Ad Hoc Reviewer with Demonstrated Expertise in:

- Biomedical Research
- Architectural/Engineering Design
- Veterinary Care

SOURCE OF MEMBERS

Participating Members Represent:

- Leading Academic Institutions
- Pharmaceutical Industries
- Organized Research Establishments
- In-House NIH Scientists

ACADEMIC BACKGROUNDS

- Basic Scientists (Ph.D.) with Demonstrated Evidence of Grantsmanship at the Federal level
- Health Professionals: MD, DVM, DDS, etc.
- Engineers and Architects
- Diplomats of ACLAM

RESPONSIBILITIES OF NCRR COMMITTEE

- To ensure quality research as evaluated by:
 1. Papers published in peer-reviewed journals with high impact.
 2. Continued “grantsmanship” as evidenced by successfully competing for major grants at the national level.
 3. Probability of extrapolation of lab data to human diseases.

DIFFERENCE MAKERS

- Abstract or program overview: everyone reads the abstract but not the entire application.
- PHS- or Non- PHS sponsored projects: incomplete and ambiguous information.
- Proposed line of investigation: lack of track record and expertise in residence.

- Collaboration: missing supporting letters.

Office of Grants Management (OGM)

Attendees were encouraged to contact any staff with questions. Grant-specific questions should be directed to the grants management specialist identified on the Notice of Grant Award. It was noted that the new *NIH Grants Policy Statement* has been published and applies to all awards with budget period start dates of October 1, 1998 or after. This policy statement includes a special section on administering construction awards. It may be accessed from the NIH Web site (<http://grants.nih.gov/grants/policy/nihgps/>), or a single copy may be obtained by sending an e-mail request to: GrantsInfo@nih.gov

Because NCRRC receives annual authority for the construction program through the annual appropriation from Congress, which occurs in October or later, the application, review and award cycle occurs in a very tight time frame. Since the NCRRC advisory council review occurs in September, there is a very short time frame for completing the pre-award administration for those applications that will be awarded. Hence, once program staff identify those applications with a high probability for award, OGM staff have just a few weeks to review the applications to ensure that all required documentation has been submitted, to finalize the budgets, and to prepare the awards prior to the end of the fiscal year on September 30.

A number of important aspects of the construction program application process were then highlighted. These requirements, listed below, are described in the supplemental instructions and should be addressed in the application itself. Due to the tight time frame described above, there is a very short amount of time for an applicant to prepare these documents prior to award once selected for probable funding. Thus, if materials are missing from the application, it may be necessary to select a different project for funding.

The required materials highlighted were the following:

Legal opinion – Applicants must include an opinion from acceptable title counsel describing the interest the applicant organization has in the site and the building and certifying that the estate or interest is legal and valid. If there is a lease, the legal opinion must provide evidence of the existence of a lease agreement that covers a time sufficient for the usage requirement (20 years beyond completion or occupancy of the project).

Matching funds – Applicants must provide an assurance that required matching funds are available and that additional funds have been secured to meet project costs in excess of the Federal award and non-federal matching funds. This assurance may be explained in detail under the budget section or on a separate letter included with the application.

Facility certification – Applicants must provide a written certification that the facility will be utilized exclusively for the specific purpose for which it was constructed for at least 20 years, beginning 90 days following completion of the

construction project. Written certification may be included under the program narrative section or on a separate letter included with the application.

Proposed timetable – Applicants must provide a proposed timetable for construction, i.e., target dates for bid advertisement, contract award, construction completion, and occupancy. This information will determine the budget and project period end dates.

Summary of requested research space – A table showing the net square footage in the proposed facility must be provided. This table becomes a term of award subject to NCCR approval for any changes.

SPOC (State Single Point of Contact) – Applicants are required to comply with Executive Order (E.O.) 12372. E.O. 12372 sets up a system for state and local government review of proposed Federal assistance applications. Applicants are required to contact their SPOC, if one exists, no later than the time of submission to alert them to the prospective applications and receive any necessary instructions on the State process. (See the supplemental instructions for a list of the SPOCs.) The SPOC may choose to not review the application. In either case, applicants must respond to item 16 of Standard Form 424, Application for Federal Assistance, or indicate that the state has no SPOC.

Public disclosure – Applicants must make a public disclosure of the project by publication and describe its environmental impact, usually at the time the SPOC is notified. It is suggested that the notice be published in a large-circulation newspaper in the area. Evidence that this has occurred is to be included in the application.

Application Checklist – Complete pages 1 and 2 of the "CHECKLIST FOR NIH RESEARCH FACILITY CONSTRUCTION GRANT APPLICATION," which is provided as Attachment 8 in the supplemental instructions.

Participants were briefed on what happens once a construction award is made and responded to questions on post-award issues. It was noted that, unlike most grant awards, recipients of construction grant awards must provide a signed acceptance of the Notice of Grant Award. The last term and condition of the award provides a block for the grantee to sign, with instructions to return the signed award to the NCCR OGM. Once the signed Notice of Grant Award is received, NCCR sends a letter to the grantee, acknowledging receipt of the signed acceptance and outlining specific design requirements with a set of two enclosures. Although an award has been made, no funds may be expended until all the required submissions are reviewed and approved by NCCR, and a revised Notice of Grant Award releasing funds for construction is issued. Recommendations of the NIH Division of Engineering Services (DES) are provided in writing to the NCCR OGM staff, and official responses come from OGM.

Grantees are required to make three submissions: schematic design, design development, and construction documents. One copy of each submission is sent to OGM as the official

file copy and one set is sent directly to the DES for review. After the first two submissions are reviewed and approved by DES, NCRR typically contacts the grantee by phone indicating that the next design phase may begin. Once all of the submissions have been reviewed and approved by DES, a memo is sent to NCRR recommending release of funds. OGM then issues a revised Notice of Grant Award, releasing funds for expenditure.

Division Of Engineering Services

The DES review helps insure that the goals of the facility and the interests of NIH are met, including accurate program interpretation, sound technical/design practices, but does not replace review by facility.

Benefits of Review

- Increased Communications
 - Early identification of potential problems
 - Program people understand what A/E is providing
 - Learning process
- Document Accuracy
 - Technical /constructability
 - Bidability of documents
 - Coordination

Grant Review Process

Interactions

- Main connection is Grantee to NCRR
- DES deals with Grantee after review in progress
- DES and A/E may have direct discussion

Required Submittals

Schematic Design (SD)

- 15-35% complete
- 2 Copies to NCRR

Design Development (DD)

- 65-75% complete
- Copy to DES only

Construction Documents (CD)

- 95% complete-Final
- Copy to DES (and NCRR if Record Set)

Final Record Set

- Incorporating all comments into drawings and specifications
- Provided to NCRR and DES
- An electronic version of the documents is now requested
- The CD submittal may be accepted as the final record set

Submittal Checklist

- Available in Grant Approval Letter
- Not all items apply to all projects
- DES will call if additional info is required
- Submittal can be rejected if sufficient material is not provided for review

Review Methods

Conference Call

- no back-and-forth of written comments
- discussions resolve issues during conference call
- minutes of call are recorded and submitted by the grantee or A/E
- submittal completed when minutes are submitted and accepted
- typical comments take the form of requirements and recommendations

References

1. Guidelines for Planning and Design of Biomedical Research Laboratory Facilities
 - NIH/AIA collaboration
2. Biosafety in Microbiological and Biomedical Laboratories
 - BSL Levels
 - Labs and Animal
 - Containment Devices
 - For information, see:
<http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm>
3. Primary Containment for Biohazards
 - Biological Safety Cabinets
4. The "Guide"
 - *Guide for Care and Use of Laboratory Animals*
 - Design of the animal environment
 - Referred to for AAALAC accreditation
5. NIH Design Policy and Guidelines
 - Four volumes, Lab, Vivarium, Clinical, and Reference
 - Developed for use with NIH facilities, not all information is applicable to grants available on Internet - <http://des.od.nih.gov/nihpol.htm>

DES Technical Review Team

Gary Zackowitz, RA

Coordination/ architectural

301-435-2105

Fred Khoshbin, RA

Architectural

301-435-2131

Tom Ligis

Electrical

301-435-2129

Bob Farahpour

Mechanical

301-435-2119

Perspective of Current Grantees

Presentation #1:

First Things First

- Decide who is going to write this grant.
 - It CANNOT be written by one person
 - Built a team composed of:
 - scientists
 - planners/designers
 - school officials, who have signing authority
- Read the instructions
 - NO, really read the instructions

What is the Construction About?

- Brief history of group
- Key milestones
- Major recognition
- Research affected by C06
- Faculty affected
- Total support current and pending

Proposed Facility

- How will it be used to expand, improve or maintain existing programs?
- Show how the net benefit will be of national research importance.
- Include all researchers affected by the proposed facilities alterations.
- Provide descriptions sufficient to allow reviewers to objectively judge the scope.

Who are the Reviewers

- Reviewed by the Scientific and Technical Review Board of NCRR. Review the Roster, it is made up of scientists (DVMs, MDs, PhDs)
- Primary reviewers
- Two scientists
- One design expert
- Summary Statement shows that the science is key

The Tables

- Follow the directions--you have heard that before
- When all fails, pick up the phone!!! Talk to NCCR Program Officials.
- These tables are confusing; don't be afraid to ask for advice.

Life After Review

- Be careful what you wish for!!!!
- Schematic Design, Design Document and Construction Document (see other presentations)
- Approvals, Presentations, and Bidding (see other presentations)
- Communication, Communication

Criteria to think about:

- Adequate PHS Funding
- Collaborative research
- Well organized plan
- Centralized facility
- Clear line drawing
- Need well justified
- Biosafety addressed
- Institutional commitments
- Well qualified staff
- Limited but adequate appendix
- Well demonstrated impact on research

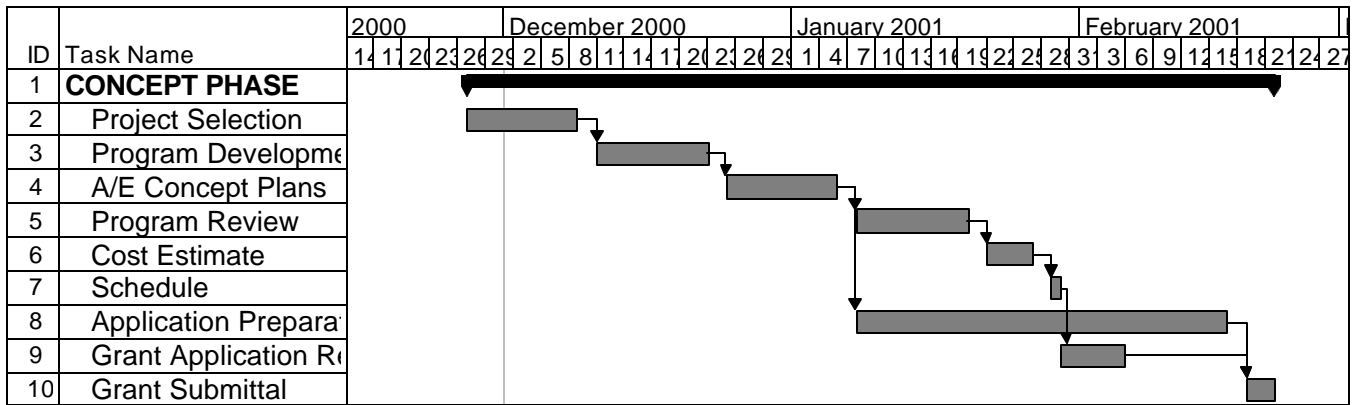
Presentation #2:

Construction Projects Constraints

- Scope Of Work:
 - Performance Criteria
 - Quality
 - Quantity
 - Programs
- Cost Estimate
- Schedule

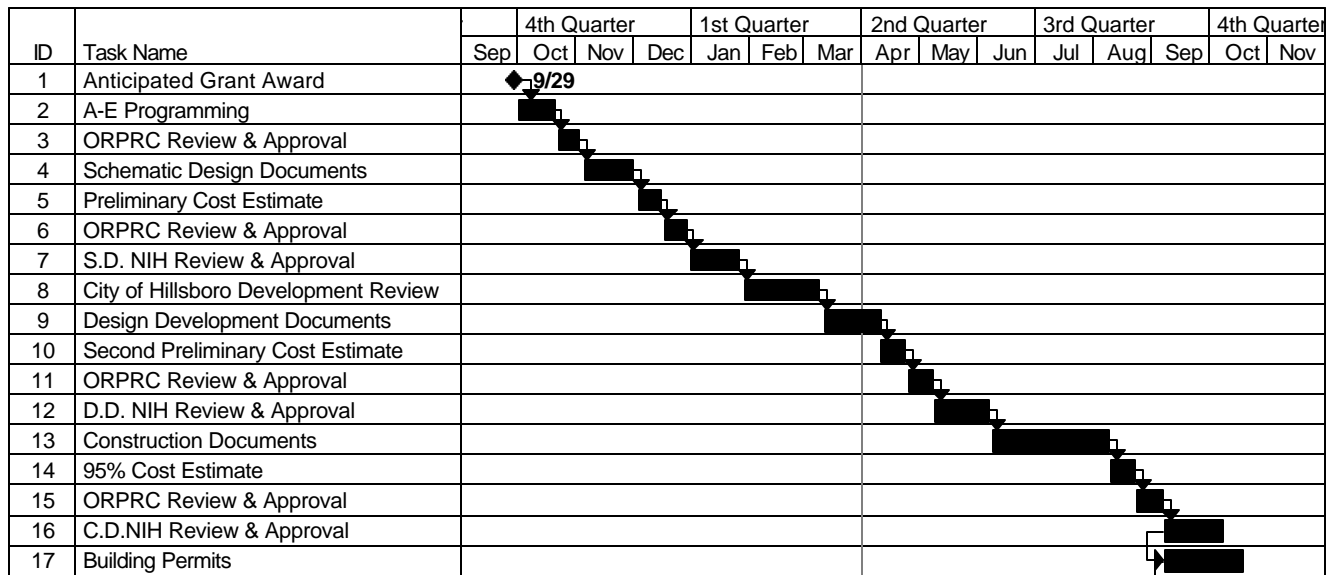
Project Life Cycle

Concept Phase



Planning/Design Phase

Planning/Design Phase – Detailed



- **Construction Phase**
- **Termination Phase**
- **Challenges/Opportunities**
 - Limited Funds – Multiple Phases
 - Program Development & Changes
 - Schedule Timeline
 - Architectural/Engineering Guidelines
 - Knowledgeable A/E Team
 - Smoother Implementation & Termination
 - Learning Curve

Presentation #3:

Planning for the Renovations

- Consider the research program
- Identify the site to be renovated
- Determine who will lead the planning process
- Attend the RFIP Workshop

Who to Involve in the Planning

- The User Community
- The Institutional Leadership
- The Architects and Engineers
- The Fiscal Office

Do's and Don'ts for Success: The Howard University Perspective

DO:

- Consider the needs of the Users
- Consider the Availability of Institutional Resources
- Get a commitment of support, in writing, from the highest institutional official
- Prepare a good draft of the proposal in consultation with:
 - The Users
 - The Architects and Engineers
 - The Institutional Administration
- Select an architect with a good track record and reputation in designing the kind of facility being planned
- Develop a realistic and reasonably accurate estimate of the costs

- Visit similar facilities that have been successfully developed at other institutions;
Select a contractor who, by reputation, is:
 - Dependable
 - Gives an accurate estimate of costs
 - Follows on the construction time line with minimal cost over-runs

DON'T:

- Don't under-estimate the cost of the renovations when preparing the proposal
- Don't plan without input from an architectural consultant, it is worth the investment
- Don't expect to let a contract for the work without the final approval of the plans by the NCCR Architectural and Engineering staff
- Don't sacrifice quality to save money

Vision Statement

- State the vision and long term direction

Goal and Objective

- State the desired goal
- State the desired objective
- Use multiple points if necessary

Today's Situation

- Summary of the current situation
- Use brief bullets, discuss details verbally

How Did We Get Here?

- Any relevant historical information
- Original assumptions that are no longer valid

Available Options

- State the alternative strategies
- List advantages & disadvantages of each
- State cost of each option

Recommendation

- Recommend one or more of the strategies
- Summarize the results if things go as proposed
- What to do next
- Identify action items