National Institutes of Health

9000 Rockville Pike

Bethesda, Maryland

Master Plan 2003 Update

Main Campus - Bethesda, Maryland

National Institutes of Health

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March 2005

❖ U.S. Department of Health and Human Services ❖ National Institutes of Health ❖
❖ Office of Research Facilities Development and Operations & Division of Facilities Planning ❖

National Institutes of Health

Master Plan
2003 Update

Main Campus - Bethesda, Maryland

Oudens + Knoop Architects PC

Smithgroup

Athavale, Lystad & Associates

Gorove Slade & Associates

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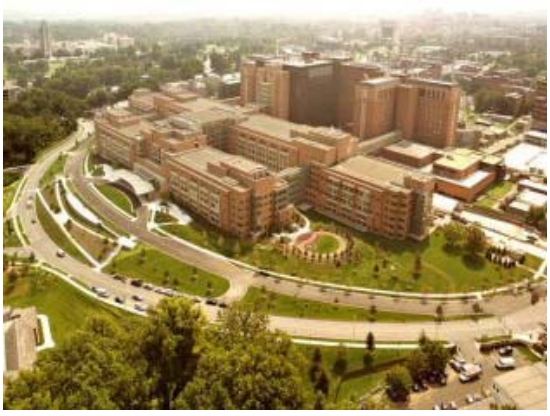
Dale and Betty Bumpers Vaccine Research Center



Clinical Research Center

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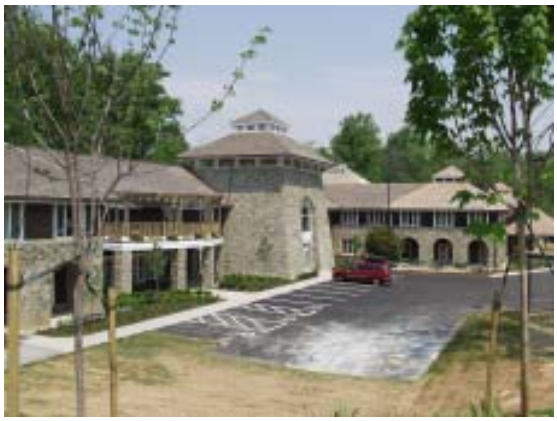

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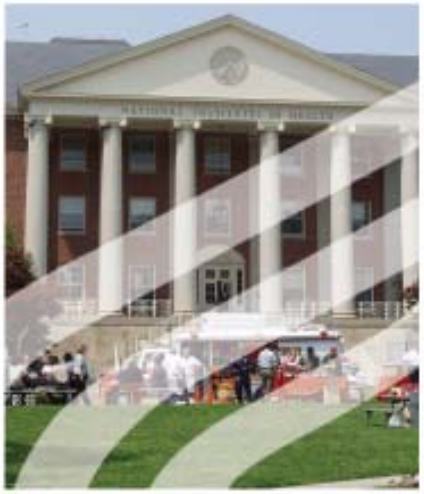
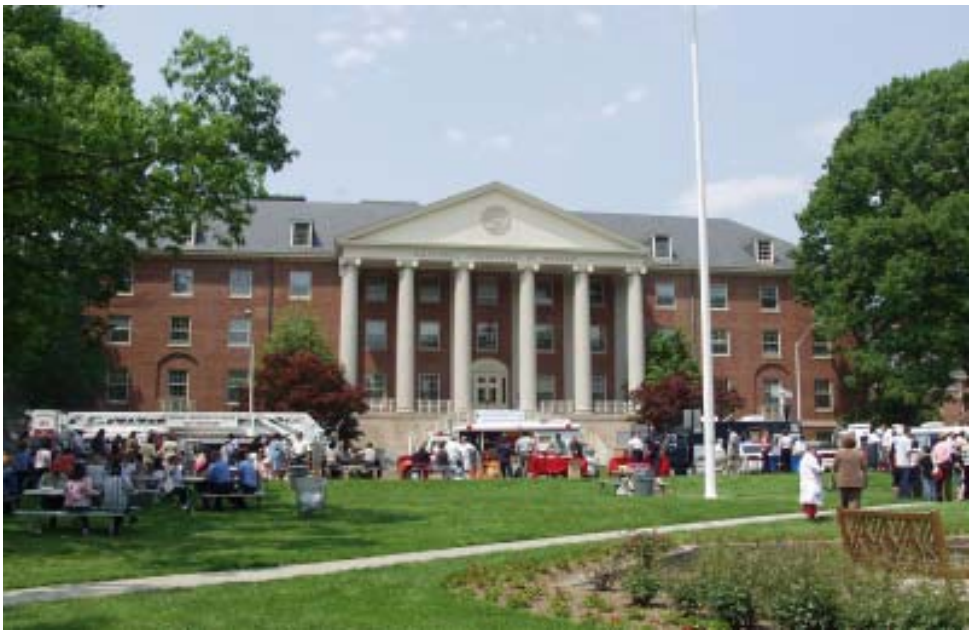
Executive Summary



1.1 The NIH Bethesda Master Plan 2003 Update



James A. Shannon Building

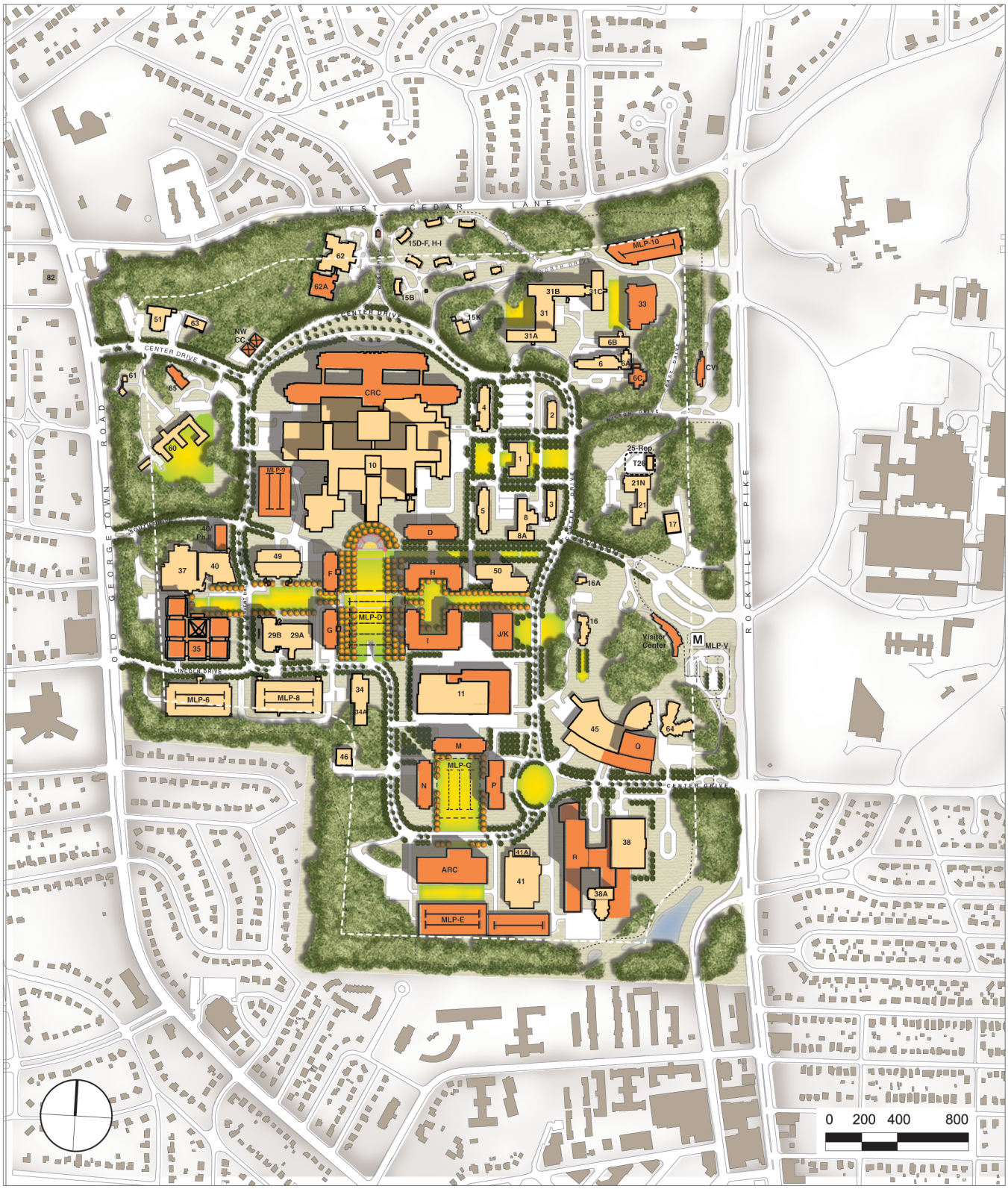
The most recent Master Plan for the Bethesda Campus of the National Institutes of Health (NIH) was approved in 1996. Since then, significant growth in NIH space and personnel on and off the Bethesda campus has occurred. Furthermore, conditions imposed by the National Capital Planning Commission (NCPC), the federal government's central planning agency in the Washington, D.C. area, require periodic updates. This Master Plan Update has been developed for a 20-year planning period, and personnel and space estimates are arranged in four incremental phases covering a twenty-year period. The NIH intends to continue to update the Master Plan at approximately five year intervals.

The Master Plan seeks to create and maintain a campus environment conducive to accomplishing the NIH mission and to provide a physical framework for the changing character, nature and urgency of the NIH biomedical research programs. It provides a long-range planning envelope for the Bethesda campus, and outlines a strategy for accommodating potential campus development. It identifies the physical opportunities and limitations of the campus and defines population and associated facilities for planning purposes. However, actual program realization at any given time will depend on NIH and Department of Health and Human Services (DHHS) priorities, congressional and presidential policy decisions and federal budgetary realities. Although the proposed projects may not be required or carried out to the extent shown, the Master Plan will help ensure orderly future development on the Bethesda campus if and as it occurs.

The Master Plan is a reasonable guideline for future development and does not represent the pre-approval of any individual facilities projects since the financing of such projects will need to be addressed within the annual DHHS budget process and the DHHS Capital Investment Review Board mechanisms.

1.2 The NIH Mission

Begun as a one-room Laboratory of Hygiene in 1887, the NIH today is one of the world's foremost biomedical research centers. An agency of the Department of Health and Human Services, it is the federal government's focal point for health research.



NIH Master Plan 2003 Update

Bethesda Campus

EXISTING

PROPOSED

GREEN/OPEN SPACE / RECREATION

CENTRAL MALL/PRIMARY OPEN SPACE

M METRO STATION

SECURITY FENCE

BUFFER LINE

Figure 1.1

Illustrative Master Plan

NIH / ORF / DFP

Oudens & Knoop, Architects, P.C.

SmithGroup

The mission of the NIH is to expand fundamental knowledge about the nature and behavior of living systems; to apply that knowledge to extend the health of human lives; and to reduce the burdens resulting from disease and disability. The NIH seeks to accomplish its mission by:

- fostering fundamental discoveries, innovative research, and their applications in order to advance the nation's capacity to protect and improve health;
- developing, maintaining, and renewing the human and physical resources that are vital to ensure the nation's capability to prevent disease, improve health, and enhance quality of life;
- expanding the knowledge base in biomedical and associated sciences in order to enhance America's economic well-being and ensure a continued high return on the public investment in research; and
- exemplifying and promoting the highest level of scientific integrity, public accountability, and social responsibility in the conduct of science.

In addition to the main NIH campus in Bethesda, Maryland, which is the subject of this Master Plan 2003 Update and associated Environmental Impact Statement (EIS), the NIH maintains installations in Poolesville, Baltimore and Frederick, Maryland; Research Triangle Park, North Carolina; Hamilton, Montana; and smaller facilities in other parts of the country. The NIH also leases space in over thirty locations in the Bethesda/Rockville area of Montgomery County, Maryland.

1.3 Planning Methodology

The Bethesda Campus Master Plan is one of a set of long range development plans for NIH installations. Each plan outlines a physical framework to support the NIH strategic research plan, the unique needs and character of the site, and the locale in which the installation is located. One of the primary benefits of the NIH master planning process is that it provides a consistent structure for NIH master plans - similar content, methodology, and level of detail. At the same time, the process recognizes differences among NIH campuses - different histories, physical resources, and community contexts - which result in distinctive programmatic requirements and physical forms for each campus.

Update of the Bethesda Campus Master Plan began with the review of relevant information about the mission, organization, personnel, programs and facilities at the NIH main campus and at other NIH leased and owned properties in the Washington-Baltimore area. The most important source of information came from new interviews of the leadership of the Institutes and Centers (ICs). ICs were asked to base their projections on research needs without considerations of possible limitations on available funding or unanticipated changes in government policies and priorities. Within an interview questionnaire format, each attempted to predict biomedical research requirements for their IC over the next twenty years, set forth the mission and program development they anticipated would be necessary to meet these requirements, and estimate personnel needed to staff these programs over the next five, ten and twenty year time periods.

At each stage of development of the NIH Master Plan 2003 Update, the master planning team coordinated with, and made progress presentations to NIH Management; the Community Liaison Council, a group representing neighborhood associations and organizations surrounding the Bethesda campus; and the staffs of the NCPC and the Maryland-National Capital Park and Planning Commission (M-NCPPC). At the same time, the environmental impacts of growth and change on the campus were investigated together with various options, and mitigation measures were developed. An EIS has been developed as a part of this process.

1.4 Program Basis

In order to develop a framework for the Master Plan Update, a projection of functional, personnel, and space needs was prepared by means of a new questionnaire and new interviews of the key personnel of the 27 Institutes and Centers that constitute the National Institutes of Health, plus key officials within the Office of the Director (OD) of the NIH.

The NIH Master Plan 2003 Update is based on several planning premises, chief among them is accommodating the anticipated scientific needs of NIH's biomedical research programs. For purposes of the Master Plan, the 2020 planned campus employment level is set below the level ideally desired to achieve these goals on site as estimated by the ICs because of natural, systems and community constraints on the Bethesda campus growth. This allows the Master Plan to satisfy its many purposes without compromising the basic tenets on which is based. As a consequence, the campus employment level used for planning purposes, which is substantially below the Institute projections, reflects a balanced response to meeting NIH's programmatic needs in the future.

Total potential population at the Bethesda campus in the next twenty years was projected by the ICs to be as high as 26,400. The primary growth at the campus was projected to be through consolidation of Intramural Research Program (IRP) personnel from other NIH sites to the Bethesda campus. Despite the pressure for personnel growth at Bethesda, NIH established a limitation on campus growth to 22,000 persons due to community, infrastructure, and traffic and transportation concerns.

The Master Plan 2003 Update identifies current and future pressures on building areas, parking, transportation systems and utilities infrastructure.

Over the 20-year period ending in 2020, the number of NIH personnel is projected to change as indicated in the following table.

Table 1.4 Projected 20-Year Personnel Growth

	Washington / Baltimore Area	Bethesda / Rockville Area	Main Campus
Year 2000	26,259	24,155	17,617
Current (2003)	27,990	26,141	17,511
Year 2020	N/A	N/A	22,000
Percent in Change 2000 to 2020	N/A	N/A	24%

The Master Plan 2003 Update provides a strategy for accommodating the space needs related to these IC personnel projections, while at the same time satisfying other campus goals and objectives, including decompression of overcrowded office and laboratory space, utility upgrades, and the addition of needed amenities. Based on the plan, NIH estimates that the space on the Bethesda campus will grow from approximately 7.4 million to nearly 10.7 million gross square feet, a net increase of about 3.3 million gross square feet of building area, not including parking structures.

Most of this growth is in replacement and modernization of intramural research facilities, and the completion of the Mark O. Hatfield Clinical Research Center (CRC).

IC Organization

The most significant organizational feature of most institutes - for purposes of the Master Plan 2003 Update - is their division into intramural and extramural research functions. The intramural basic and clinical research programs distinguish the NIH as an institution from all others in biomedical research. The NIH intramural research program enjoys unique interdisciplinary character, flexibility of the course of research and the freedom to pursue research without imposition of predetermined duration or, in some instances, scope. In the Clinical Center, patients are physically close to researchers, and the rapidity with which clinical trials of research findings can be applied is unique in biomedical research. On the other hand, the grant funding of extramural research, accounting for 80% of the total NIH budget, requires advance definition of objective, duration and cost, and grantee institutions often cannot access patients for clinical trials as readily as researchers at the NIH Bethesda campus.

Each IC has an Office of the Director which requires convenient access to the corresponding offices of the other ICs and to the Office of the Director of the NIH. Nearly all ICs, given the choice, state that most of their programs should be located on the Bethesda campus. Research and grant personnel now in locally leased space complain of the frustrations of having to travel to the campus for meetings, seminars, or other business because of the time taken to move between NIH facilities. Shuttle bus service is not practical at some sites, such as those in Baltimore, Frederick, and the NIH Animal Center (NIHAC) in Poolesville, Maryland.

The Clinical Center Complex

The heart of the intramural program is the Clinical Center Complex (CCC). The Clinical Center, which opened in 1953, has been the world's premier biomedical research facility, providing the basic clinical and patient proximities that have become the model for today's research, and it continues to play a major role in the missions of nearly all Institutes and Centers. However, age, condition of the infrastructure, and physical restrictions of the Clinical Center or Building 10, as it is known, itself threaten the performance of the facility overall and ultimately the vitality and creativity of the entire intramural program.

Warren Magnuson Clinical Center

The Clinical Research Center (CRC) to be completed in 2004, and the Building 10 Renovation, to be completed in several phases, will rectify many of the CCC's physical infrastructure problems discussed in the 1995 Master Plan.

Animals in Research

The use of animals in research by the intramural programs is extensive at the NIH, which has one of the larger veterinary resource programs for research. Animals are accommodated in various ways. Many are currently scattered among buildings on the Bethesda and Poolesville campuses. Some are in locally leased space. Others are at NIH's Frederick, Baltimore and satellite field locations. Although all NIH facilities are accredited by the American Association for Accreditation of Laboratory Animal Care (AAALAC), replacement of the existing Building 14/28 animal complex will ultimately be necessary. Because of severe infrastructure and environmental constraints that limit future construction at the NIHAC in Poolesville and scientists' desire to keep animals as close to the laboratories as possible, it does not appear feasible or desirable to move many more animals from Bethesda to the NIHAC or to transfer more laboratory activities to Poolesville to be near the animals already there. The trend in recent NIH research facilities has been to have large vivariums located in the laboratory buildings themselves.

Campus Amenities
Interviews of IC personnel revealed concerns about the character of the Bethesda site, the insufficiency of places offering opportunities for socialization and collegiality, and the lack of facilities for recreation, child care, dining and other services. While the general landscape character of the site was applauded, the intrusion of extensive surface parking and the visually confusing development of the campus suggest that many improvements in design and planning are necessary.

Parking and Transportation
Of all the Bethesda campus site issues, parking and transportation were of greatest concern to almost everyone interviewed. At the time, employees complained there were not enough on-site parking spaces to accommodate the number of people who felt they must drive and, therefore, needed to park on the Bethesda campus. Many members of the scientific community work irregular hours, and intramural investigators spend, on average, between 50 and 60 hours per week on campus, sometimes working until the early morning hours, leaving for home, then returning to the campus at midday, when a substantial amount of time is required to find a parking space, if one can be found at all.

On the other hand, concerns of the public and the official planning agencies about the increasing demands that traffic to the site makes on transportation infrastructure, the requirements for mitigation anticipated by the Clean Air Act, and the existing Memorandum of Understanding between the NIH, the Montgomery County Planning Board and NCPC have required extensive analysis of transportation issues in the 2003 Master Plan Update. The Update continues to rely heavily on NIH's long range Transportation Management Plan which has been very successful in encouraging greater use of transit and ridesharing.

1.5 Planning Objectives

The academic campus model emerged as the appropriate tool to guide the modernization and modest growth of the NIH on the Bethesda campus. The model provides a flexible framework for phased construction of independent buildings in a rational, cost-effective way while maintaining functional relationships and efficient infrastructure and circulation systems. It also provides a structure for combining intelligent environmentally sensitive land use with a high quality environment.

Although the NIH is organizationally different from academic, campuses are places where thoughtful research and studies are pursued. Physically, the term "campus" implies an expression of density, scale and quality of environment which is consistent with the Master Plan goals. The campus model evokes a clear image to guide future development decisions and provides a visual identity for the NIH.

This model is coincident with the current perceptions of the NIH as a campus-like environment. This is true both in the minds of the researchers and staff and generally within the surrounding community.

Due to the extensive level of existing development, the Bethesda campus has certain constraints, but at the same time existing physical site features present opportunities that can be enhanced and incorporated successfully into the Master Plan.

The basic goals of the Master Plan continue to be:

- Foster innovative research strategies designed to advance the nation's capacity to improve health.
- Provide a physical framework for the changing nature, technology, character and urgency of medical research and education.

- Provide a secure and supportive environment for the people involved in NIH activities.
- Enhance and respect the stability and integrity of the surrounding residential community.
- Protect and enhance the natural resources and environmental qualities of the NIH campus and the region.
- Foster communication about NIH goals and policies.

1.6 Description of the Master Plan Concepts

Although the Master Plan 2003 Update has made minor adjustments to the physical plan, it remains consistent with the 1995 Master Plan:

Functional Relationships
The Clinical Center Complex will continue to be the functional "heart" of the campus. Research functions will be contiguous to the Clinical Center to the east, west and south. Support functions, including storage and maintenance, will be primarily located in the campus center, though most buildings have their own shipping, receiving and other support. The administrative core will be located along the eastern side of the site relating to the more public side of the campus and closer to the Medical Center Metro station. A large portion of the laboratory complex at the center and south of the campus is also convenient to the Metro station.

Open Space Systems
These will comprise interconnected and defined quadrangle spaces as the basic structure of the campus. A central mall is proposed to organize the buildings surrounding it and maintain a north-south pedestrian connection. Secondary spaces will radiate from this central space and help connect the building groupings. A natural system of open spaces created by the NIH Stream and other existing landscape features at the four corners of the site will be integrated into the campus structure.

Building Patterns
Five existing building groups will remain and anchor the site: the administrative group (Building 31); the Historic Core (Buildings 1-5); the Clinical Center Complex; the west laboratory group (Buildings 35 - 37 - 40); and the NLM/Lister Hill - Natcher group. The core of the campus will be redefined by two new laboratory groups to replace the support and computer services Building 12/13 complex in the center and the existing animal facility in the Building 14/28 complex to the south. At the perimeter of the campus is the residential group to the north, and several stand-alone structures such as Building 16 (the Stone House), Building 60 (the Convent), and Building 62 (the Children's Inn). Most new development is integrated into the orthogonal grid originally generated by the Historic Core.


The NIH Stream

Massing and Heights
The tallest structure - the Clinical Center Complex - will continue to be the focal point of the campus. Lower buildings will be placed along the perimeter, and to the extent possible, a transition in height will be made from the tallest building to the lowest. Building heights will be below a plane rising five degrees from horizontal at the perimeter of the site to maintain an acceptably low scale as seen from the residential surrounding areas.

Circulation
A primary interior roadway loop will become the organizing element for vehicular campus circulation. Secondary roads will connect to the loop, and seven major site entries will be emphasized. Also planned is a separate entry from Rockville Pike for

where pathways connect from the north of the loop road, through the central mall and the Clinical Center Complex to a site for central campus amenities to the south. A second pedestrian corridor will connect the central mall with the Metro station on the east and Old Georgetown Road on the west. The Master Plan 2003 Update continues to limit vehicle penetration inside the loop road to service and emergency needs.

Utilities

NIH's Updated Master Utility Plan (UMUP), was completed in 2000. The UMUP reassessed existing utility demands or usage and system capacities with emphasis given to the central utilities, steam and chilled water. Projections were based on the 1995 Master Plan. The UMUP also updated future major utility needs and the implementation scheduling on a concept planning basis. These projections have been further refined in conjunction with the campus Master Plan 2003 Update.

Parking

NIH anticipates that it will maintain an employee-to-parking ratio of no greater than 0.50 in the future as recommended by the Comprehensive Plan. However, depending on the extent of future regional transportation improvements, federal government policies regarding parking, and the level of success of the NIH TMP, NIH will try to reduce the ratio to 0.45. As a result, NIH's on-site employee parking could increase from 8,149 in 2003, to a maximum of 11,000 spaces at the 0.50 ratio (assuming NIH reaches its maximum population planning level) over the 20-year Master Plan period. The NIH intends to continue its traffic management program to reduce on-site employee parking even below the 0.45 level, if possible.

Security

At the request of the Office of the Inspector General of DHHS, NIH has begun implementing a perimeter security plan for the campus. Among the new measures planned are a perimeter fence with access control gates. As part of this plan, NIH will construct a Gateway Center at the main entrance to the campus near the Metro station to screen visitors arriving on foot, bicycle and vehicles, and a Commercial Vehicle Inspection Facility in the northeast portion of the site. These will not change the Planning Objectives or Planning Principles of the Master Plan.