



Virginia Polytechnic Institute
and State University
Blacksburg, Virginia

Campus Master Plan
1994 UPDATE

Sasaki Associates, Inc.
in association with
Florance Eichbaum Esocoff King Architects
and
Anderson Associates, Inc.
Wells and Associates, Inc.
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Construction Cost Systems

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This Master Plan is a look into the future of the Virginia Tech campus, taken at a particular point in time and responding to a complex set of forces and influences.

The Virginia Tech campus has reached a level of maturity of development, which makes the future planning and construction of facilities, amenities and infrastructure, extremely complex and critical.

The importance of physical planning and its relationship to the mission of the University is heightened by factors such as an increasing student population, current budgetary constraints, and the University's Phase II restructuring plan. At the same time the recruiting (and retention) of the best possible students and faculty, demands a quality of amenity and environment that is exceptional. This Master Plan balances the needs of dynamic growth with sensitive, responsible and responsive design of our campus and its facilities.

For the first time at Virginia Tech, the Master Plan contains a set of carefully conceived and developed guidelines for building and landscape development. By definition then, this study has within it, its own measure of success and quality. The result is an exceptional and visionary physical plan for this pre-eminent Land-Grant Institution.

It must be remembered however, that master planning is always dynamic and this plan will thus be judged by its ability to respond to changing needs, requirements, educational initiatives, and physical restraints.

The format of the final report is intended not only to document this change, but to be suitable for electronic transfer onto the International Computer Network, so that the "story" of what we are at Virginia Tech, what we have done, and what we plan to become, is available to all who are interested.

A tremendous debt of gratitude goes to an exceptional consulting team, led by Perry Chapman, Joe Hibbard, Phil Esocoff, and Greg Havens.

My thanks also to the Building Sub-Committee who gave much of their time and expertise, to those who participated in public meetings and workshops, etc., as well as the staff of The Office of the University Architect. The efforts of Scott Hurst, Campus Planning Architect from my staff, have been extraordinary. The quality of the work and final product owe most to him.

This Master Plan is submitted for the students, faculty, administrators, and support personnel at Virginia Tech as a reflection of this exceptional institution and its vision for the future.

A handwritten signature in black ink that reads "Peter I. Karp".

Peter I. Karp, AIA, ARIBA
University Architect
December, 1994

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EXECUTIVE SUMMARY

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VIRGINIA TECH: THE INSTITUTION AND THE CAMPUS

Virginia Tech holds a special place among the nation's varied institutions of higher learning. It is one of only a handful of land-grant universities achieving international recognition in the execution of a truly American mission: the creation, dissemination, and application of knowledge.

Beginning as a small post-Civil War military college, it has blossomed into a top-rate university, annually educating more Virginians than any other institution. Its traditional strengths in engineering, agriculture, science, and other professional disciplines are now complemented by excellence in the arts and humanities engendering a truly comprehensive university.

The unique architecture and well-planned campus layout reflect the military heritage and pragmatic nature of its curriculum, programs, and people. The campus environment efficiently supports and complements the University's multifaceted and dynamic programs; practical academic and research programs oriented toward solving real-world problems.

Mirroring the sylvan setting among Virginia's Blue Ridge and Allegheny Mountains, more than 50 percent of the 2,200 contiguous acres of the campus are dedicated to open agricultural lands and woods. The heart of the University, the academic and residential core area centered around the Drill Field, is a compact campus where a well integrated array of buildings, open spaces, courtyards, and quadrangles provide a rich framework for the endeavors of thinking and learning.

The 1994 Master Plan for Virginia Tech concentrates on the preservation and enhancement of the dual character of the countryside and the campus that make the University unique as a physical place and as a setting for its mission. The 1994 Master Plan builds upon themes established in the previous Master Plan which the University undertook in 1983, particularly in carrying forward the notion of infill and spatial enhancement of the core area as an appropriate way to accommodate academic and residential facilities. The 1994 Master Plan includes guidelines for site and architectural design to assist future designers in sustaining the quality and coherence of the campus. The architectural guidelines also define areas of the campus which have (or should have) a cohesive character defined by dominant exterior building materials. The most important being the core campus areas which are (or are to be) characterized by the use of hokie stone (the local dolomitic limestone). The 1994 Master Plan expands the geographical reach of the 1983 document by addressing the larger pastoral landscape of the University, including the Kentland Farm acquired since 1983.

Goals and Objectives

The 1994 Master Plan addresses seven goals and objectives identified by the University:

1. Formulation of a clear set of Guidelines and Standards for the Design of Campus Facilities (buildings, landscape and other site improvements) that can be used by the University and its consultants for future projects. The guidelines' documentation should be organized in such a way that it can be produced as a "stand-alone" manual for project consultants.
2. Identification of Future Development Sites on campus and formulation of rules for the selection of sites for development, including appropriate uses, affinities and relationships to other sites and functions, and special provisions with respect to infrastructure, circulation and environmental and visual characteristics.
3. Formulation of a Transportation and Parking Strategy for the campus that describes, at a conceptual level, the improvements and operations measures deemed necessary to adequately and compatibly accommodate the transportation/parking needs of the campus and surroundings.
4. Development of a plan framework and design guidelines for a clear, unified Arrival Sequence for the campus, including gateways, graphic wayfinding, clarity of movement, hierarchy of entries (ceremonial/public, functional/utilitarian) and treatment and use of areas adjacent to principal entry corridors.
5. Definition of Campus Perimeters and Edges with respect to land use compatibility, relationship to the off-campus environment and demonstrated need for property acquisitions or dispositions.
6. A review and assessment of Campus Utilities to the extent that such utilities will impact or be impacted by future campus development in terms of general capacity, alignment and location of trunk utility corridors, environmental or regulatory considerations. The utilities review should provide a means of measuring the implications of various plan alternatives and identifying likely phasing implications for plan implementation.
7. Formulation of a diagrammatic Land Use Master Plan for Kentland Farm property based on the delineation of the historical farmstead site and on the determination by the College of Agriculture & Life Sciences as to the appropriate relationship between soil types, topography and orientation and functional needs of programs and uses to be located on the site.

Building Program

The practical focus of the 1994 Master Plan is the accommodation of an extensive program represented in the Six-Year Capital Outlay Plan (1994-2000) and other important program initiatives contemplated by the University. Combined, the Capital Outlay and other initiatives serve as the programmatic basis for the Master Plan. Proposed new facilities total approximately 1.9 million gross and include teaching and research space (630,000 GSF), housing (475,000 GSF), student support space (167,000 GSF: recreation and dining), support space (116,000 GSF) and structure parking (540,000 GSF).

The residential program is not an addition to the existing stock, but the replacement of almost 1,400 beds located in Upper Quad dormitories which are scheduled for reuse as classroom-faculty office space as part of the University's Integrated Space Plan. The Integrated Space Plan is a strategic initiative designed to alleviate a severe shortfall in general purpose academic space by renovation of the Upper Quad buildings, reserving new construction funds for specialized, state-of-the-art laboratory needs. The projected program for structure parking acknowledges the need to conserve land and to provide proximate space in the significantly underserved east area of the campus adjacent to downtown Blacksburg. Shuttle lots and parking demand reduction strategies are recommended as alternative methods for providing additional parking.

Land Use

It is proposed that the bulk of the new building program be located in or adjacent to the core area generally defined by West Campus Drive, Washington Street, downtown Blacksburg and Perry Street (See Figure III-1). Outside of the core area, expansion will include siting of up to 440 new beds in the Special Purpose Housing Area, the Student Health and Fitness Center, a Multipurpose Livestock Arena on Plantation Road west of the Route 460 By-pass, and teaching, seminar and office spaces at the Kentland Farm.

There are several objectives in concentrating most of the development program within the core area. Among the most important of these objectives are to maintain the lively, integrated collegiate environment, to retain reasonable walking distances, and to conserve land resources. A compact core also limits the need to extend utilities and roads and makes for more efficient and economical campus development. Existing land use patterns and functional relationships are sustained in the Master Plan.

Campus Form and Organization

The challenge of the Master Plan is to maintain a unified campus environment that is not congested or detracting from the open space character that makes Virginia Tech so attractive. Future buildings have been sited in the

Master Plan to reinforce the existing system of interconnected quadrangles and courtyards and to shape new contained open spaces. The recommended placement of buildings recognizes that it is the quality and diversity of the open space system, in conjunction with unified architecture, that make the Virginia Tech campus memorable.

In addition to selective infill in the academic and residential zones north and south of the Drill Field, new development is proposed for the north side of the Mall, bringing new activity and linkage between this corner of the campus and the existing academic student commons and the town. The transformation of the Mall as an integral part of the campus is culminated in the proposal to extend the programmed expansion of the Newman Library over the Mall to form a portal into the campus and an architectural bridge to the academic core area to the north. The expanded Library will house a new central reading room, offering dramatic views of the War Memorial and the Drill Field beyond.

The campus spaces that are created or reinforced by the positioning of future buildings will be improved by a unified landscape vocabulary of trees, lighting, pathways and site furnishings. Spatial diversity will be enhanced by balancing the relatively structured landscapes of courtyards and quadrangles with informal, native landscape in the interstitial areas between the quads, forming links with the natural areas at the perimeter of the campus. The central organizing system of the core campus, consisting of the Mall, the Drill Field and the Duck Pond, will be improved and extended downstream along Stroubles Creek as a parklike open space corridor that ties the campus to its pastoral surroundings. Other natural areas, including the site of the President's House and Smithfield Plantation, will be integrated spatially with the Stroubles Creek park corridor (See Figure III-2).

The land at the University's western and southern edges will be preserved and made more integral to the fabric of the campus by limiting the amount of development on the existing agricultural lands, and by a long range program of reforestation with native trees along approach road edges such as Southgate, Duck Pond Drive and West Campus Drive. The reforestation program, encompassing approximately 350 acres (100 acres of which are currently high maintenance turf grass areas), would tie together existing naturally wooded areas on the campus and soften the visual effect of the disparate building forms and parking areas perceived in the approach to the campus. The detailed planning of reforestation initiatives will include, as an overarching design parameter, the maintenance of campus safety and security, and the preservation of significant views.

Circulation and Parking

Few significant changes in the campus road system are anticipated in the plan. Most road alignments will remain the same, but selective cross-section and intersection improvements are recommended for safety and better

maneuverability (See Figure IV-6). Among such improvements are median, left-turn and bus turnouts on West Campus Drive; upgrades to the intersection of Duck Pond Drive and West Campus Drive, Perry Street and Stanger Street, and Stanger Street and North Drill Field Drive; and the realignment of Spring Road with Tech Center Drive at Southgate to eliminate the awkward existing offset. It is proposed that new signs be installed on the Route 460 By-pass to direct first-time campus visitors to Price's Fork Road and West Campus Drive where a new visitors reception facility is to be constructed. It is recommended that a designated system of bicycle paths be developed to enhance bicycle use and improve safety.

If implemented, it is recommended that the proposed cross campus connector follow an alignment along existing Southgate Drive from the 460 By-pass, turning south adjacent to the western boundary of the German Club property, following the eastern boundary of the campus to connect with Hubbard Street (See Figure IV-11).

The Master Plan proposes three parking structures. Two of these structures would address a major shortfall of university parking on the east side of the campus. An alternative to the construction of the third garage could entail the development of a shuttle lot achieved by expansion of the "Cage" lot. An array of operational measures are recommended to reduce parking demand, thereby reducing parking impacts and potential capital investments in parking facilities.

Utilities

The facilities development pattern proposed in the Master Plan generally limits the extent to which campus utilities improvements will be necessary to alleviate capacity limitations and physical deficiencies. An assessment of utility needs is provided in the Master Plan. Stormwater management is acknowledged to be a serious issue because of the concentration of University and town development in the four tributary drainage basins that traverse the campus, coupled with the severe limitations in the capacity of stormwater channels. A detailed stormwater study is being undertaken by the University to determine appropriate drainage facilities needs and mitigation measures. Facilities have been located in the Master Plan to avoid or reduce possible drainage conflicts. There is adequate plant capacity for the University's projected steam heating needs, although there appear to be circumstances where line upgrades and some extension will be required. With the proposed upgrade to the North Campus Chiller Plant, there is expected to be adequate plant capacity to serve some of the proposed Six-Year Capital Outlay facilities sited north of the Drill Field and along the Mall. An additional upgrade is required to serve the remainder of the Six-Year Capital Outlay facilities sited on the north side of campus. There are segments of the chilled water distribution system in need of upgrading and a minor extension of the system will be necessary to serve proposed facilities. South of the Drill Field, chilled water will be provided by a system of satel-

lite chillers. Electrical distribution to the campus is approaching capacity requiring that additional transformers be installed to serve the proposed development. In general, the University communications network has sufficient capacity to meet future programmatic needs. Facility expansion into the peripheral areas of the campus may, however, require additional cable centers.

The sanitary sewer system has abundant plant capacity but there are limitations in segments of the trunk lines that traverse the campus. Residual capacities are unknown, as is the magnitude of any infiltration/inflow problems that may impact on the system. Potable water supply and distribution is adequate and does not appear to require any immediate upgrades.

Long Range Development

It is recommended that future development on the Virginia Tech Campus, beyond the scope of the current facilities program, should continue to reinforce established spatial patterns. It is estimated that there is a reasonable capacity to accommodate approximately 700,000 gross square feet of facilities in addition to the current building program within the area generally defined by West Campus Drive, Washington Street, Price's Fork Road and downtown Blacksburg. The bulk of that capacity would occur in development on the north commuter parking lot (B-Lot) site, within close proximity of the existing academic core, and through infill in the southwest sector of the campus on either side of West Campus Drive at Washington Street (Litton-Reaves/Wallace area). Long range strategies for replacing parking displaced by this development should include additional structure parking and/or shuttle lots as well as measures to further mitigate parking demand.

Future campus growth, in general, should follow the ridge lines north and south of the Stroubles Creek basin, allowing the basin to remain as the central organizing open space system. Such future growth may eventually encompass the golf course, although any development on the site should be considered in terms of the value of its proximity to the academic core and to the amenity created by the Duck Pond/Stroubles Creek open space system (See Figure III-3).

Ultimately, one of the clear defining characteristics of the Virginia Tech campus is its unique geographical circumstances: the coherently developed ridges that frame a memorable system of open spaces from the Mall to Stroubles Creek and the juxtaposition of the campus core with surrounding rural land. It is recommended that these attributes be maintained as a legacy for the twenty-first century.

