A Growth Management Concept for Utah State University

INTRODUCTION

The Long Range Development Plan for the Logan campus of Utah State University defines the campus structure, organization of land uses and general land and building area requirements necessary to accommodate long range enrollment growth from a current population of 14,000 full-time equivalent (FTE) students to 26,000 FTE students in the future. Although the pace of enrollment growth and the space needs for the University operations might vary in the future due to unpredictable factors, the plan is based on conservative assumptions to ensure that the University can provide for its future land and resource needs in a prudent way. The plan sets out a development framework that is based on compactness and efficient use of land, so that future growth can be effectively managed. Most importantly, the plan preserves and enhances the spatial qualities that will continue to make Utah State University a memorable, timeless and inviting public legacy.

THE SETTING

Utah State University in Logan occupies one of the most splendid campus settings in the United States. Sitting on a topographical bench 340 feet above the verdant Cache Valley, at the foot of Logan Canyon, the campus is graced by the backdrop of the northern Wasatch range on the east, and broad vistas to the valley on the west, south and north. Nearly 20 percent of the 400-acre campus is given over to working agricultural fields that sustain the Land Grant legacy of the University and provide yet another visual amenity.

At the same time, Utah State University possesses many of the distinct characteristics of an institution that is in an urban environment. The campus is bounded on its eastern, western and southern edges by Logan residential neighborhoods. Beyond the University’s northern perimeter, land is filling in with rapidly growing residential and commercial subdivisions. A large part of the student population resides in adjacent neighborhoods, blending seams between campus and community. The center of campus academic, administrative and cultural activity occupies a compact 130 acres on the University’s southwest quarter in buildings that comprise 73 percent of the campus building stock. The dimensions of the academic core zone are relatively fixed by the surrounding neighborhoods and the Logan City Cemetery.

Such are the legacies and limitations into which the future pattern of University growth and change must be made to fit.

HISTORIC DEVELOPMENT OF THE UNIVERSITY

The historic development of the Logan campus has been based on ideas of form and place that have endured since the founding of the University. Those ideas will continue to be valid for the structure of the campus in the future. The site of Utah’s Land Grant College on the Logan
The 1912 Master Plan prepared by White, Hubbard, and Pray, Boston Ma. showing the Quad and Old Main Hill defined by buildings at the edges.

bench, purchased for $2,500 in 1889, was planned at the outset to convey the sense, drama and spatial order that has served the University with remarkable consistency. In April of that year, plans for the “College Building” (Old Main) were made for the landmark site on the promontory chosen so that the tower would serve as the visual anchor on what is now Fifth North. Although a 1912 master plan envisioned buildings to the west of Old Main that would have encroached on the Old Main hillside, that notion was never adopted, and the hillside remains as a splendid park-like foreground to the campus. The 1912 plan did, however, propose a quadrangle on the bench east of Old Main lined with buildings. The Quad became the progenitor of the grid of open spaces and building clusters that has given structure to the campus through the twentieth century. (It was also the prototype for a vital mixing of uses, with housing for married students provided on the upper floors of the Plant Science Building.) The campus retained its compact dimensions on and around the Quad up to the World War II years, but expanded rapidly in the 1950s and 1960s to its present dimension.

The period of post-war growth also saw somewhat of a devolution of the coherent spatial order that had been inspired by the Quad and Old Main. Many structures were positioned along streets, as object buildings, rather than to frame quads and courts. Outlying residential complexes were laid out in a “suburban” arrangement that is indifferent to grid. Parking lots were located interstitially among buildings. In recent years, there have been notable initiatives to restore a hierarchy of defined open spaces, such as the development of new campus space east of the Science Library, replacing a parking lot that dominated the heart of the campus. The underlying grid of streets and pedestrian ways has given the campus a sustained structural order, providing the framework in which future development will be accommodated.

The growth of building space has been steady throughout the 100-year history of the campus, expanding at an average rate of 3.7 percent per year. As with many

This sequence of diagrams illustrates the evolution of the campus from its nineteenth century beginnings to the twenty-first century.
American public universities, space growth accelerated in the post-war period through the 1960s to match the spikes in enrollment created first by veterans returning under the GI Bill and then by the burgeoning “Baby Boom” generation. The building area expansion reflected, as well, the scale of space required for science, sports and student life facilities in the last half of the twentieth century.

**Future Growth Needs**

Projected student enrollment on the Logan campus is anticipated to expand from the current population of 14,000 full-time equivalent (FTE) students to 26,000 FTE students in the next 20 to 30 years. Conservative projections of the building space needed to serve the enrollment growth indicate an additional 2.5 million gross square feet of academic, academic support, administrative and general use facilities, an increase of 65 percent over the current building area accommodating those functions. To maintain the present ratio of on-campus resident students in the future, a net increase of 3,000 student beds in a relatively diverse array of housing types would be necessary. Currently, there are 3,200 student beds on campus, housing nearly 2,700 students.

If no measures are undertaken in the future to dampen per capita automobile demand, a campus enrollment of 26,000 FTE students will require a net increase of about 5,500 more parking spaces, compared to the current on-campus supply of 6,900 spaces. University-based instructional and research laboratory facilities are projected to expand by about 300,000 to 400,000 square feet, compared to 600,000 square feet of existing research space. The growth of affiliated research and development by companies, agencies and other institutions leasing University land is not predictable, but likely to exceed traditional University research laboratory growth because of the University’s dynamic efforts to general affiliated research activity.

**Long Range Growth Management Principles**

The growth management strategy for the Logan campus is based on ten principles conceived to ensure that the University’s long range enrollment and space needs can be accommodated to reinforce the superb setting of the campus and its relationship with the surrounding community:

- **Rigorously define the land and building capacity necessary to support the academic and ancillary needs of a 26,000 FTE student enrollment on the Logan campus.**

- **Develop a land use and physical organization pattern that ties the diverse land holdings of the University together in a unified and functional way.**

- **Preserve the University’s Land Grant legacy by the protection of key agricultural lands for their research, teaching and environmental values to the University.**

- **Sustain a resident population of at least 20 percent of the student enrollment to maintain the collegial character and vitality of the University.**

- **Maintain the compact, walkable academic core area between Route 89 and the cemetery by selective infill and redevelopment for future buildings.**

- **Strengthen and clarify the spatial and visual image of the campus as experienced by students, faculty, staff, visitors and the statewide community.**

- **Direct and contain growth in a way that is compatible with and respectful of the surrounding community fabric.**

- **Establish guidelines for development density and spatial order to ensure frugal utilization of the University’s finite land resource.**
- Define a land development pattern that allows for infrastructure systems to be deployed in an efficient, accessible and cost-effective manner.

- Organize future vehicle circulation and parking to ensure clear, safe public and service access to the campus while conserving land and reinforcing the pedestrian environment.

The Long Range Development Plan

INTRODUCTION

The Long Range Development Plan described herein is a structural framework for future campus growth made up of eight constituent elements - program capacity, land use, open space/civic structure, development density, circulation/parking, infrastructure, community interface and future land needs. The elements that make up the plan are interdependent. Capacity, density and future land needs, for example, are intricately related to one another. Similarly, the land use pattern, open space structure and circulation system are integrated parts of the campus fabric. The plan is described in broad terms as a growth management and spatial organization strategy. Subsequent and continuing planning by the University will address specific areas, site, circulation and design issues in greater detail.

PROGRAM CAPACITY AND ACCOMMODATION

The plan lays out a long range capacity to accommodate future enrollment somewhat in excess of the target of 26,000 full-time equivalent students on campus, to be sure that the University has flexibility in the future for unforeseen trends in demography, technology, enrollment profiles, pedagogical change, and changes in the strategic objectives of the institution. The program capacity is a consequence of the plan recommendations that are described further in this document relative to land use, density, spatial organization, circulation and land acquisitions.

Future capacity for building space and land is summarized as follows:

- 7.8 million gross square feet of building area for academic, academic support, administrative and general use facilities.

- 2.1 million gross square feet of building area for residential and residential support facilities (approximately 6,100 student beds in a diverse array of suites, apartments and “traditional” dormitories).

- 3.4 million gross square feet of building area for research facilities (including academic research laboratories in the academic core) and an integrated research complex of up to 2.9 million gross square feet north of 1400 North for University applied and specialized research facilities, research affiliations with agencies and other institutions.

- 132 acres of agricultural land to be preserved for research, teaching and open space conservation.

- 84 acres of outdoor sports facilities and fields for intercollegiate and recreational sports.

- 13,000 parking spaces in strategically located terraces and surface lots south of 1400 North (parking associated with the North Research Complex will be provided on-site as research facilities are developed).
**LAND USE**

To a large extent, the plan reinforces the established land use pattern of the University, emphasizing two factors:

- The University needs to strive for progressively more efficient utilization of the land resource.
- Land uses need to be arranged so that they complement one another in a dynamic way.

Accordingly, the plan defines six major land use zones that should be dedicated to accommodating the primary functions of the University:

- The land area between Route 89 on the south and the Logan City Cemetery on the north will be reserved principally for academic/instructional uses and central functions that serve the campus community (Merrill Library, University administration, the Taggart Student Center, the Chase Fine Arts Center, etc.). Practically all of the area lies within a half-mile diameter circle typically regarded as a reasonable class-change walking zone, maintaining the proximities necessary to ensure the vitality of the academic environment. As the University’s enrollment increases, the intent is to develop and infill the central campus location with academic and related functions, displacing facilities that are inappropriate for the core or that can function as readily in a peripheral location.

- Campus land on the north, northeast and south sides of the Logan City Cemetery will accommodate the student residential community, augmented by selective student residential sites on the west side of 800 East. The area designated for residential use includes the site of Aggie Village, the Mobile Home Park, the Student Living Center and the tier of land parallel to the southern boundary of the Logan City Cemetery. The age and types of student residences on campus are such that most, if not all, residence facilities will have to be replaced within the twenty to thirty-year horizon of the plan. At the same time, the housing stock could increase by 20 percent. Priority locations for future residential development or redevelopment are the Mobile Home Park and the land south of the cemetery, where unified, low-rise (3 to 4 story) “urban” residential villages are proposed. The
Aggie Village site will likely be redeveloped toward the latter part of the 20-30 year planning horizon, as the buildings in that complex reach their practical lifetimes. The centerpiece of the residential use zone will be the “Village Commons,” a cluster of social, retail and service facilities centered around lawn. The largest “Village Common” will be located east of 1200 East surrounded by housing. This open space will be used primarily for recreation. The development of the Commons will create a new residential community node on the northeast side of the campus. The cemetery itself should be regarded as an open space that provides visual amenity for the residential community.

- The band of University land extending from the west side of the cemetery to the north side of Aggie village is intended to be the Sports and Recreation Zone. The open space and the sports activity conducted on the space will be a unifying theme of the campus, proximate to the academic core and the student residential community on and off the campus, as well as being accessible to the public attending sports events at the University. The plan strongly recommends that the University acquire the vacant land north of the Mobile Home Park for additional housing and as an extension of the Sports and Recreation Zone. Major University parking areas will continue to occupy this zone, in part because of the need for high capacity parking associated with sports events. The functional imperative of this land use designation is to ensure that adequate contiguous land is conserved to meet shortfalls and future needs for sports and recreation space.

- The fourth major land use area is the Research Zone, occupying the bulk of the University’s land north of 1400 North. The Research Zone will contain a diverse range of research functions, including specialized University research activity requiring large amounts of flexible, highly technical or “industrial” space that doesn’t need to be in the academic core; facilities occupied by state or federal agencies, or affiliated institutions; institutes for advanced research; businesses engaged in applied research that has a linkage with the University; and agricultural fields on which long duration field experiments are conducted.

The primary characteristics of the Research zone are to provide substantial capacity for diversified, long range research activity in an ordered development fabric that utilizes the land in an efficient, unified way, and to preserve the prime, irreplaceable agricultural lands where the experimental history can be sustained over the long term. The fundamental intent is to
avoid sprawling “suburbanization” of the land resource by organizing buildings on the street grid and consolidating parking in the cores of the blocks. The long range strategy is to phase out ancillary agricultural buildings, yards and stock areas, and relocate these facilities to outlying University farm sites as the research enterprise expands.

• The fifth use area is the Service Zone, occupying land at the southeast corner of the intersection of 800 East and 1400 North. The area currently accommodates the motor pool, technical services, yard and storage facilities, and will be incrementally redeveloped and reorganized to house the Facilities organization and related buildings that will eventually be displaced by academic expansion. The area is geographically central to the University as a whole, and highly accessible by way of major regional streets such as 800 East and 1400 North.

• Finally, among the primary land use areas of the University is the “Foothill/ Canyon” Zone, the zone on the east/southeast side of the campus occupied by the golf course, the former orchard land south of Route 89, and properties generally paralleling the river bank. The plan does not envision any changes in the uses of these lands in the foreseeable future. There are no programmatic demands for their development or reuse. Steep terrain, distance and physical separation from the heart of the campus limit the area’s utility for any uses integral to the academic functions. On the whole, the area represents an extraordinary visual and spatial link between the campus and the Cache National Forest. Thus the name given to the zone is descriptive of its environmental character rather than its functions. The designation is not meant to preclude the future development of land for a use that can be appropriately fitted to the sites, such as residential. However, any future development scenario should be undertaken with careful regard for the superb visual and natural qualities that distinguish the land.

OPEN SPACE/CIVIC STRUCTURE
The unifying fabric of the campus is its “civic structure” - the interlocking system of open spaces, public places, streets, pedestrian corridors and building facade lines that frame the spaces. Civic structure is the armature in which the buildings are located. A campus is generally perceived more by the strength and clarity of its civic structure than by individual buildings, except for significant icons such as Old Main. The open space system and civic structure embodied in the plan draws from and en-
enhances the existing spatial system of the campus. It consists of four elements:

- Preservation of the Community Grid in the Academic Core. The core campus has evolved from a street grid that reflects the traditional grid of the City of Logan. While many of the old street corridors no longer function as vehicle ways, they remain as pedestrian and utility corridors and, importantly, as visual and spatial links that tie the campus together and offer splendid vistas to the valley and mountains beyond the campus. The preservation (and reclamation) of the grid is an essential component of the University’s civic structure to maintain the integrity of the streets, the linear open space and pedestrian corridors and the primary utility systems, and to provide the matrix in which buildings can be located.

- Quadrangles and Courtyards. The campus must continue to be punctuated by a system of quadrangles and courtyards that function not only as informal gathering spaces, but as the public settings around which important buildings will be located. The Quad between Old Main and the library will remain as the principal “icon” space in the spatial hierarchy of the campus core, but be augmented by other existing and future spaces that define the various precincts of the academic core, each with their own landscape characteristics. The new quad to the east side of the Science and Technology Library is a prototype for a simple open space that defines an emerging academic precinct. The open area southeast of the Student Center is an example of a rich outdoor social gathering area that is made up of small scale plazas, fountains and seating areas. Future quads illustrated in the plan will highlight the arts precinct and yet unprogrammed academic clusters north of 700 North and west of 1200 East. The plan also encourages the layout of building complexes to form internal courtyards. As the density of the core area builds up over time, the vitality and diversity of the quads and courts will increasingly shape the collegial character of the University. A strategy for the placement of outdoor art should be geared to the urban design character and movement patterns of the various campus open spaces.

- Nodes and Gateways. The civic structure of the campus will be highlighted by four “nodes” of activity that bring the campus community and the regional community together. Each “node” occupies a location near a major street intersection and a primary gateway to the University. The “Community” node of the University is the area encompassing the Student Center and the LDS Institute, the most heavily attended precinct of the Uni-

Conceptual diagram (by Sasaki Assoc.) of the campus grid which reflects the community grid and gives organization to the campus. Black shapes represent existing buildings to remain. Outline shapes are future building forms.

Aerial view of the Quad, the basic organizational structure of the campus well defined by buildings and trees on its edges.
versity for the campus and community population, located near the key gateway intersection of 700 North and 800 East. The “Arts” node at the intersection of 700 North and 1200 East includes performance facilities and galleries attended by public and University audiences. Future development east of 1200 East will provide street-level retail, dining and above-grade parking facilities, serving those audiences as well as the immediate community as a lively “campus square.”

The Arts node will reinforce the segment of 1200 East between Route 89 and 700 North as a campus gateway. The north side of the intersection of 800 East and 1400 North is projected to be the University’s “Research” node, with somewhat taller buildings (4 to 6 stories) framing the northwest and northeast corners, and forming the north gateway to the campus. The segment of 800 East between the “community” and “research” nodes will be improved as a great “University Boulevard.” The aforementioned “Village Commons” will be a major node for the University, defining the heart of the campus residential community and the gateway into the various residential precincts.

- The Green Necklace. The fourth component of the civic structure is the network of large and diverse open spaces that make up the prominent edges and seams in the campus fabric. The “Green Necklace” consists of those spaces that must be protected and enhanced for their visual, functional, and iconographic importance to the University. The Old Main Hillside is the historic landmark space in this network. The “Necklace” includes, as well, the system of sports and recreation fields envisioned to extend in a continuous arc from HPER around to
the north of Aggie Village and, eventually, to the land north of the existing Mobile Home Park. From a visual and environmental standpoint, Logan City Cemetery is one of the great spaces that comprise the Green Necklace. The agricultural fields west and east of 800 North in the Research Zone are essential parts of the Necklace, framing the north approach to the University and becoming “grand quads” in the Research Zone. The golf course and the former orchard land extending to the river valley form major elements of the Necklace, connecting the University with the natural grandeur of the canyon and Cache National Forest.

Open space diagrams showing existing green space (left) and future green space (right), referred to as the Green Necklace.

**Development Density**

For the University to effectively accommodate its long-term growth needs, it is critical that campus land is utilized in the future in a frugal way. This is especially important in being able to maintain a compact, walkable academic core area. The master plan envisions that future development will occur at higher densities than in the past, in large part to ensure more efficient use of the finite land resource, but not the least for density to be a means of bringing vitality and coherence to the campus environment. That will be manifested by development of buildings generally in the three to four story range in the academic core, in the residential zone and in the “gateway” district of the Research Zone. The intent is to incrementally replace single story buildings in high use areas such as the academic core, based on the premise that core buildings should be not less than three stories above grade (plus usable basement) unless there are functional reasons for any structure to have fewer floors. At the same time, high rise buildings (say, six stories or more) for academic or residential use should be viewed skeptically. High rise structures should be considered only if there are functionally compelling reasons, and only in circumstances where height does not violate the human scale and spatial consistency of an area.

There will continue to be a practical need for single story structures for service, storage, research and agricultural uses in outlying areas of the campus. The goal in those circumstances is to lay out future low rise building sites in more efficiently organized clusters.

The recommended density averages (measured as floor area ratios) for various precincts of the University will enable the University to accommodate projected growth while preserving critical open spaces and minimizing land acquisition other than for strategic purposes. The projected density for the academic core area as a whole will be comparable to the current density of the block containing the Science and Technology Library, Eccles Conference Center, Agricultural Science and Biotechnology, inclusive of its associated open space.

**Circulation/Parking**

The existing primary street system serving the University area remains unchanged in the plan, other than for remediations at street segments and intersections to alleviate congestion and mitigate pedestrian/vehicle conflicts. The diversity of regional access afforded by major arteries such as Route 89, 800 East, 1200 East and 1400 North must be preserved to distribute traffic loads on the campus. Currently, daily
Traffic volumes entering the campus are almost equally divided among the “gateways” at 800 East/700 North, 89/1200 East and 800 East/1400 North. The streets that traverse the campus - 700 North, 1000 North and 1400 North - will remain to ensure that there is diversity and flexibility of access to the various parts of the University. Because 700 North bisects the area projected to be the Academic Core Zone, measures must be undertaken to minimize vehicle/pedestrian conflicts. The principal measure will be to reduce through-traffic by eliminating the majority of parking spaces that can only be accessed from 700 North. Other remedial measures should include narrowing the street, introducing extended pavement rises and texture changes at key pedestrian crossings, and enforced pedestrian rights of way.

The plan recommends the improvement of 800 East from 700 North to 1400 North by simplifying the numerous lane offsets and introducing a planted median to mitigate the visual impact of the street width while retaining the capability to accommodate left-turn movements. The street will continue to be the principal access to major parking areas for daily use and sports events, making it essential that the multilane capacity and turning capacity be maintained.

Parking demand for a campus with 26,000 FTE enrollment will require an increase from the current supply of 6,900 parking spaces to a future supply of nearly 13,000 spaces. The increased amount is based on the assumption that the per capita automobile demand does not change in the long-term future. In fact, the University should apply demand management procedures over time to control congestion, air quality impacts, land consumption and capital costs. Given that parking demand will grow in any event, the plan recommends the incremental development of parking terraces to conserve property for academic and other uses. The plan illustrates several strategic parking terrace locations to ensure geographic distribution among campus precincts. The primary terrace location will be the site of the commuter lots west of the stadium and between the Spectrum and the stadium, off 800 East. The location and terrain allows for large and relatively efficient terrace structures that will enhance the continued use of the existing shuttle system, and will provide superior pedestrian linkage with the 900 East pedestrian corridor and with sports events occurring in the stadium and the Spectrum.
While there will continue to be multiple vehicle approaches to the campus for daily occupants and visitors, the plan recommends the “symbolic” approach to the University for first-time visitors take place on 500 North from Main Street to the base of Old Main Hill. The spire of Old Main is an extraordinary regional landmark when viewed at day or night. Standing as the visual anchor of 500 North, Old Main provides a direct and compelling visual cue to the visitor approaching on Main Street. The buttressing of 500 North as a visitor approach will require a signage/wayfinding system directing visitors to 500 North, creating a dignified portal at 500 North and working with the City to preserve the quality of the streetscape and land uses on the street.

While there will continue to be multiple vehicle approaches to the campus for daily occupants and visitors, the plan recommends the “symbolic” approach to the University for first-time visitors take place on 500 North from Main Street to the base of Old Main Hill. The spire of Old Main is an extraordinary regional landmark when viewed at day or night. Standing as the visual anchor of 500 North, Old Main provides a direct and compelling visual cue to the visitor approaching on Main Street. The buttressing of 500 North as a visitor approach will require a signage/wayfinding system directing visitors to 500 North, creating a dignified portal at 500 North and working with the City to preserve the quality of the streetscape and land uses on the street.

INFRASTRUCTURE

The intent of the long range plan is to maintain the compactness of the core area to mitigate the need for extensive line expansion of infrastructure systems. An underlying premise for the retention of the grid as an organizing structure for the core area is to protect underground utility distribution and collection corridors.

Heating and chilling will be the key infrastructure factors in the long range strategy for management of campus growth. Replacement of the central heating plant will be necessary at an early stage on the planning horizon to upgrade obsolescent equipment and expand generating capacity to serve future growth. The conversion to a new gas-fired plant would provide the benefit of a highly energy efficient and low pollution system. While coal is currently a less expensive fuel source, the elimination of frequent truck delivery and on-site storage would have measurable economic and environmental advantages. In the event that a new facility is constructed, the recommended location would be along 800 East in the vicinity of the Spectrum, which provides centrality to the contiguous areas of the campus between Route 89 and 1400 North. By vacating the current site on 700 East, the opportunity will be created to develop a new entry and parking facility to serve the Old Main/Student Center area, and to improve the landscape edge of the campus on 700 East.

Further study by the University will be necessary to determine whether satellite heating and chilling facilities will be appropriate to serve campus-wide growth. The concept of district chilling, to serve clusters of buildings, should be investigated. The incremental development of district chillers in key new buildings and parking terraces would allow for gradual investment in a campus-wide system.
Stormwater management is also a significant determinant of the future structure and layout of the campus. In the intermountain west, stormwater management is not solely an issue of runoff quantity and quality, but also of recapture of the water resource. Here again, the University will have to investigate the means of controlling and recapturing runoff in greater detail. One of the intents of the plan is to delineate a system of open spaces of some magnitude, distributed among the various drainage basins that the campus straddles, in order to provide flexibility for the University to determine possible detention and retention facilities that can be integrated with the landscape.

**Community Interface**

The Logan campus is a seamless part of the fabric of the larger community, surrounded by established and developing residential and commercial neighborhoods. The student residence pattern extends significantly into the community, with as many off-campus residents residing within walking distance of the campus as do those that commute by car and public transportation. The plan defines campus land use patterns and densities that are intended to be compatible and in scale with the land uses in the surrounding community. The plan to retain a diverse network of road approaches and distribution of parking facilities seeks, in part, to disperse campus traffic impacts on the surrounding community so that no single area will bear a disproportionate traffic burden. The concept of “nodes and gateways” is intended to make the University a welcoming and vital part of the cultural, social and business fabric of the Logan community.

There are larger, lasting issues of community-University impact that will require continuous monitoring and policy coordination as the University and community grow and change in the future. The effects of off-campus student residential activity (parking, congestion, absentee ownership, property values) need to be jointly addressed to maintain community stability. The presence of a student population in the neighborhoods brings a vitality and diversity that is beneficial to Logan and the University, provided that its deleterious side effects are managed.
The plan assumes that 20 percent of the students will be housed on-campus in the future. Nonetheless, the absolute number of off-campus students in the Logan area will grow significantly, from a headcount of about 13,000 students today to roughly 24,000 in the future. The community implication will be vigorous demand for rental housing stock in the region. Currently, City of Logan projections of rental housing as a land use category are not commensurate with the demand that could result from the enrollment growth envisioned in the long range plan for the campus. Ongoing dialogue with the City should be directed to reconciling those circumstances, possibly by proactive strategies for public-private partnerships for student housing.

**Future Land Needs**
The plan contains a modest and strategic array of areas surrounding the campus which are recommended for future acquisition. The acquisition strategy is intentionally limited to avoid a destabilizing effect on the surrounding community and to make sure that the financial and political capital involved in property acquisitions is invested in those areas that are most critical to achieving a qualitatively sound campus environment in the long range.

**Future Planning**
The Long Range Growth Management Plan is a guide for the future development of the Logan campus. It sets principles and directions for land use, density, open space, circulation/parking and infrastructure systems that will accommodate enrollment growth in a coherent and effective manner. It will progressively enhance the University environment. Plan execution and implementation, however, will depend on plan stages that are more technically detailed to measure feasibility, and more geographically specific to ensure that design and development is responsive to needs at the human, working level. Among the planning steps recommended to be undertaken in the next five years are the following:

- Heating Supply and Distribution Feasibility Study to verify the most effective way of upgrading facilities and meeting growth needs. (complete)
- Precinct Plans in more specific detail for areas of the campus on which measurable development is likely to occur in the next ten years. (in process)
- Stormwater Management Plan to delineate a cost-effective incremental program for stormwater detention, retention and quality control. (complete)
- Parking/Transportation Master Plan to measure cost feasibility, operating measures and staging priorities for circulation improvements and parking enhancement. (in process)
- Sports and Recreation Master Plan to ascertain short- and long-term indoor/outdoor facilities needs and priorities for capital development. (in process)
- Landscape/Open Space Strategic Plan to establish a landscape system for streets, walks and open spaces, and priorities for capital funding and development. The landscape plan should incorporate a strategy for the placement of outdoor public art.
- Architectural and Site Design Guidelines setting forth criteria for massing, location, materials, and design consistency to be followed in project design, as well as procedures for design reviews that are practical to follow.
- Student Housing Master Plan to establish a long-range strategy to replace, maintain, finance, and manage on-campus student housing.