A comprehensive study of existing site conditions has helped identify critical aspects in need of improvement and opportunities for future development, thus greatly informing the Master Plan recommendations. The site analysis was based on compiled records, site observation, site inventory, and interviews with campus officials.

The following sections present assessment, as well as recommendations pertaining to the topics below.

- Circulation
- Environmental Conditions
- Site Features and Visual Aspects
- Planting
- Materials

An overall Master Plan Concept drawing later in this chapter summarizes the recommendations on a campus-wide level. Finally, several illustrative design studies present ideas for site improvements of key areas on campus.
Circulation

A. Overall Traffic Pattern

The campus circulation can be described as a radial scheme, with the Ring Road encircling the academic campus and vehicular and pedestrian links to the core as the "spokes of the wheel". The circulation scheme, featuring a clear distinction between the vehicular outer ring and the pedestrian core, was compatible with the original commuter college concept with students residing off-campus and commuting to class. With the transition into a residential campus and the addition of dormitories within walking distance to the campus core, the original traffic concept has been challenged with a new layer of pedestrian circulation crossing the Ring Road. With the recent enrollment boom there also appears to be a perceived shortage of parking. (A traffic study conducted in support of this Master Plan has quantified the actual parking needs; for specifics see the Traffic section of this report.)

Within the campus core circulation is exclusively pedestrian. One of the issues here is the inadequacy of the existing outdoor gathering spaces in terms of accessibility, comfort, and contemporary usage, due to their often overwhelming proportions, choice of materials, and lack of shading.

Some overall circulation objectives, such as improving overall safety and wayfinding, reducing the dominance of the automobile, increasing pedestrian circulation within the campus, and meeting the parking requirements, have become especially critical with the continuing growth of the campus.

Below is a more detailed assessment of some existing circulation features and issues, followed by recommendations for improvements.

B. Vehicular Concept

Vehicular circulation dominates the outer belt of the circular campus scheme, specifically the Ring Road and the belt of parking. Vehicular traffic reaches into the campus core near the Campus Center / Dining Hall for dropoff, handicapped access, service access, and Administration Building parking. There are several other service access points into the core as well.

There are several shuttle stops throughout campus and the residential areas for the van service (DART). A regional bus stop (STRA) is located at the campus center. Refer to Traffic section for particulars on the campus public transit.

The circulation scheme was originally designed with the commuting student in mind, to separate traffic coming from out-of-campus (vehicular) from traffic within campus (pedestrian). This scheme had little need for pedestrians to cross the Ring Road and therefore the roads were designed primarily for vehicular traffic. The two major components of the traffic scheme, the entry road and the Ring Road, still connote the predominance of the automobile. The campus entry road resembles a divided highway with its three-lane entry and exit drives, separated by a 45-foot wide planted median. The Ring Road is a wide two-way corridor lined with parallel parking along the outer edge, but no sidewalks; its width and broad curvature encourages motorists to speed.

C. Service

There are several service access lanes to the academic buildings and the Campus Center. Most are designated for service only, except at the Campus Center and the Liberal Arts cluster, where vehicular and service circulation overlap.
The latter also coincide with major pedestrian access points to the campus quad, creating a conflict point with vehicular and pedestrian traffic at this area requiring the highest volume of service.

Along with the formal service lanes, some of the pedestrian paths are used for service access as well. Not being designed to accommodate service traffic, some of the paths display damage such as soil erosion at the Cherry Allée along the Grand Vista. Paving wider paths that allow for service vehicle access at known service routes is recommended for ease of maintenance.

D. Parking

The existing parking forms a circular belt between the Ring Road and the campus core buildings; it is comprised of a series of typical lots clustered together and sharing entry / exit lanes. Coordinated site signage denotes the lot number and the campus building it serves. The parking is screened from the road by a dense wooded buffer. On the inner edge, the parking lots are lined with earth berms for visual screening. Pedestrian pathways intersect the berms, leading towards the campus core.

While the wooded buffer and the berms serve well their intended role as visual screens, from the point of perceived safety, some of the less-used parking lots may feel secluded and unsafe. Additional lighting and emergency call boxes may alleviate this perception.

Interviews with campus officials have established a perceived need for additional parking. The wooded buffer between the lots serving Visual Arts cluster and the Ring Road has been identified as a possible area for parking expansion.

E. Pedestrian Circulation Pattern

The campus core is a pedestrian enclave within the vehicular outer ring. The existing circulation scheme overlays the central quad pedestrian circulation with the more recent pedestrian routes from the residential areas into the campus core. The scheme features radial paths leading from the ring of parking towards individual academic buildings, and within the central quad, a fan-shaped pattern of paths delineating the edges of the lawn plateaus.

The major campus pedestrian routes are:

- from East Campus Residence to the Campus Center / Dining Commons and up to the Central Quad.
- from Cedar Dell Residences along the Cedar Dell Vista (Cherry Allée) and Visual Arts to the Campus Center.
- from Campus Center to the Library and Science cluster.

The outdoor circulation features colonnades at the base of the buildings, stepped plazas, and ramps between different grade levels in the terraced central quad. There are also complex connections within the buildings from one cluster or level to another.

F. Conflict of Vehicular and Pedestrian Traffic

With the addition of dormitories beyond the Ring Road this well-traveled vehicular ring has become a dividing barrier for students walking from the dormitories. Recognizing the need to regulate the pedestrian / vehicular conflict points, a few pedestrian crossings have been marked at major pedestrian routes, and a traffic light has been installed at the crossing from East Campus Residences. Other traffic calming
Entry Area Enlargement

1. Fields and Observatory at Campus entry
2. Arrival from Old Westport Road
3. Entry Sign
4. Entry Lanes - Way In
5. Dropoff Area and View of Campus
6. View to Core from Ring Road
7. Pear Allée
8. View of Campus Center from Pear Allée
9. Campus Center Entry
10. Campus Center Dropoff

Circulation
Visitor Arrival to Campus Center
measures are being planned as well, such as traffic cones, light signals, and "neck-downs" (narrowing the road at crossings). These and others are discussed in a greater detail in the Traffic section of this report.

G. Visitor Arrival Sequence

The campus vehicular scheme is fairly simple and should be very clear to those familiar with the campus. However to first-time visitors there seems to be a lack of direction and destination. The circular scheme inherently lacks a sense of spatial hierarchy that could help with wayfinding; moreover, the wooded buffers along the road obscure the campus buildings and hinder visual orientation. The existing arrival sequence to the Campus Center and Visitor Parking, although of particular interest to visitors, lacks visual prominence as well as spatial guidance.

H. Gathering Places

The campus core features a hierarchy of spaces that have been designed as gathering places. They range from the expansive Campus Center Lawn and the monumental Amphitheater, to the small scale of the council rings. Variations on an amphitheater are repeated at the Stepped Plaza, outdoor cafe, and the Dropoff Plaza. The smaller gathering places, including the "Number 9"-shaped sitting areas feature inward-facing concrete benches. The more recently built Council Rings and Memorial Garden, set in lush vegetation, are more informal in nature.

Most of these outdoor spaces, intended as gathering nodes, seem to suffer from lack of use. Perhaps among the reasons for that are the spatial proportions, choice of materials, the lack of shading in some, and the damp shade of others.

I. Pedestrian Issues

Several pedestrian issues emerge as a result of this analysis and assessment. Their successful resolution, as recommended in this Master Plan, would improve the overall pedestrian experience and would further promote walking rather than driving within campus.

- Interface with Vehicular Circulation is the most critical pedestrian issue. In this campus the separation between the two is quite successful, except at the lower plaza between Admission and the Liberal Arts cluster where pedestrians, handicapped vehicles, and service vehicles share the same paved space. Several created paths indicate the need to separate the pedestrian traffic at this major circulation node.

- Pedestrian Crossing of Ring Road. The need to slow down vehicular traffic and provide increased safety at crossings has been recognized and there are several traffic-calming measures already in place at crossing locations. With the development of the residential campus component, the need for sidewalks on Ring Road along the residential areas has become critical.

- Created Paths indicate logical user-created connections that should be considered into the proposed Master Plan circulation pattern. There are several notable instances as shown on the circulation diagram for the campus core.

- Handicapped Accessibility. As it was built in the early 1970s, the campus outdoor circulation may not fully meet the current, more stringent federal and state accessibility requirements. Nevertheless, there's already consideration for outdoor handicapped access with various ramps provided for access at grade changes. The only two points where this is not the case are the stepped entry points to the central
University of Massachusetts Dartmouth Campus and Facilities Master Plan

"9"-Shaped Benches
Outdoor Cafe
Stepped Plaza
Memorial Garden
Council Ring
Colonnade Benches
Library Passage Benches
Campus Dropoff Plaza
Campus Center Lawn
Amphitheater

Circulation: Gathering Spaces
quad at the Admissions and Administration buildings, where handicapped access is provided through the buildings with elevators. An area of special concern is the stepped plaza in front of the Campus Center. The long extents of steps creates a barrier to outdoor handicapped circulation; in addition the typical step height (about 4") is too low to be comfortable for walking or sitting. This area should be redesigned to create a space that is more accessible and attractive.

- Quality of Pedestrian Experience. While this campus in general provides adequate and logical pedestrian connections, in terms of the quality of experience it leaves more to be desired. Aesthetics, environmental comfort, and perceived safety are the issues that must be addressed to enhance the pedestrian experience.

**Recommendations**

A. Reducing the Visual Dominance of Vehicular Circulation

- Modify the Entry Road.

  The objective is to abandon the "divided highway look" of the excessively wide right-of-way. One alternative is to narrow down the median to 10’ width therefore decreasing the overall visual width of the entry road (see Master Plan Concept Section). The second alternative is to create a secondary entry / exit road through the wooded area east of the campus pond, and to narrow down the existing one to a single two-way road with no median. For specifics on the traffic regulation rationale for the proposed modifications refer to the Traffic Section. From the point of view of aesthetics and experience, both alternatives present an opportunity to create a monumental tree-lined allée that would dramatically improve the arrival experience.

- Create Pedestrian Crossing Zones at Ring Road.

  The objective is to visually assert the presence of pedestrians and to slow down traffic for safer pedestrian crossing. In these zones the road should be narrowed, the existing parallel parking should be converted into sidewalks, and driveway may be paved with a different material for visual distinction. Other traffic calming measures and signalization may also be used; for specifics, refer to the Traffic Section.

- Encourage Bicycle Circulation.

  The large scale of pedestrian connections may benefit from formalizing the bicycle circulation. The campus officials have mentioned a planned pilot program of communal bicycles that students and staff would be able to borrow to get around campus; if this becomes a reality, bicycle racks should be installed at key campus locations.
B. Improving the Visitors Arrival Sequence

- Locating a Prominent New Visitors Center
  A location near the confluence of the entry drive and Ring Road, would be ideal for a Visitors Center because of its visual prominence, proximity to the campus entry and dropoff area, and the available space for visitors parking. Accompanied with attractive landscape improvements, the new Visitors center would create a favorable initial impression of the campus.

- Creating a View Corridor from the Entry Drive to the Campus Center
  With the proposed expansion of the Campus Center, the building should become more distinguished for better visibility from arrival points. The new vista to the Campus Center, defined by the existing pine grove and a new planting of large trees, would draw visitor’s attention to the heart of campus.

- Reconfiguring Centennial Drive
  The existing Centennial Drive leading to the campus center currently drops off the visitors at an uninviting overpass at the Campus Center entry; the driveway then exits through a service area and a parking lot. We recommend a new configuration for the entry road to accompany the proposed new Campus Center expansion. The new drive with a turnaround would terminate at a new plaza in front of the Campus Center serving as dropoff, shuttle stop, and regional bus stop. Service for the Campus Center and Cafeteria would be entirely separated.
C. Encourage Walking on Campus

- Create a New Pedestrian Ring Trail
  This informal trail would weave in and out of the wooded buffer along the Ring Road, become a formal sidewalk along pedestrian crossing zones, and meander closer to the heart of campus. This trail would provide an alternative pedestrian route while also enriching the recreational opportunities on campus.

- Strengthen Existing and Create New Pedestrian Links from Residential to Academic Areas.
  The existing links needing extra prominence are the walk from west campus through Library colonnade to the central quad, and the cherry allée along the Cedar Dell Vista. The new links include the reconfigured walk from East Campus Residences to the enlarged Campus Center; and the walk from the proposed new dormitories to the campus core. These major routes should be articulated with special paving, new lighting fixtures, benches, and trash receptacles. Pedestrian crossing zones appointed with a range of traffic calming measures should be created where these major pedestrian links cross the Ring Road.

- Formalize New Walks at Created Desire Lines.
  The major new connection would be in front of the Campus Center Plaza, where a new path would formalize the existing dirt path bisecting the lawn. Other proposed new walks are the perpendicular paths between buildings in addition to the fan-shaped pattern of the central quad.

- Resolve ADA Accessibility Issues at Major Pedestrian Routes.
  Special attention is to be given to the access points to the raised campus quad plateau. Since the grade differential and the available space may not allow for an outdoor accessible path that meets ADA requirements, connections through the Campus Center and the adjacent buildings are necessary and should be clearly demarcated.
- **Designate Pedestrian-Only Areas within Residential Quads.**

  The existing driveway through East Campus Residences dividing the older and newer dormitories should be used only for service, handicapped access, and students moving in and out. All everyday traffic should loop on the outside of the cluster, using existing drives. New parking should be built on the outside of this loop. The open spaces of the East Campus Residences should be redesigned for a clear circulation pattern of direct links from the dormitories to the campus and parking. The new circulation pattern would create better defined open spaces for passive and active recreation.

- **Segregate and / or Regulate Service Access at Campus Center and Dining Hall.**

  Service access to the Campus Center and dining hall should be separated from the visitor circulation. By enclosing the current overpass that links the two, the service area would become a distinct courtyard that can be visually screened.

  Service access to the Business Cluster, for lack of an alternative, would continue at its present location, crossing over the pedestrian plaza between the Campus Center and Business Cluster. To avoid conflict, a strict regimen of service times should be established outside of class hours.
• Promote Outdoor Gathering in the Central Quad.

The plaza in front of the Campus Center, with its “sea of steps” is not only an accessibility barrier, but is also poorly suited for sitting and outdoor gatherings. We recommend an improved design of the Campus Plaza and the Library Plaza in order to create outdoor spaces that are accessible, provide better environmental comfort, and promote gathering and informal recreation.

The improved design of the Stepped Plaza would replace the steps with benches, lawn, and paved amphitheaters, and an outdoor café overlooking a garden with shade and flowering trees. The Library Plaza in front of the library expansion would feature shade and flowering trees, low hedges and benches.

• Improve Campus Safety - Actual and Perceived.

Providing good lighting, good visibility, and prominent emergency call boxes are very important to boost the perception of safety. The campus already has an extensive network of call boxes. Increasing active usage throughout the day would provide the informal surveillance that is the best deterrent to crime. Tall shrubs that may create hiding spaces should not be planted near walks and pedestrian areas, and surveillance cameras could be installed in key locations such as the more isolated parking areas.
Solar Orientation and Shading
Central Quad

Approximate Shadow Conditions 9.22.03
9:00 am

Approximate Shadow Conditions 9.22.03
12:00 am

Approximate Shadow Conditions 9.22.03
4:00 pm

From Dropoff Plaza looking South, September 21 3pm.

From Liberal Arts Building looking NW, September 21 3pm.

From Visual Arts looking East to Campus Center, September 21 3pm.

Solar Orientation and Shading
Central Quad
Environmental Conditions

A. Solar Orientation, Sun and Shade

Most buildings in the campus core are oriented longitudinally in a north-south direction, with windows opening to the east and west. Violette, the Textile building, and the Visual and Performing Arts are perpendicular to the above building with windows opening towards north and south.

The campus configuration with wide open spaces and wooded areas set back from the buildings should typically result in full solar exposure of the east, west and south facades for at least some portion of the day. However, the building shapes play a very significant role in shading the facades as well. The buildings here have low colonnades on the ground levels and enormously cantilevered upper stories and eaves. These massive building elements cast deep, sharp shadows on the ground and the facades creating dramatic architectural effects. From the point of view of solar exposure, however, it seems that these overhangs on most buildings are misplaced. They don’t protect the buildings effectively from overheating by the low late-afternoon sun, as evidenced by makeshift solar screens that appear on some west-facing windows; and they reduce the amount of natural lighting within the building at all times. Some areas at the base of the buildings remain always in the shade, creating cold, damp environments unpleasant to all but algae and mold. In sharp contrast to the deep shadows at the base of buildings, the open lawns and stepped plazas are fully exposed to sun. This contrast of deep shade and bright sunshine strains the eye as it adjusts to the light differences on bright days.

Recommendations

To modulate this lack of transition from bright sun to damp shade, we recommend:

- Introducing vegetation at key areas such as the plaza in front of the Campus Center and the gathering nodes in front of Liberal Arts and Business buildings. Planting of shade trees in these areas would help create better microclimate, better spatial proportions and more pleasant outdoor environment.

- Utilizing sun umbrellas at the area of outdoor café at the Campus Center Plaza. A typical café umbrella should be selected and consistently used.

- Closing the dark and damp Library colonnade and converting it into expanded library indoor space.
Overall Campus

Prevailing Winds
B. Wind

The wind analysis has been based on on-site observations, wind charts (The New England Wind Resource Map, http://truewind.teamcamelot.com/ne), and interviews with campus staff. The later have been given the most weight, because year-round users have the best insight on the specific site wind conditions that can greatly be affected by local topography, vegetation, and building configurations.

The effect of wind on campus is felt the most in the wide-open lawn areas of the campus core. In the surrounding wooded areas the wind effect is dampened by vegetation.

The prevailing winter winds come from north-east direction, and are funneled down between the quad buildings. In summer, the prevailing winds come from the Cedar Dell Lake and are channeled up to the campus quad through the Cedar Dell Vista corridor. While in summer the cooling effect of breezes from the water are desirable, more critical is the unpleasant effect of the cold winter wind that sweeps down the quad and is magnified by the configuration of the buildings creating a wind tunnel effect. This effect occurs also in several other locations, mostly as a result of temperature differential between the sunlit and shaded portions of the building, such as at the entrance colonnades next to the campus center and the library.

Recommendations

Reducing the wind tunnel effect must be considered in improving the campus core environment.

- Windblock planting may help alleviate the wind effect in the quad area. A row of trees from the existing dropoff to the Business cluster could serve this purpose, enclosing the quad with a tall tree mass that would deflect the wind over the building "funnel". However, the location of any planting should also be considered in relation to existing visual concerns such as the campus vistas and landmark buildings that define the campus character, as well as the overall design vision for the campus.

- Glazing the library colonnade would not only block the wind tunnel through this little-used outdoor area, but would also create valuable indoor space for library expansion.

- Introducing trees at the campus plaza would alleviate the wind tunnel at the east entry to campus plaza by diminishing the overheating of structures and temperature differential that cause the wind effect.
Topography and Drainage
Overall Campus
C. Topography and Drainage

The present topography is a result of extensive grading that accompanied the campus construction. Two linear wetlands flank the site from east and west, connecting to a watershed system that extends southward beyond the site. The campus sits on a slight ridge between these wetland swales. The highest portion of the campus is near the entry, elevation 165.0, and the lowest point on the Ring Road is near the athletic track, elevation 103.0; from there the land slopes down generally towards south and west.

Within the campus core, land has been shaped to accentuate landmark elements: the sloping Cedar Dell Vista and the terraced central quad. The Cedar Dell Vista highlights the most visually memorable topographic feature, a cleared swath of land sloping down towards Cedar Dell Lake and offering an impressive view from the heart of campus. The central quad has been shaped as a series of earth terraces, with fan-shaped pattern of walks delineating the edges of the plateaus. The surrounding buildings serve as retaining structures for the terraced lawn; the grade difference between inside and outside edges is up to 12’. An elaborate system of steps and ramps connects the various levels on the ground and within the buildings.

Between the string of buildings and the Ring Road the landforms are more utilitarian. The berms along the parking lots serve as visual screens. The parking lots are graded to drain effectively towards a substantial drainage swale as deep as 6’ along Ring Road, which eventually outlets into wetlands and created detention basins beyond the Ring Road.

The land beyond the Ring Road has been shaped to allow the creation of athletic fields and residential areas.

D. Site Slope Analysis

The objective of this analysis was to identify areas that may impair circulation in light of current accessibility requirements. The analysis plan illustrates four categories of terrain slopes. The 0 to 5% slope corresponds to the ADA accessible walks; the 5 to 8% corresponds to accessible ramp slopes; and 8% to 15% represents slopes that are still acceptable for vehicular access. Although the plan illustrates "the big picture," a much closer look is necessary for a full assessment of ADA compliance on a case-by-case basis.

Most campus paths, parking, roads, and open space have slopes within the 0 to 5% category. The two stepped access points into the central quad next to the Campus Center are the biggest obstacles to accessible outdoor circulation.

Recommendations

In general the terrain does not create significant obstacles to circulation, except at two access points to the campus core.

- On a macro-scale, radical changes to overall existing topography and drainage pattern are not recommended, due to the vast scale of the campus.
- On individual developments, sustainable techniques for runoff management should be used and designed to become attractive features in the landscape.
- Consideration for universal accessibility should be one of the priorities in shaping the terrain on all new projects and developments. The critical areas that have been identified to impede accessibility due to existing topography should be more closely studied.
Site Features and Visual Aspects

A. Site Features

Despite several changes to the landscape over the years, the campus still stands as a modernistic enclave within the rural environs of North Dartmouth; surrounded by dense woods and connected to the outside world by a single access point from Dartmouth's Old Westport Road.

The heart of campus (Central Quad) is comprised of two clusters of academic and administration buildings, with a terraced lawn in between. A stepped concrete plaza west of the Main Auditorium overlooks the terraced lawn. A concrete communications tower resembling a slender obelisk anchors the central quad; an impressive grass amphitheater is located next to it. A grand swath of cleared land, (the Cedar Dell Vista), slopes down from the Campus Center towards Cedar Dell Pond to the south-west. The Central Quad and the academic buildings are surrounded by concentric rings of vegetation, parking, woods, and a circular road (University Ring Road). Spoked pedestrian paths extend from the Central Quad buildings towards the parking and the residential areas beyond the Ring Road.

The area within the Ring Road comprises the campus core. Residential areas, athletic and maintenance facilities are located beyond the Ring Road. The original campus had no residential components; the East Campus Residences and the Cedar Dell Village dormitories were built at a later date as campus satellites, east and southwest of the campus respectively. The campus athletic facilities, south of the Campus Core include an athletic center, fitness center, paved tennis courts, and various athletic fields. Other facilities beyond the Campus Core include the Boiler Plant, Public Safety building, and storage yards. A small observatory is located in the open field between the Core Campus and Old Westport Road to the north.

B. Views and Vistas

The campus core has been conceived around the idea of grand views and strongly defined vistas. Pictures only partially capture the strong character of the campus.

The most characteristic view is down the Central Quad when standing at the entry road dropoff area. The view is framed by the sculptural buildings, with the campus tower as a vertical focal point and the Visual Arts cluster as the backdrop. This view is iconic of the University of Massachusetts Dartmouth campus and should be preserved in any future development.

The Cedar Dell Vista remains a critical element that has driven the original spatial concept for the campus. This is the view defined by a cleared swath of land framed by woods and extending from the plateau in front of the campus center, down towards Cedar Dell Pond. Originally the cleared land extended all the way to the pond and included the pond as part of the vista. Over the years, the lower third has been taken over by vegetation that has blocked the view to the pond. The view towards the hills beyond is still impressive enough to merit the vista preservation for the future.

Recommendations

- Preserving of the grand views and the overall visual character of the Central Quad is one of the priorities that should guide the future development of campus.
- Defining a new vista from the campus entry road towards the expanded Campus Center is necessary for the visual appreciation of site and improved wayfinding.
Visual Aspects
Views and Vistas
University of Massachusetts Dartmouth Campus and Facilities Master Plan

Campus Planting

General Plant Cover

Mixed Hardwood Forest
Coniferous Grove
Wetland (Shrub Swamp)
Specimen Trees
Successional Meadow
Maintained Lawn
Ornamental Plantings

Campus Planting
General Plant Cover
**Campus Planting**

When seen on aerial photos, the campus appears as if carved out from a typical New England mixed hardwood forest. This forest type is comprised mostly of oak, maple, ash, and understory vegetation. In the areas beyond the University Ring Road this prevalent vegetation cover is interspersed with swaths of varying wetland vegetation types coinciding with extant wetland areas. The isolated patches of coniferous forest, comprised mostly of white pine, connote locations of formerly cleared areas that have reverted to woodland growth through plant succession. This plant succession from meadow to woodland is in its early stages along the former extension of the Cedar Dell Vista adjacent to Cedar Dell Pond, where junipers and woody shrubs encroach upon the meadow; if not disturbed, they would later be overtaken by white pine and eventually by hardwoods.

Within the Ring Road, continuous maintenance has created a park-like setting of lawns, clipped hedges, and clumps of mature specimen trees, featuring mostly oaks, white pines, flowering cherries, and a few other ornamental species.

Several garden plantings throughout campus enrich the restrained plant palette. Improving the sense of place, creating gathering nodes, and offering educational opportunities have been among the objectives of these gardens. These landscapes however, with their small scale, are overpowered by the monumentality of the campus. For example, the existing allée planting along the Centennial Drive is comprised of Callery Pears that are spaced too far from the road and each other to create the desired monumental impact. The intent and ideas presented in some of these plantings are valuable in formulating the planting concept and recommendations for the Campus Master Plan.

**Recommendations**

The development of a planting concept to guide the master plan is among those physical elements that have the best potential to change the character of place, yet take the longest time to achieve. This is especially true on a site with such vast proportions. Continuous plant maintenance, regarding scale and quality, must be also taken into consideration and integrated into the Master Plan to make the planting concept successful over time.

- The dense wooded buffers along the Ring Road should be maintained with selective clearing or planting to reinforce some of the desired sight-lines and screening.

- The existing wooded buffer between the parking lots and the campus core should be made stronger over time as a dense wooded ring of mixed hardwoods and pine trees. Of special note is the existing pine grove near the Liberal Arts cluster, which would help define a new sight line focusing on the new Campus Center building.
Pear Allée
Alpine Rock Garden
Entrance Gardens
Council Ring
Arboretum
Library Plantings
Tower Memorial Garden
Cherry Tree Allée
Hedges in Central Quad
Planting at Admissions
Campus Planting
Distinctive Plantings in the Campus Core
The open space between the wooded buffer and the campus core buildings should be a transitional zone, a setting of informal plantings and gardens. The existing Memorial Garden, a new Arts garden near the Visual Arts Cluster, new courtyard gardens, and the campus arboretum would fit well here.

The existing Arboretum groups the more exotic species together in a courtyard setting. This idea of arboretum on campus has had a long tradition on many university campuses; here it should be formalized with a systematic planting of diverse specimens enriching the plant collection over time. Mapping and marking the specimens with their common and Latin names should accompany the development of the plant collection.

The existing Memorial Garden is currently comprised of small flowering cherries shading a few granite benches, commemorating late students and faculty. Again this idea of memorial trees is quite traditional, and it should continue in an organized form in the future as well. Future funds could be pooled to finance some of the other campus landscape improvements; a memorial donation and plaque policy should be developed to guide in the selection, distribution, and demarcation of memorial elements.

The campus core area should be maintained with tightly cropped lawns and hedges. The aging evergreen shrubs in planters should be replaced with new shrub and perennial plantings.

The Cedar Dell Vista, one of the strongest element of the original campus plan, should be maintained in its present configuration by regularly mowing the lawn and preserving the abutting densely wooded buffers that define the corridor.

Two special areas within the campus core - the Stepped Plaza and the Library Plaza, should be redesigned with integrated paved areas, plantings, and shade trees. The trees would soften the existing harsh transitions between buildings and landscape, provide seasonal interest and shade, and formulate new patterns of movement. Planting would enrich the space aesthetically, improve the microclimate, scale, and usability of these outdoor spaces.

Reverting the lower overgrown areas of the original Cedar Dell Vista back to the original cleared form may not be feasible due to conservation and wetland regulations. However, without maintenance, it would soon become a wooded area through plant succession. Our recommendation is to maintain it in the meadow stage of succession by periodic mowing.

Introducing wetland planting in drainage swales should be explored as a more sustainable alternative to slow down the runoff rate and help with its natural cleansing. This could be accomplished by modifying the drainage swales to retain the water for a longer period of time thus creating the conditions for wetland plant growth; once the wetland planting is established, its periodic maintenance would be much less frequent than the required regular mowing of the existing swales.
Paving Materials in Campus Core

Key:
- Smoothfinish Concrete Paving
- Exposed Aggregate Concrete Interior
- Exposed Aggregate Concrete Exterior

Paving Materials Inventory
Campus Core
**Materials**

**A. Paving and Site Structures**

The range of materials on Campus is predominated by concrete on buildings, paving, walls, and furnishings.

- **Buildings:** the buildings are articulated in exposed concrete, inside and out, on floors and walls, combining several flat and striated finish patterns.

- **Paving:** there are virtually only two types: bituminous concrete, and exposed aggregate concrete. Bituminous concrete is used at all roads, parking, and most pathways outside of the central core. Exposed aggregate paving is used on all pathways, steps and plazas within the central core, as well as throughout the buildings, unifying the indoor and outdoor spaces. Over the years the concrete has achieved a warm patina. At many locations the original exposed aggregate has been patched up with a slightly different concrete mix.

- **Curbing at the vehicular areas is conventional,** consisting of mostly vertical granite and occasionally rolled bituminous concrete.

- **Steps are consistently concrete with exposed aggregate finish.** Most have prominent nosings that create a nice shadow line; however there were many instances of broken or patched up nosings. Throughout the campus, the steps typically have a wide profile with a shallow riser of 4" to 4 1/2" - which is too low for comfortable walking or sitting.

- **Site walls within the campus core are made of exposed concrete with various striation patterns.** At the Campus entry, a series of dry-laid stone walls recall a pastoral New England image in contrast to the campus modern architecture style.

**Recommendations**

The limited materials palette on one hand unifies the campus but on the other does not distinguish between general and "special" areas, indoor and outdoor spaces, and creates a monotonous spatial experience.

- As a general guideline, the exposed aggregate should continue to be used on walks within the campus core.

- Special places, however, such as the Campus Center Plaza and the Library Plaza, could introduce different paving materials such as concrete pavers, granite, and different finishes for cast-in-place concrete.

- For maintenance of the existing exposed-aggregate paving, a specific technical specification should be used as a standard for all repairs. The specified concrete mix should be developed to match the existing paving as much as possible, and should prescribe the exact material mix, source, color and additives.

- Outside of the campus core, bituminous concrete should be used consistently at existing pedestrian walks and the trails through the woods.

- Major pedestrian routes, such as those between residential areas and the campus core, should be paved with special paving and furnished with matching benches, trash receptacles, and light fixtures.
Site Materials Inventory
Site Furnishings

Seating

Trash and Ash Receptacles

Planters
B. Site Furnishings

The palette of site furnishing on campus falls within two distinct categories: those that were original to the campus when it was first built, and various site furnishings that have been supplemented over time. The first category displays a range of standardized site elements, such as concrete benches, concrete light bollards, and aluminum light fixtures. These original site furnishings are still quite consistently present throughout the campus. The second category of later-added site furnishings consists of elements with varying style and materials, such as mismatched trash receptacles and benches, and a few different light fixtures.

Recommendations

Updating the look of the campus, and providing improved comfort to users are objectives in reference to site furnishing and lighting. Providing a unified look can be accomplished by selecting from a designated set of typical site fixtures in order to achieve a singular campus aesthetic. This set of typical fixtures should comprise a catalog including:

- Site benches;
- Site café chair and table;
- Café umbrella;
- Trash / ash/ recycling receptacles for outdoor use;
- Bicycle racks;
- Traffic bollards, and
- Site lighting fixtures

The range of choices should be limited to a few types of site elements for a few possible applications, and they should be used consistently. For example, there could be a common campus bench for general use, and a special campus bench to be used at more prominent areas such as the Campus Center plaza and the Library plaza.
Proposed Site Furnishings

Benches

- Forms+Surfaces
  - RS Public Seating Systems - bench with back
  - Custom Designed, modular system

- Landscapeforms
  - Shadowline Backless Bench

- BRP Enterprises
  - Ashlandale Bench - 4H-107-T2-MF

- Forms+Surfaces
  - Sonoma Backed Bench

- BRP Enterprises
  - Springfield Bench - 8P-101L-72-MF

- Forms+Surfaces
  - Pacifica Bench
Proposed Site Furnishings
Tables, Chairs, Trash Receptacles
Lighting Inventory
Campus Core
C. Site Lighting

The lighting inventory revealed that the campus has a fairly good distribution and consistent use of site light fixtures. The typical fixture is an aluminum pole light with a conical hood; it is used at parking, roadway, as well as pedestrian applications, with varying heights of poles and spacing to achieve the required illumination levels. There were only a few exceptions to the use of typical site pole lights.

The original lighting scheme of the central quad had featured incandescent soffit lights that highlighted the architecture for a dramatic night effect in combination with the low-level light cast on the walkways by bollard lights. Regrettably this lighting scheme had been abandoned due to high maintenance. The concrete bollard lights, which were originally located along all pathways within the central quad, have largely been removed because of damage during plowing. The quad areas are now illuminated by building-mounted floodlights that provide adequate site illumination but lack any dramatic effect.

Recommendations

- Systematic replacement of the dated light fixtures with new, more energy-efficient luminaires. Changing all at once would be cost prohibitive; the replacement should prioritize the more prominent areas.

- Fresh approach to illumination for the central quad. This could be a contemporary variation on the original lighting scheme, by updating the accent lighting to bring back the aesthetic effects of the building illumination.

- Removing all remaining concrete bollard lights and replacing them with contemporary metal bollard lights along the paths within the central quad.

- Using contemporary pole lights at distinctive places within the campus core, such as the new Campus Center, Library and Visitors Center plazas.
Site Materials Inventory
Signage and Wayfinding
C. Signage and Wayfinding

Several types of signage occur on campus:

- Entry Signs
- Parking Signs
- Building Signs
- Memorial Signs
- Orientation Signs

Concrete, the dominant campus material, appears again in the signage in combination with enameled metal panels at parking signs and with metal lettering at the entry sign. Fiberglass appears at most building signs and orientation panels and is showing signs of weather damage and vandalism. Bronze is used occasionally at memorial signs.

In general the parking signage throughout campus is consistent, easy to read, aesthetically compatible with the buildings, and is in fairly good shape. The building signage is less consistent and often inconspicuous.

Recommendations

- New building signage should be designed to be more easily readable and should be installed consistently on all buildings within campus.
- A plaque and signage policy should be developed for consistent use of memorial signage.
- New orientation signs with a campus map and an illustrative panorama should be installed at key locations such as the Visitors Center, Campus Center, and entries into the central quad.
Master Plan Concept
Overall Campus
Master Plan Concept

A. Overall Campus

The following plan is a visual summary of the development recommendations brought in various sections of this report. Items of note are the following:

- Proposed academic buildings and expansion of existing buildings, shown in bluish purple (to distinguish from existing buildings shown in lilac).
- Proposed areas for long-term campus expansions, shown as dashed rectangular blocks.
- Proposed areas for development of student residences.
- Vehicular circulation improvements: the reconfigured Entry Road and Centennial Drive with dropoff / turnaround.
- Proposed areas for parking expansion.
- Pedestrian Circulation Improvements: new major pedestrian links from residences to campus core, pedestrian crossing zones, and a new trail around the campus core.
- Overall planting and vegetation scheme: maintained lawns, wooded buffers, and intermediate zone of gardens and courtyards.
- Areas of design intervention: plazas and courtyards.
B. Areas of Design Intervention

These are specific areas identified in this study as the key locations with the greatest potential to improve the campus character. The design studies presented here feature ideas for creating a vibrant environment for education and socializing.

Legend

1. Entry Drive
2. Campus Center Plaza
3. Library Plaza and Courtyard
4. Arboretum
5. Courtyard at Science Building Expansion
6. Centennial Drive and Plaza
7. East Campus Open Spaces
Area of Intervention 1: Entry Drive

The reconfigured entry road features a greatly narrowed profile, with two-lane entry and exit drives divided by a planted median. A separate lane brings visitors by a control booth, associated with the proposed Public Safety Building, where they can pick up permits for on-campus parking. This scheme also features an improved intersection with the Ring Road, and an improved dropoff near the proposed new Visitors Center.

A grand allée of large trees planted along the road creates a strong first impression. The relocated entry signs and the existing lush gardens flanking the entry road complete the welcome.

Legend

1. New Campus Sign
2. Reconfigured Entry Drive
   (Narrowed entry, exit lanes and median)
3. Proposed Tree Allée
4. Relocated Control Booth
5. Proposed Public Safety Building
6. Existing Lawn
7. Existing Stone Wall
8. Existing Gardens
9. Dropoff
10. Visitors Center Plaza
11. University Ring Road
Area of Intervention 2: Campus Center Plaza

The new Centennial Drive ends at the prominent plaza and new Campus Center entrance, also featuring a dropoff area and bus / shuttle stop. New, wider steps lead up to the Central Quad. The former Stepped Plaza is reconfigured to allow for informal gathering, performances, and outdoor study on its paved and lawn amphitheaters and benches. Shade trees and a colorful garden enrich the space. Visitors can enjoy the views of the campus and its surrounding from these plazas and the outdoor cafe.

Legend

1  Campus Center Expansion
2  Campus Center Main Entry
3  Proposed Open Space
4  Dining Hall
5  Dropoff / Turnaround
6  Auditorium Plaza
7  Main Pedestrian Route to East Campus
8  Bus / Shuttle Stop
9  New Stairs to Central Quad
10 Auditorium
11 Auditorium Terrace / Performance Space
12 New Steps and Benches
13 Lawn Amphitheater
14 Paved Amphitheater
15 Cafe Terrace
16 Garden
17 Tree Planting at New Walk
18 Screened Service Court
19 Lawn
20 Campus Tower
Area of Intervention 3: Library Plaza and Courtyard

The Library passage is glazed on both sides and converted into a library space overlooking two proposed gardens. Both gardens borrow the rhythm and strong geometry from the buildings, for a formal landscape to be both viewed from within the library and enjoyed outdoors. The plaza at the library entrance is a contemporary parterre of lawn, clipped low hedges, and small flowering trees. The bosk to the west repeats the rhythm of the building columns, creating an outdoor room for study or rest.

Legend

1  Existing Library
2  Library Expansion (in former colonnade)
3  New Library Entry
4  Existing Textile Building
5  Proposed New Academic Building
6  Paved Plaza
7  Garden
8  Benches
9  Major Walk to Parking
10 Handicapped Ramp
11 Existing steps
12 Bosk
13 Existing Service Lane
Area of Intervention 4: Arboretum

With the addition of a new proposed academic building, the existing semi-enclosed Arboretum becomes a fully enclosed interior courtyard. Already an informal oasis in the landscape of monumental proportions, the cloister-like space could become a destination for those seeking a place for quiet contemplation. The existing collection of exotic specimens should in time be enriched to buffer the adjacent buildings to create an intimate green setting.

Legend

1  Existing Textile Building
2  Existing Violette Research Building
3  Proposed Academic Building
4  Arboretum (Existing and Future Collection)
5  Walk to Parking
Area of Intervention 5: Courtyard at Sciences Building Expansion

The proposed new buildings for academic research, next to the Science and Engineering Building, create the third courtyard west of the Central Quad. Like the Library Courtyard and the Arboretum, it could also become an intimate outdoor room for the students and faculty, offering lawn, shade trees and an orchard-like planting of flowering trees.

Legend

1 Existing Science and Engineering Building
2 Proposed Academic Building
3 Garden
4 Walk to Parking
Area of Intervention 6: Centennial Drive and Campus Plaza

The new configuration of Centennial Drive opens up a swath of land for a greater visibility of the Campus Center and Auditorium. The vehicular traffic is separated from the major pedestrian route from East Campus, but they both converge at the Campus Center’s new entry. The plaza at this major destination point offers a strong sense of arrival, emphasized with special paving, furnishings, planting, and new ceremonial steps leading up to the Central Quad Plateau.

Legend

1 Expanded Campus Center
2 Liberal Arts and Business Cluster
3 Future Campus Buildings
4 New Centennial Drive with turnaround
5 Designated Visitors Parking
6 Dropoff Plaza
7 Proposed Open Space
8 Major Pedestrian Route to East Campus
9 University Ring Road
10 Pedestrian Crossing Zone
11 East Campus Residences
Area of Intervention 7: East Campus Open Spaces

In the current configuration, the interior open spaces of the East Campus lack spatial clarity while the vehicular circulation disrupts the recreational use of the open spaces. With the proposed reconfiguration, vehicular circulation is removed to the outer edge of the East Campus, with only occasional vehicular access to the interior for service and during moving periods. The grounds are redesigned to allow for clear wayfinding, distinguishing the major routes to the academic campus and parking. The network of interweaving paths creates variety of open spaces - “commons” that could integrate playgrounds and courts, and landscaped gardens next to the residences.

Legend
1. Existing Dormitories
2. Proposed Dormitories
3. Existing Parking
4. Parking Expansion
5. New Pedestrian Axis to Campus Core
6. University Ring Road
7. Pedestrian Crossing Zone
8. Reconfigured Open Spaces