The University campus must function as a pedestrian environment throughout the year, although the winter months may challenge even the hardest walker. Walking and biking are the primary means of travel around campus, although the efficient shuttle system has become a popular alternative and has seen increasing ridership. Currently there are a number of issues associated with the campus pedestrian and bicycle circulation network. There are a number of walkways which are underutilized insofar as they do not represent the desire lines and travel patterns and volumes of the campus community. Some pathways are redundant and add unnecessary areas of pavement when the University is trying to reduce impervious cover. Cow paths are also eroded in the lawn areas throughout the campus, creating additional impacts, although these routes often represent legitimate connections between destinations. There has not been a well developed hierarchy of pathways for those that can accommodate the multiple modes of travel that are present on campus. Surfacing and pathway widths are inconsistent. Conflicts exist among walkers, skateboarders, bicyclists and vehicles.

The University has attempted to address these conflicts in the past through policies and education but it has proven very difficult to enforce restrictions, for example, on bicyclists using sidewalks. As the density of campus development increases and the emphasis on pedestrian circulation continues, it will be imperative for the institution to improve the safety, flow and function of its pedestrian facilities and circulation system. To this end, a separate analysis has addressed bicycle circulation exclusively as a means of understanding how it currently functions and how it may be improved in the future with campus planning initiatives.

**Primary** circulation paths encompass circulation between residential districts and the academic core. They are analogous to commuter roads in the city. Primary circulation routes are likely to be longer than other walks taken on campus and to cross major roads and have points of conflict with vehicular traffic. They need to accommodate peak crowds throughout the day, in addition to cyclists, roller-bladers and skateboarders.

**Secondary** pedestrian paths encompass circulation within a given district. They are shorter journeys between major buildings. Secondary paths often accommodate large numbers of students, particularly at peak moments during the school day. These are trips between classes, dining areas, or out to the lunch carts. Their use tends to taper off with the end of the school day.

**Tertiary** pedestrian routes include paths at the periphery of campus. These journeys are generally quick trips between smaller facilities. Tertiary paths are most likely to be city pavements or even informal paths cutting across lawns.

**Informal gathering** points are key to the success of a good campus. They generally occur at intersection points on well-traveled walkways and at the entrances to major campus buildings, at spots with a good exposure to sunlight on a warm day and shelter in inclement weather. They are the setting for the random encounters that make for a rich, spontaneous, urbane university life.
Bicycling continues to be a popular form of both recreational and functional travel to and through the University of Vermont campus. The current state of bicycle travel in and around the campus is characterized by several distinct conditions and these include:

1. lack of distinction and definition between walking and bicycling routes;
2. inadequate widths of circulation routes to support multi-modal travel;
3. no identification of bicycle routes;
4. confusion as to where the University system and routes connect with designated city and regional routes;
5. conflicts between bicyclists and pedestrians at certain locations within the campus; and
6. inadequate on road capacities for bicycling and inconsistent lane delineation along streets such as Main Street.

Greater Burlington has benefitted from the growth of bicycling and bicycle facilities through the efforts of groups such as Local Motion, The Burlington Bicycle Council, the Metropolitan Planning Organization, and the local municipalities. CATMA has also been extensively involved in developing bicycling initiatives working in a cooperative manner with each of these groups and great strides have been made with the development, for example of the South Burlington Recreation Path System, some of which is located on University properties in South Campus.

Several student projects are currently addressing bicycle related issues including education and safety for campus bicycling and a revival of the Yellow Bike Program in the Spring of 2006 to provide free, accessible bicycles for student use.

This map identifies bicycle conflict areas within the campus where safety and traffic issues exist and a sampling of these include: the Jug Handle area, Living and Learning “Main Street”, and along South Prospect Street. Officially designated shared roadways/pathways are identified and city bicycle routes, including those with on road lanes delineated (Class 2 Bicycle Facilities) are also mapped.
Campus service access to facilities are critical for efficient operations of the campus. As activity levels or new construction has expanded, service points have been added to meet the needs. As the University campus is developed over time, it is likely that some of these locations may need to be moved and co-located so as to reduce the overall number of dedicated loading and service spaces to improve efficiencies, reduce pavement footprints and allow Physical Plant to share rather than duplicate certain resources dedicated to exterior and interior building operations. Under no circumstances, however, will relocation or redistribution of these service facilities compromise Physical Plant activities. The relocation of service access points and Physical Plant facilities will be addressed by district and with the development of new buildings and implementation of this Campus Master Plan.

This map inventories service access points that are used primarily by Physical Plant vehicles and other vendor vehicles to serve the buildings throughout campus. Also included on this map are current locations for key elements of physical plant infrastructure: collection points for recycling and refuse (dumpster locations), compactor sites and loading and service spaces which serve specific building locations. These spaces are in addition to those service spaces located in campus parking lots.
VEHICULAR & CAMPUS SHUTTLE CIRCULATION

Vehicular circulation is a necessary component of the campus circulation network at the University of Vermont. Vehicular circulation on roads and pathways is necessary to allow access for service vehicles, visitor and handicapped parking and a minimum of proximate or short term parking for faculty and staff. Currently on campus there are a number of shared use roadways or pathways that serve the multiple modes of transportation that the University community relies on to get to and around the campus.

The existing network of paths and roads within the campus lack consistent widths and are not well delineated or designed to readily accommodate the flow of shuttle and truck traffic. These routes are shared by all campus travelers including vendors, bicyclists, skateboarders and pedestrians. In some locations and instances there are safety concerns and conflicts between users. There are a range of conditions of the roads and pathways across campus. There are many locations where service and vendor vehicles have used access paths that are too narrow or lack sufficient sub-base to support these vehicles with the consequent impact to the surface and adjacent landscaped or lawn areas.

One important road through the campus is University Place, which is currently owned and maintained by the City of Burlington. The University is negotiating with the City to transfer ownership of this street and it is proposed that this section of the existing road network be redesigned as a primarily pedestrian path. Refer to Chapter 4.4 Master Plan: University Plan for the conceptual illustrative plan and perspective.

As of 2006 a Regional Corridor Study is being conducted for Route 2, which includes Main Street in Burlington and Williston Road in South Burlington. The University is participating in this study that will have the potential to support enhancements to this corridor that will improve traffic and travel conditions on this street that is the most highly traveled route through the University campus. One issue that has emerged is the condition of the median along Main Street, owned and maintained by the City of Burlington. The University supports the reestablishment of the planted median and/or some other means of limiting jaywalking across the busy street that creates unsafe conditions for motorists and pedestrians.

The Campus Area Transportation System (CATS) shuttle service has continued to evolve as a reliable and comprehensive on campus transportation network. It provides linkages with downtown via the free College Street Shuttle, operated by Chittenden County Transportation Authority (CCTA), as well as with the regional transit system and intercept lots such as the Lakeside Lot (Gilbane) on the Burlington Waterfront. The campus shuttle system routes do shift to respond to changes in parking strategies and locations and thus have developed with some degree of flexibility from year to year. CATS shuttle service is designed to overlap and connect with other on-campus circulation systems including bicycle, pedestrian and vehicular and serves visitor parking as well as faculty and staff parking lots throughout the campus.

Currently the CATS shuttle routes are shared with other modes of circulation through the campus and this does create some conflict areas which will need to be addressed as the University evolves towards the complete pedestrian campus.
With staff, faculty and students commuting to the campus from all over the surrounding area, the regional shuttle system plays an important role in getting people to and from campus and reducing reliance on private vehicles. The effectiveness, convenience, and connections of this transit system are central to the realization of a sustainable campus for the Environmental University.
HIGH VEHICULAR / PEDESTRIAN TRAFFIC PATTERNS

An overlay of Pedestrian, Automobile and Shuttle Circulation Analysis reveals five major points of conflict where pedestrian passages cross heavy-traffic roads. Students, traveling to and from Central District cross fast-moving traffic on Colchester Avenue, Main Street and South Prospect Street on a daily basis. Long waits for lights obstruct the flow between campus districts, and the sense of a cohesive pedestrian circulation system.

The pedestrian underpass at the intersection of Redstone Walkway and Main Street creates a grade separation between pedestrians and traffic. The underpass is being upgraded and connected to the new Dudley H. Davis Center. This upgrade will make for a much more convenient connection for pedestrians in winter, and represents a good model of expanding the scope of capital projects to address broader issues of campus connectivity.

The difficulty of crossing heavy traffic at Colchester Avenue to get from the Central District to the Trinity District has a strong impact on the overall perception on the lack of connectivity and accessibility of the Trinity District with the whole campus. Pedestrian circulation must become a priority in the ongoing efforts to upgrade streetscape elements and traffic signals on Colchester Avenue.
Parking at the University is managed by UVM Transportation and Parking Services. The provision of parking on campus is a dynamic process, shifting on an almost yearly basis to accommodate new demands, new buildings and relocation of existing parking spaces. Parking policies are also adapted to reflect both the changing demographics of the University as well as land use changes resulting from new construction.

The current parking space capacity serves the University demand, and it is projected that the University will be able to accommodate all of the projected development and faculty/staff and student growth through 2015. The current parking inventory by architectural district is presented in the accompanying table.

<table>
<thead>
<tr>
<th>Parking Space by Type/User Group</th>
<th>University Historic Green District</th>
<th>Main Street North District</th>
<th>Gateway District</th>
<th>Trinity District</th>
<th>University Heights District</th>
<th>Redstone District</th>
<th>Athletic District</th>
<th>Centennial Sports District</th>
<th>Centennial District</th>
<th>Centennial Woods Natural Area</th>
<th>Totals by District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitor/30MM</td>
<td>64</td>
<td>43</td>
<td>31</td>
<td>5</td>
<td>38</td>
<td>23</td>
<td>0</td>
<td>6</td>
<td>10</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>F/S &amp; Reserve</td>
<td>505</td>
<td>189</td>
<td>952</td>
<td>20</td>
<td>358</td>
<td>101</td>
<td>0</td>
<td>89</td>
<td>190</td>
<td>2,394</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>48</td>
<td>138</td>
<td>0</td>
<td>230</td>
<td>900</td>
<td>441</td>
<td>121</td>
<td>301</td>
<td>71</td>
<td>2,250</td>
<td></td>
</tr>
<tr>
<td>Handicapped</td>
<td>28</td>
<td>28</td>
<td>20</td>
<td>11</td>
<td>23</td>
<td>16</td>
<td>0</td>
<td>3</td>
<td>11</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Services/Load</td>
<td>38</td>
<td>18</td>
<td>16</td>
<td>13</td>
<td>22</td>
<td>0</td>
<td>12</td>
<td>5</td>
<td>131</td>
<td>131</td>
<td></td>
</tr>
<tr>
<td>Lease</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>124</td>
<td>107</td>
<td>67</td>
<td>298</td>
<td></td>
</tr>
<tr>
<td><strong>Totals by District</strong></td>
<td><strong>683</strong></td>
<td><strong>416</strong></td>
<td><strong>999</strong></td>
<td><strong>273</strong></td>
<td><strong>1,342</strong></td>
<td><strong>603</strong></td>
<td><strong>245</strong></td>
<td><strong>518</strong></td>
<td><strong>354</strong></td>
<td><strong>5,433</strong></td>
<td></td>
</tr>
</tbody>
</table>
Underground campus utilities form a matrix that dictates where buildings can be developed in the future and where surface access to existing utilities must be maintained. The cost of re-locating significant utilities can be prohibitive to future development sites. Many utilities, while sited on University landholdings, remain the property of the City of Burlington or its Public Utility Agencies and require collaboration with the local municipalities.

Current systems include centralized heating system and localized cooling systems.

Issues facing the University today and in the future are: growth across campus, including important research needs; systems are becoming outdated and obsolete; chilled water is not centralized; air conditioning is now an expectation; and system reliability.

For the purposes of this analysis, the Campus Master Plan has designated certain areas as Utility Corridors, where the concentration of underground utilities prohibits future above-ground development. Refer to Chapter 4.2 Main Campus: Proposed Frameworks for Campus Planning for this map and the complete Utilities Master Plan, available from Physical Plant, for further information.