

X. Utilities

The University of Washington Engineering Services Division reviewed the capacity and condition of the campus utility system and determined that the system is adequate to handle the remainder of the buildings being constructed under the current GPDP and the additional 3 million gross square feet being added under the Campus Master Plan. The Campus Master Plan identifies proposed development sites (Figure IV-50) but does not determine which sites will be built during the life of the plan. Most developable sites will be served from Central Campus utilities, while a few will be served from public utilities. At each developable site, utilities and tunnel extensions will be required as part of the project to serve the building.

Summary of Utility Needs

Steam Generation

The steam generation capacity for the campus is adequate to handle both the remaining GPDP capacity and the addition of 3 million gsf. When an additional 3 million gsf have been built, the oldest boiler will have exceeded its useful life and will need replacement for the next phase of campus development. The steam distribution system is considered adequate for the new buildings as well. The condensate return system, while sized adequately, may need replacement of selected piping which deteriorates because of the more aggressive nature of condensate return. In the near term, the condensate return piping will be tested to check for potential failure.

Chillers

Chillers in the central power plant for the central cooling water system (CCW) have a generating capacity approximately equal to the current campus demand. Provisions have been made for the installation of one additional chiller; however, the distribution piping is at capacity. The future chiller at the power plant could serve new buildings in the central area; however, limited distribution piping would prevent service to other areas of the campus. New chiller capacity must be provided for new construction in the North, West, South and Southwest areas and new distribution piping will be required. A detailed study of this utility will establish the most appropriate means of providing adequate cooling water to meet future demands.

Electrical Power

The electrical power receiving stations have the capacity and modern switchgear necessary to serve the electrical loads for the fully developed campus and should not require major upgrades for approximately forty years. Significant portions of the distribution cabling system and building electric service equipment is aged and needs to be replaced and expanded to provide for new and renovated facilities. Additionally, new circuits must be installed to maintain operating flexibility and system reliability. If the potential

development site listed as 3N is chosen for development, it may require relocation of an existing substation.

Emergency Power

The existing emergency electrical power system is adequate for only present demands. Any new construction or major building renovation will require a new emergency power source. The central system must be expanded and additional cable distribution provided to areas not served by the emergency system or where the cabling is aged or of inadequate capacity.

Compressed Air

Compressed air is generated at the central power plant for power plant use, building environmental control systems, and laboratory use. Reliable generating capacity is inadequate during annual maintenance cycles. A separate, more reliable system should be provided for the power plant. Building usage varies considerably depending on the building occupancy. Therefore, it is probable that an aged compressor will need to be replaced to provide more reliability and additional capacity as the campus develops. The distribution system is considered adequate for new buildings.

Central Fire Alarm

The central fire alarm system that provides fire alarm enunciation from the buildings to the Seattle Fire Department is forty years old with limited capacity for expansion. Replacement of the present system will probably be required during the 2002-2012 time frame to provide adequate capacity for the new development and to allow enhanced information to be available to the UW police and the Seattle Fire Department.

Water

The campus is served by the Seattle Water Department at multiple connections to the city system. It is considered that the system on campus is adequately sized to meet the projected building needs.

Portions of the distribution system are very old and will need replacement as failures occur.

Sanitary Sewer

The sanitary sewer system on the Central Campus area connects to the Metro trunk line, which follows the Burke Gilman Trail around campus. Buildings in the East campus area connect directly to City of Seattle sanitary sewer lines. A portion of the sanitary sewage collected south of NE Pacific Street and east of 15th Avenue NE goes to a University-operated sewer lift station where it is pumped to the Metro truck sewer. Sewage collected south of NE Pacific Street and west of 15th Avenue NE flows to a city-operated lift station which pumps to the north trunk sewer. The campus sanitary sewer system is considered adequately sized to meet current and future needs. Some older lines no longer drain properly because of settlement and tree root obstruction. Repair and replacement of these systems will need replacement as failures occur.

Storm Drainage

Major portions of the campus storm drain system flow to University or City of Seattle storm drains. Where storm drains are not available, storm run-off is handled by the sanitary sewer system. As the opportunity presents itself additional separation of storm and sanitary sewers will occur during the development of any of the potential development sites. As new regulations develop, capital expenditures to improve storm water quality may be required. Whenever feasible, site water will be returned to the soil or recycled to reduce storm water collection.

Natural Gas

Natural gas service is provided through a metering station in the south campus for that area and at the central power plant. From the central power plant, a University-maintained system distributes gas to a limited number of buildings. The University recently participated in a project that increased the size of the Puget Sound Energy main for more reliable and better service. No major improvements are expected to be required.

Solid Waste and Product Recycling

Two haulers manage the University's waste collection and recycling. The University has its own self-haul program coupled with supplemental service provided by Waste Management. The self-haul program has the capacity to absorb the generation of additional waste and recyclables in the next phase of development. However, as new waste reduction regulations are legislated and the waste reduction efforts increase through the promotion and collection of recyclables, capital expenditures will be necessary to expand the collection of paper, cardboard, glass, plastics, and construction waste. Replacement of the present system of collecting recyclables coupled with an increase in the inventory of both recycling and garbage containers will also be required. The current capacity for sorting the volume of recycled paper collected on campus will be saturated. An additional sorting belt station needs to be added to the current operation. Therefore, a new facility for processing recycled paper should be identified.

Energy Efficiency

The University has maintained strong and aggressive programs in energy conservation, water conservation, product and green waste recycling, and other programs that conserve natural resources. The University regularly participates with local public utilities, such as Seattle City Light and the Seattle Water Department, to strive for resource conservation in new projects. Currently, the University is working with the King County Department of Natural Resources on plans to recycle wastewater. The University also has a long-standing relationship with the Department of Ecology and provides consultation to many state and public entities in the process of developing and implementing recycling and waste reduction programs.

Telecommunications

The University is recognized as an internet pioneer in the area of data, voice, and video network services, the University provides leadership in the development of next generation networking technology. New construction and remodeled buildings will continue to have the cable infrastructure needed to function, while older buildings on campus

may not. Unfortunately, in older buildings, behind the service "hubs" lie an ancient wiring infrastructure that is incapable of supporting current physical networking standards and, in many cases, cannot be expanded to provide additional circuits. The University has depleted capacity and lacks significant capital funding to enhance or replace the wire, horizontal and vertical distribution, and communications closets in many of the older buildings on campus.

Disaster Resistance

The University of Washington is committed to the welfare of its community—students, faculty, staff, visitors; and to preserving the institution. The primary mission of the University of Washington is the preservation, advancement, and dissemination of knowledge. To fulfill the University's mission and commitments in the event of a disaster, the University strives to become disaster resistant. Disaster resistance is achieved through recognition and analysis of the risks of natural and man-made hazards, mitigation of the human and economic impact of disasters, and comprehensive planning for resumption of University functions. Responsibility for incorporating disaster resistance into the planning and operation functions of the University rests with the vice presidents, deans, directors, and chairpersons of all University units.