

O. PUBLIC SERVICES/UTILITIES

Affected Environment

Public Services – Fire and Police

Fire

The Seattle Fire Department (SFD) provides prevention, education, fire suppression, medical services, and other related emergency and non-emergency services to the University of Washington. Seattle Fire Department units respond to University fire alarms, chemical spills and medical emergencies. Units from six different geographic stations respond to the University: Station 17 (11th Ave. NE and NE 50th St.); Station 22 (10th Ave. E and E Roanoke St.); Station 38 (33rd Ave. NE and NE 55th St.); Station 9 (Linden Ave. N and N 38th St.); Station 16 (70th NE and Oswego), and Station 25 (13th Ave. and NE Pine St.). If the first assigned units are not available, backup units are dispatched accordingly.

Each response consists of at least one engine company staffed by three to six firefighters. A full response team will consist of up to four engines, two ladder companies, associated aid units, and one or two battalion chiefs. When special hazardous conditions warrant it, a hazardous response team is dispatched, as well as a full response team. The hazardous response team consists of an additional engine company, a ladder company, a Hazardous Materials Emergency Unit and a deputy chief.

The type of response assigned by the SFD's alarm center is determined by the nature of the received emergency request. Approximate response time to the University ranges from three to five minutes.

The University maintains a comprehensive fire safety program for the campus. Staffing includes fire protection engineers, fire safety specialists, environmental health and safety technologists, fire alarm control technicians, facilities operations maintenance specialists and a utilities maintenance staff. The fire safety engineers and fire safety specialists provide life safety consulting and monitoring services for the University, as well as review of documents for all fire systems and approval of installations.

Facilities operations maintenance specialists and Environmental Health and Safety staff are responsible for maintaining and testing all University fire suppression systems. Fire alarm control technicians test and maintain the fire alarm systems, and utility workers service portable fire extinguishers.

Most of the major buildings on campus are equipped with a monitored fire alarm system. Alarms are monitored by an approved central station as well as a local monitoring system that is owned, operated and maintained by the University. The University of Washington Police Department (UWPD) operates a proprietary Central Communication Center to coordinate University Police, Environmental Health and Safety, and Facilities Services support to the SFD.

The University has historically built and maintained fire resistant buildings meeting, and in some cases exceeding, minimum code requirements. Fire loss history at the University is favorable.

The SFD responds to automatic alarms at the University approximately 6 times per week (Peltzer, 2000). The number of alarms and SFD responses on campus has generally decreased between 1990 and 1999, while the quantity of individual fire and smoke detection devices has increased from new construction and alarm system replacement. In 1990, there were 487 calls for service (fire alarms); in 1999, the number of alarms dropped to 319 (not including medic [SFD EMT] responses). The decrease may be attributed to improved technology and administrative efforts.

Police

The University of Washington Police Department (UWPD) employs 51 commissioned officers, 3 non-commissioned security guards and 31 civilians. All commissioned members of the Department have completed State-required basic law enforcement training. The Department has its own conflict management, firearms and first aid instructors. The Department maintains a crime prevention unit and a detective unit for criminal case preparation and prosecution. The Department is also responsible for dormitory security and parking enforcement on the campus. The entire campus is patrolled 24 hours a day by three patrol cars.

The Seattle Police Department provides backup service to the University Police Department for major emergencies and planned special events, such as Husky football games. The University Hospital portion of the Health Sciences Center also maintains a security guard force of 8 employees to provide security services for most hospital shifts. In addition, funding is being considered for 4 security guards to provide security service in the Health Sciences complex.

Table 31 illustrates the total Part I Crimes reported from 1990 to 1999. In general, the number of calls for service increased between 1990 and 1999. The fewest number of calls, 8,242 calls, was made in 1994, and the highest number – 10,21 – was made in 1999. As shown, the total number of crimes reported by UWPD has decreased by approximately 13 percent, from 1,769 crimes in 1990 to 1,546 crimes in 1999. Between 1990 and 1999, the occurrence of Part I crimes (involving homicide, rape, robbery, assault, burglary, larceny, vehicle theft and arson) also decreased, by approximately 16 percent.

**Table 31
CALLS FOR POLICE SERVICE AND CRIMES COMMITTED 1990-1999**

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Calls for Service	9,164	8,936	9,298	8,904	8,242	8,952	9,174	9,477	9,723	10,215
Total Crimes	1,769	1,745	1,800	1,679	1,605	1,521	1,368	1,483	1,729	1,546
Part I Crimes	1,143	1,085	1,053	1,071	1,137	1,105	966	1,039	1,121	963
<small>Note: These crime statistics may not agree with other published crime statistics from the same years due to differences in crime definitions used by the Revised Code of Washington (RCW), FBI (UCR and NIBRS), and the Jeanne Clery Act.</small>										
<small>Source: University of Washington Police Department, 2000.</small>										

Utilities – Sewer, Water and Solid Waste

Sewer

In 1999, the University of Washington began metering sewage outflow. In that year, it was determined that sewage outflow amounted to 738,726 total units, or 1,552,037 gallons per day (University of Washington, 2000c)⁵². This outflow was 86 percent of water used (see discussion of water below). The difference between sewage outflow and water usage generally includes such factors as irrigation, consumption, line losses and other unaccounted demand.

The University owns and maintains its own sanitary collection system. The system contributes to the Metro trunk sewer or the City of Seattle collection system, with treatment and disposal at Metro's West Point sewage treatment facility. A limited amount of storm water in the older sections of campus is routed to sanitary sewers.

Generally, sanitary and storm sub-trunk lines parallel one another within established utility corridors following natural gradients from north to south and laterals connect the various service points or areas to the sub-trunk. Upper campus contributory sanitary sub-trunk flows are intercepted by the 138- to 108-inch diameter Metro-Northlake trunk sewer that follows Montlake Boulevard NE to the south and NE Pacific St. to the west. In South, West and portions of Central Campus, sewage drains to the NE Pacific drain by gravity where possible. Otherwise, sanitary flows are collected and lifted back into the Metro trunk sewer in NE Pacific St. by means of the University South Campus sewage lift stations or the City of Seattle lift station located at Brooklyn and N.E. Boat St. The City's lift station may be inadequately sized to support further development in the South, Southwest and West areas of campus. The campus sanitary sewer system is considered adequately sized to meet current and projected future needs.

There are few remaining combined sanitary and storm sewers; an estimated 13 percent of the stormwater system is combined with sewer lines. The lines are classified as sanitary and treated as such for routing and disposal. Although trunk line storage is available through the Metro regulator station, during periods of considerable stormwater runoff, the Metro Northlake trunk sewer overflows sanitary sewage into Portage Bay. The sewage is diluted to some extent with stormwater and discharged through an 84-inch diameter overflow pipeline into Portage Bay. In 1994, storm water runoff from the University Regulator basin was separated from the sanitary sewer system through the construction of a new discharge line. This project was anticipated to reduce combined sewer overflow by 50 percent.

Water Supply

The University of Washington campus is directly served through University-owned water mains supplied by the City of Seattle Water Department's intermediate and low-pressure water system through meters located at NE Pacific St. and 15th Ave. NE, at NE 40th St. and 10th Ave. NE, at NE 45th St. and 19th Ave. NE, at 15th Ave. NE and NE 42nd and NE 40th St.s, at 25th Ave. NE and NE 45th St., and at Montlake Blvd. and NE Pacific. The ultimate source of supply for the University's low-pressure system is the City of Seattle's Green Lake Reservoir (overflow elevation 316') located at 15th Ave. NE and NE 73rd St..

⁵² One unit equals 100 cubic feet.

Service to the University is provided through a 20-inch main in NE 55th St., 2- and 32-inch mains in 7th and 10th avenues NE, respectively, and 12- and 8-inch lines to the NE Pacific and NE 40th St. entrances. The 25th Ave. NE service line and the connection at Montlake and NE Pacific St. tap the City's 54-inch line to the Maple Leaf Reservoir (overflow elevation 420') located at Roosevelt Way and NE 83rd St.. City-owned pressure reducing stations lower this intermediate pressure sufficiently to allow connection of the two systems on campus.

The intermediate pressure system (420') directly serves the northwestern portion (approximately 50 acres) of the main campus through an 8-inch metered service line at NE 45th St. and 19th Ave. NE, and NE 42nd St. and 15th Ave. NE. The remainder of campus is served by the campus low-pressure system.

Under the terms of an appropriation permit, the University has historically withdrawn water from the Lake Washington Ship Canal from the pump house located directly south of Fisheries Center. This water is used for cooling purposes in the Medical Center. The water is then returned to Lake Union at slightly elevated (10 degrees) temperatures.

Aggressive conservation programs have resulted in fairly constant University water usage levels over the past 10 years, even though approximately 1,000,000 sq.ft. of new buildings were added to the system. In 1999, 860,635 units of water, 1,808,163 gallons per day, were purchased and consumed on the University campus⁵³.

Solid Waste

The University's current solid waste management system consists of several different programs that handle both disposal and recycling of solid waste. Most of the mixed solid waste generated on-campus is collected by the University's solid waste collection service. The University's property and Transportation Services manage both programs. In addition some campus facilities have their own trucks and haul waste generated on an occasional basis, such as for special events or for special projects. Most of this waste is taken to the North Transfer Station.

The waste collected by Bayside Disposal is from those campus facilities that generate large quantities of waste and require larger containers and special equipment for loading and unloading the containers. Bayside hauls the waste to its own transfer station and then to Cedar Hills Landfill operated by King County; some types of waste requiring special handling are hauled directly to the landfill. The University's collection services transport waste from numerous campus facilities that generate smaller quantities of waste to the City of Seattle's North Transfer Station for disposal. The City then hauls its waste to the Cedar Hills landfill, operated by King County.

The University has reduced solid waste generation by promoting recycling. Begun in 1973 with the recycling of paper, the recycling program has evolved into a campus-wide collection of multiple recyclable waste products. In addition to paper products, the University recycles used motor oil, ferrous and non-ferrous metals, and some aluminum, glass, and cardboard. Leaves are composted for use on planting beds, and branches are reduced to chips and used in fill areas. Weekly pickup of recycled paper products occurs in all major buildings, with unscheduled pickups arranged by telephone. University solid waste and recycling volumes from 1990 to 1999 are shown in Table 32. In 1999, the University produced a total of 10,360 tons of

⁵³ One unit equals 100 cubic feet.

waste, sending 6,313 tons to the landfill and recycling 4,047 tons (University of Washington, 2000c).

In the fiscal year 1999-2000, the University saved \$361,545 by diverting solid waste from the landfill. Recycling during that time period saved approximately 25,000 trees and over 10 million gallons of water⁵⁴.

**Table 32
SOLID WASTE AND RECYCLING VOLUMES 1990-1999**

Year	Landfilled Solid Waste (tons)	Recycled Waste	
		Volume (tons)	Percent of Total Waste
1990	6,321	1,141	15.3%
1991	6,120	1,158	15.9%
1992	6,530	2,734	29.5%
1993	7,228	3,440	32.3%
1994	5,456	3,007	36.1%
1995	5,104	3,688	41.9%
1996	5,581	4,010	41.8%
1997	5,800	3,941	40.5%
1998	5,978	4,156	41.2%
1999	6,313	4,047	39.0%

Source: University of Washington Transportation, Property and Transport Services, 2000.

See *Environmental Health, Section III.F*, for discussion of hazardous wastes.

Impacts of the Proposed Action

Public Services – Fire and Police

Fire

The *Master Plan Seattle Campus* is not expected to result in significant impacts to the Seattle Fire Department with regard to service demands. An estimated 3 million sq. ft. of new development is proposed. In addition, this amount of development is projected to occur over the lifetime of the *Master Plan Seattle Campus* – not within a period of a few years. Additional demands on Department inspection staff would likely occur during construction and on an annual basis. The need for inspection services would be dispersed over the 10-year planning period.

During construction, access of emergency vehicles and personnel to construction sites is of primary concern, as is adequate fire separation between construction and occupied areas. Review of construction plans and verification of the installation, acceptance, and maintenance of fire alarm and suppression systems will require constant staff attention. It is expected that University development would comply with City of Seattle Fire Code requirements, as an integral component of all new development and as needed to improve the safety of existing structures.

⁵⁴ Trees and gallons of water saved calculated based on U.S. Environmental Protection Agency conversion figures.

It is anticipated that the existing central fire alarm system on campus would not likely support additional demand associated with planned growth. Replacement of the system would likely be required in the 2002-2012 planning period to provide adequate capacity and to allow for enhanced information to be available to the SFD and UWPD.

Police

The proposed *Master Plan Seattle Campus* would result in new development and campus population increases that will require additional security and patrol services. According to existing trends, total crimes and Part I crimes reported may continue to decline if UWPD staff levels (on a per capita basis) are maintained. As the campus population grows overtime, the University of Washington and City of Seattle Police Department North Precinct may be required to hire additional commissioned officers and department staff to meet demand.

Utilities – Sewer, Water and Solid Waste

Sewer

Based on the estimated 9,120-person increase in campus population by 2012, an increased sewage outflow of approximately 390,000 gallons per day (25 percent) would be expected. It is anticipated that the City’s lift station would not likely support further development in the South and West areas of campus. That station and some older sewer lines (obstructed by settlement and tree roots) would have to be improved or replaced if capacity is inadequate or failures occur. In general, the campus sanitary sewer system is considered adequately sized to meet current and projected future needs.

Water

Construction and long-term operations under the proposed Master Plan would generate additional demands on water supply. Water demand would increase by an estimated 28 percent; Table 33 shows the projected increase in water consumption by 2012.

**Table 33
PROJECTED INCREASE IN WATER CONSUMPTION 2012**

Approx. Net Increase in Sq.Ft.	Unit Increase	Percent Increase Over 1999 levels
3,000,000	240,000 ¹	28% ¹
<small>Notes: 1. Not including aggressive conservation measures on existing campus. Source: University of Washington Capital Projects Office, 2000.</small>		

The water distribution system is direct buried and adequately sized to meet current and future needs. Taps connecting new facilities to the existing system would be required as construction occurs. In the unlikely event of one of the mains failing, the campus could maintain water pressure, although usage would need to be limited. Older sections of piping would be replaced as the opportunity arises. Overall, instances of failure have been uncommon and would not be expected to increase during the planning period.

Solid Waste

Solid waste generation rates would likely be consistent with existing trends. It is estimated that approximately 40 percent of campus solid waste would continue to be recycled, as has been the case over the past 5 years (1995 to 1999). See *Environmental Health, Section III.F*, for discussion of hazardous waste.

Impacts of the Alternatives

No Action Alternative

Public services demands would not be expected to differ significantly from that described under the proposed Master Plan.

Decentralized/Open Space Alternative

This alternative would include less development than under the proposed plan (approximately 50 percent less development). Although planned construction and development would be reduced, sewer volumes and demand for fire, police and solid waste services would likely be similar to that described for the proposed *Master Plan Seattle Campus*. These elements of public services are primarily determined by population rather than building area (refer to the *Population* section). Required sewer infrastructure improvements may, however, be reduced if fewer sewer line connections are required. Under this alternative, University housing and institutional capacity (and associated demand for services) could be shifted to off-campus areas.

No Street and Alley Vacations Alternative

Building area would be partially reduced under this alternative. Although planned construction and development would be reduced, sewer volumes and demand for fire, police and solid waste services would likely be similar to that described for the proposed *Master Plan Seattle Campus*. These elements of public services are primarily determined by population rather than building area (refer to the *Population* section). Required sewer infrastructure improvements would, however, be reduced as fewer sewer line connections would be required.

Lifting of Lease Limit

Lifting of the lease limit would allow the University to participate in development in the University District. University related development in the University District would increase the demand for services and utilities in the University District. Service and utility conditions in the University District would be as described in the UCUC Plan Expanded Environmental Checklist⁵⁵, and significant impacts would not be anticipated.

⁵⁵ Seattle, 1998a.

Possible Mitigation Measures

- All projects could be built to meet current fire code standards (as discussed above) in order to reduce fire-related hazards. Fire separations, automatic sprinklers, fire suppression systems and fire alarm systems could be installed as appropriate.
- The Seattle Fire Department could be notified of major utility shutdowns as well as campus street closures.
- Improvements to or replacement of the central alarm system should within the next 10 years in order to effectively accommodate development-related growth.
- The University could review the designs for new development on a project-by-project basis, evaluating the potential for impacts to life safety and personnel security.
- During the construction phases of major University projects, UWPD could provide escort services in the event of an emergency.
- The UWPD may need to increase its law enforcement staff capacity and expand its operations to meet increased security needs associated with the proposed *Master Plan Seattle Campus*.
- Where necessary, the University could grant easements to maintain water lines or bear the cost of relocation.
- The University's program to separate combined sewers should continue until complete or until the University and the Seattle Drainage Utility identify alternative programs to respond to new federal regulations on storm water runoff.
- Solid waste impacts associated with the Master Plan could include enhancement of current campus recycling programs. The University could comply with applicable existing and new regulatory requirements.
- Programs to publicize water conservation on campus could continue.
- Drip watering or low precipitation output systems could be used for irrigation wherever possible, and types of ground cover that require less irrigation could continue to be used. Irrigation conservation measures could continue.
- Opportunities to use/reuse recycled water are being investigated in cooperation with the King County Department of Natural Resources. Where appropriate, recycled water could be considered for nonpotable water usage.

Unavoidable Adverse Impacts

The demand for fire and police services would increase in conjunction with the proposed *Master Plan Seattle Campus*, in relation to inspection requirements, and with growth over time. Sewage and solid waste volumes generated and water required on campus would increase with population growth over the planning period. Public water supplies would be reduced by approximately 240,000 units per year upon full development of all proposed projects.