Vista Infrastructure

When fully realized, the following utility improvements will allow the Rainier Vista to perform as an integrated water collection, storage, treatment, and distribution system while also achieving many longstanding University goals with respect to optimizing and upgrading utilities infrastructure. Through association with these improvements, the expanse of Frosh Pond and the 100 foot jet of Drumheller Fountain will keep their historic significance while also becoming highly visible symbols of the UW’s activities as a research institution, its commitment to ongoing self-improvement with respect to sustainability, and its leadership role in the community. Although not so readily visible, additional utility initiatives like the separation of the combined sewer line, a stormwater collection system, and cisterns tied to automated irrigation systems, will also contribute to a space where the health and beauty of the built landscape contribute to the health and beauty of the larger ecological context.

The Vista has always been a place of learning as well as a place of gathering. The sustainability initiatives introduced into the basic infrastructure of the Vista will provide an opportunity to present students with a real-life application of an interdisciplinary approach to the built environment. As a living laboratory for biology, civil engineering, environmental science, forestry and horticulture, the Vista can become an object of further study within the University community.
Existing Stormwater Infrastructure
**Planned Improvements**

Independent of the development of the Rainier Vista Concept Plan, a number of utility system improvements are being developed or considered by the UW. Building-related improvements planned along the Vista include utility upgrades for Johnson Hall and the replacement of existing footing drains for Bagley Hall. Larger scale initiatives that will affect the overall utility system, like Sound Transit’s Husky Stadium Station or new building projects, like the new Microbiology building, are also likely to be completed within the next decade. We have included the Utility Milestone Timeline for reference.

**Power Plant Future Improvements**

There are a number of emergency backup power systems, cooling water, and steam generation improvement projects identified in the Utility Master Plan. As most of these services are routed through the utility tunnels, any Power Plant improvement projects will have little impact to the Rainier Vista. However, the following long term goals may impact the Rainier Vista by adding new tunnels or requiring additional area within the corridor: alternate steam system routes to the west from the Power Plant, a central cooling system chilled water storage tank on South Campus, and cable extensions to the electrical system through South Campus.

**Water Distribution Upgrades**

According to the Utility Master Plan, the Power Plant requires a backup water supply system. The backup water supply system needs to be installed to support the flow of water during a SPU water supply system failure. Water would be supplied using a pumping system that draws water from Lake Washington. Other upgrades identified by the Utility Master Plan include a replacement of the water main along Montlake Boulevard and continued partnering with SPU for a water conservation program.

**Irrigation System Upgrades**

The Rainier Vista is a mix of manual, automatic, and networked irrigation systems. As discussed in the Utility Master Plan, the University is foremost concerned with conserving water. The University of Washington has established a program to install network controllers that use historic evaporation and plant transpiration to adjust irrigation supply. Additional measures for reducing SPU charges are to install deduct meters at areas with irrigation demand. In particular, the area adjacent to Drumheller Fountain/Frosh Pond, extending down to Stevens Way, requires upgraded irrigation systems.

**Storm and Sewer System Upgrades**

A 12-inch combined sewer line runs most of the length of the Rainier Vista. The line directs sewer flows from adjacent buildings to the Metro trunk line at Pacific Place. Additionally, discharge from Drumheller Fountain and stormwater runoff is also directed to this line. The University of Washington has identified this line as deficient and would like to see it separated in accordance with University of Washington and SPU sustainability goals. A proposed storm drain line, from Pacific Place to the Metro 84-inch combined sewer outfall near NE Pacific St., would fulfill the goal of separation of this sewer system. The Utility Master Plan also notes that, due to capacity concerns, the sewer pump station at the west corner of the Montlake Triangle is in need of replacement. Separation of the storm sewer system will alleviate capacity on the existing system.
Proposed Stormwater Infrastructure
Rainier Vista Concept Plan
Infrastructure Proposals

Upper Vista
Utility improvements associated with the Johnson Hall renovation are slated to begin after 2008 and include separation of the sanitary sewer and storm drainage system. These improvements will reduce capacity concerns associated with the pump station located on Pacific Place. Work in this area may also include installation of a dedicated storm drain line routing additional stormwater runoff from Red Square to the cistern constructed as part of the Sciences Quadrangle renovation.

The Sciences Quadrangle
This project area includes the construction of cisterns within Frosh Pond. The installation of the cisterns serves the purpose of capturing stormwater runoff from the surrounding area and reducing the volume of “active water” within Frosh Pond. Work in this area will include the installation of a subsurface irrigation system for the planted areas of the Sciences Quadrangle. Infrastructure associated with the proposed irrigation system should be installed with dual water distribution and cistern supply capability. Additional investigation will be required to determine if, in the interim, the cistern water can act as emergency backup water supply for the Power Plant.

Currently, there are state regulations that tightly control the collection of rain water. Creating a cistern below the fountain and within the pond, and capturing stormwater runoff, will likely require a Washington State Water Rights Permit. Although there are clear environmental, operational, and economic reasons for pursuing this strategy, the laws are currently written to protect the “waters of the State” from being collected for reuse and the regulatory process may take several years before the cisterns are allowed to be operational and connected to the surrounding irrigation systems.

Lower Vista
Work will include construction of a cistern within the incline of the abandoned roadway that currently runs from Stevens Way into the Triangle Parking Garage. A series of water gardens are proposed to be constructed over the cistern. Each zone of the garden is an independent vegetated water quality treatment cell, constructed of cast-in-place concrete, which provides filtration treatment as water moves from cell to cell. High flows during storm events will be allowed to cascade through the cells and will overflow to the dedicated storm drain constructed as part of the Montlake Triangle project area.

Montlake Triangle
One of the goals identified by the Utility Master Plan is to separate sanitary sewer flows from storm drainage runoff and reestablish natural runoff discharge locations in the south Campus by the end of 2009. Separation of sanitary sewer flows associated with buildings would be completed as part of the other project areas. The ultimate discharge location would be modified from connecting to the 138-inch Metro sewer line, and a new dedicated storm drain line will connect to the 84-inch Metro combined sewer overflow. These improvements will reduce the potential for combined sewer discharges overflow, increase the capacity of the sewer lift station, and reduce the potential for combined sewer discharges to Portage Bay.

The bulk of other site improvements in this portion of the project are associated with connecting Montlake Triangle with the Sound Transit station and the Medical Center, as well as the associated lowering of Pacific Place. Work in this area will also include the installation of a subsurface irrigation system.
Upper Vista

- Install walking path stormwater collection
- Install irrigation system with landscape
- Separate storm & sewer flows from Mary Gates and Johnson Hall
- Install new utilities for Johnson Hall
- Potentially revise Red Square drainage system

Sciences Quadrangle

- Install walking path stormwater collection system
- Install cistern, pump, and stubs for future recirculation system
- Repair Bagley Hall foundation drain
- Install irrigation system with conventional feed until water rights permit is accepted