



2. EXISTING SITE CONDITIONS

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The organizing themes and constraints for this facilities plan are defined and shaped by the existing conditions of the land on which each campus is sited as well as by planning and development plans and regulations. This chapter summarizes the context in which the planning process took place; not only from a physical location point of view but also from the numerous regulatory and planning documents and design standards that affect OHSU facilities.

This context includes previous OHSU planning efforts, the Marquam Hill Plan, The Schnitzer Campus Framework Plan, access & transportation, parking, existing urban design features, as well as utility infrastructure. The intent of this chapter therefore is to relate and inform the facilities planning process in the context of site and area specific planning activities.

Location and Context

Each campus is shaped by its location, the configuration of its land, natural and manmade features, and by regulations that have governed its development. Thus, each of the OHSU campuses is distinct from the others in character and appearance, and in its potential to serve specific OHSU needs. The purpose of this chapter is to enumerate those factors that have shaped each campus as a prelude to understanding optimal use of each.

The University's original campus on Marquam Hill occupies the ridges and canyons of a rocky outcropping of Portland's West Hills. The steep terrain required access roads to wind up it, dividing its 116 acres into three groups of buildings, stepping down the hillside from north to south. Older buildings occupy the flattest sites, while more recent structures are fitted into variable topography and reconciled with established floor levels. Almost every viable site has now been developed, so that growth on the campus can only be achieved by displacing some uses elsewhere. For most displaced uses, new locations are planned on two sites on the west bank of the Willamette River.

The South Waterfront Central District comprises eight acres and six city blocks in Portland's South Waterfront District. The site is flat, with four blocks bounded by Gibbs Street, Curry Street, Moody Avenue and River Parkway. These blocks are unevenly quartered by Whitaker and Bond streets. Block 33 which is the equivalent of two additional city blocks and is bounded by Curry,

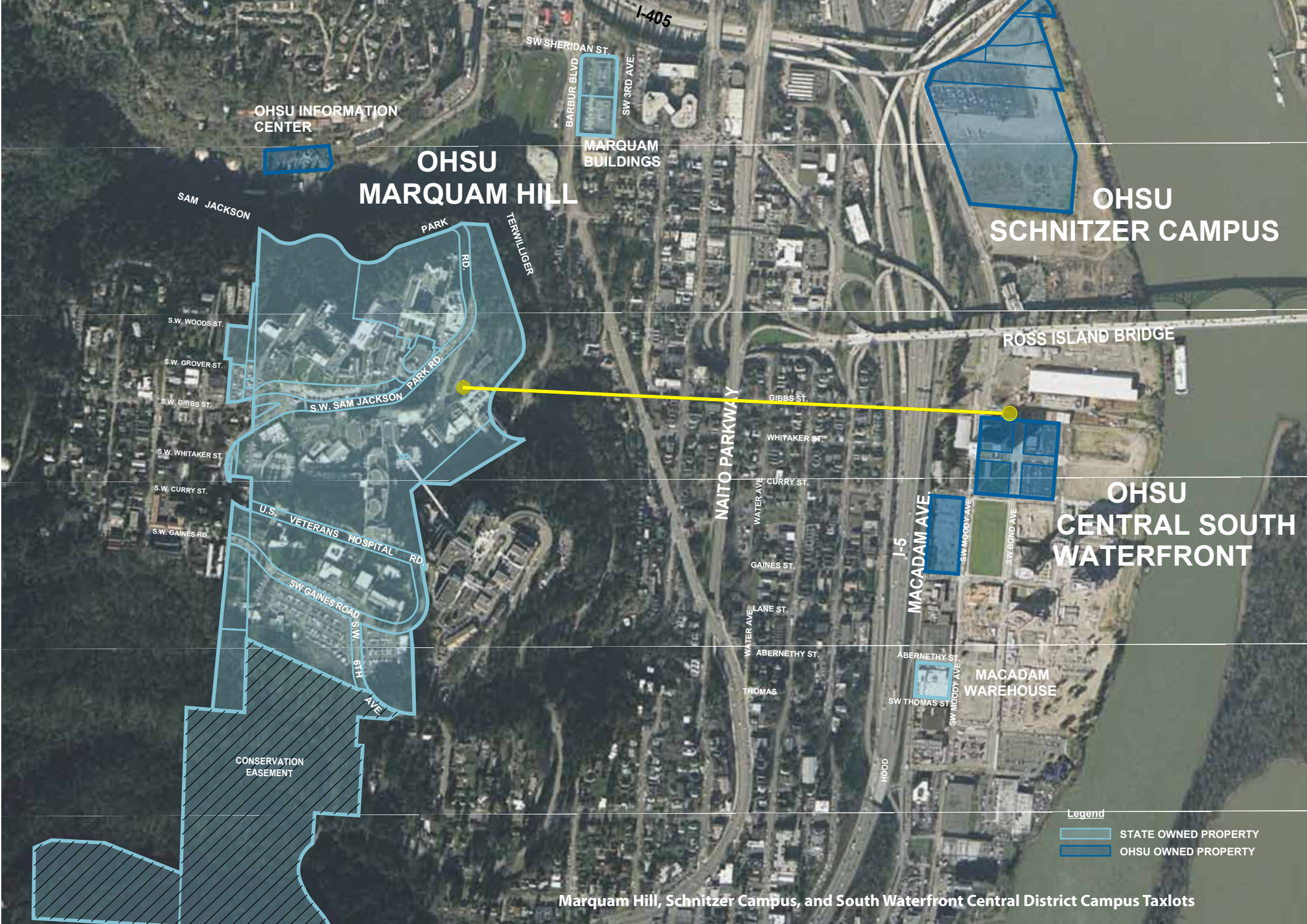
Moody, Gaines, and Macadam Avenue. The South Waterfront Central District is currently occupied only by the Center for Health and Healing and its support facilities. It is connected to the Marquam Hill Campus by an aerial tram above Gibbs Street.

BUILDINGS ON STATE OWNED PROPERTY

OHSU left the Oregon University System to become a public corporation of the State of Oregon in 1995. As such, OHSU "owned" land is distinguished by whether it belonged to the University prior to 1995 or post 1995. All land that pre-dates this change is technically owned by the State of Oregon and leased to OHSU for a nominal sum. OHSU has broad authority to develop and occupy this land, but cannot sell or transfer ownership. If OHSU wants to vacate any of this land it must be transferred back to the State.

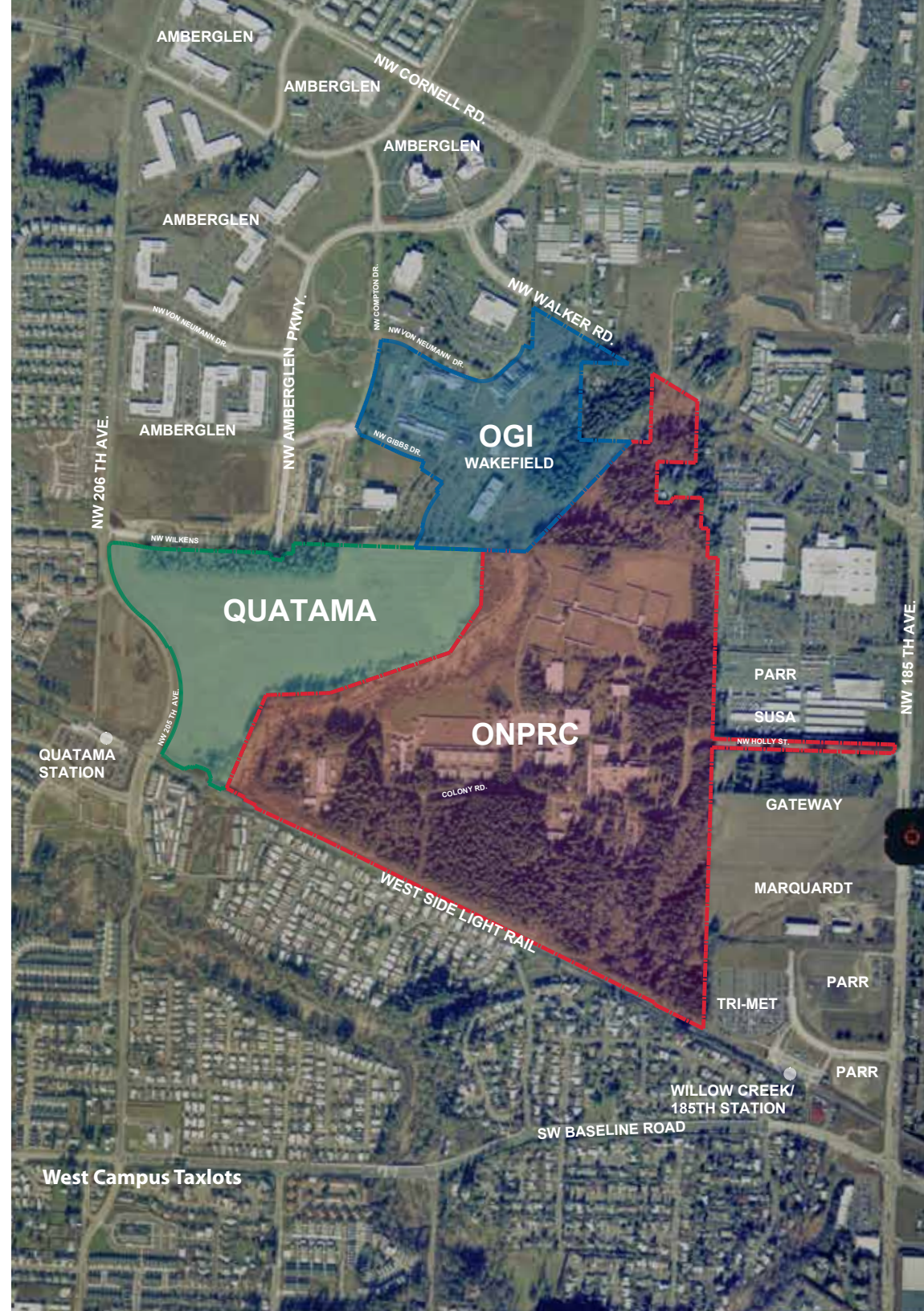
However, all land acquired by OHSU post 1995 is owned by the University and can be sold or transferred with approval by the OHSU Board and subject only to donor restrictions.

Simply put, the entire Marquam Hill Campus, the Macadam Logistics Warehouse, and the Marquam Plaza and Marquam II buildings are owned by the State and subject to the lease and the pre-1995 restrictions on sales and transfers. However, the University's other lands in South Waterfront (the Central District and the Schnitzer Campus) are owned outright by OHSU.



A quarter mile north of Central Campus is the 19-acre Schnitzer Campus, to which it is connected by Bond Street, Moody Street, River Parkway and the streetcar line. Most academic components of the Marquam Hill Campus are to be relocated into new, purpose designed buildings on the Schnitzer Campus. Now cleared of former industrial remnants, the Schnitzer Campus slopes gently towards the river from elevated streets along its south and west boundaries. Preferred views are eastward towards Mt. Hood across the broad Greenway that borders the river. These, and solar access to the south have shaped the framework development plan for this new campus.

The West Campus is remote from the other three campuses, located twelve miles west in Hillsboro. The 263 acre West Campus actually comprises three distinct but adjacent parts: the former Oregon Graduate Institute (OGI) to the north, the Oregon National Primate Research Center (ONPRC) campus south and east of Bronson Creek, and the undeveloped 54 acres of the Quatama property to the west. The suburban location and the rolling farmland on which it was established makes the West Campus distinct from the three urban campuses in character and in the types of facilities it can accommodate. Besides the Oregon National Primate Research Center and the former Oregon Graduate Institute, the Western Campus accommodates the the Vaccine and Gene Therapy Institute, the Institute for Environmental Health and OHSU's Department of Biomedical Engineering's Center for Spoken Language Understanding. OHSU sold the former OGI campus to Wakefield Capital under a leaseback arrangement that expires at the end of 2013. The University's current plan is to vacate the former OGI campus at the end of the current term with the possible exception of the Cooley Science Building.



Planning Context

MARQUAM HILL CAMPUS PLANNING

Of the four OHSU campuses, the Marquam Hill Campus has by far the most complex planning context. Not only is it the oldest and most densely developed campus, it is surrounded by sensitive residential neighborhoods and protected natural resources, and road access to it is limited. A Framework Plan was developed in 1982 to address these issues in the context of the City of Portland's Code. That document established an agreed protocol for review and approval of development and other facility changes that OHSU might wish to make. It provided guidelines for campus development that took into account the concerns of the City and the neighbors.

Subsequent planning studies conducted between 1998 and 2002 led to the University's expansion on the South Waterfront, the construction of the Portland Aerial Tram, and the development of over one million square feet of new buildings (the Kohler Pavilion, the Center for Health and Healing, and the Biomedical Research Building). While these studies were labeled the "OHSU 30 Year Plan" the plan was never adopted as such and is no longer used to guide facility planning. This 2011 Plan is intended to provide that phased, long term view of the Marquam Hill Campus in the context of the other three campuses.



Marquam Hill Campus



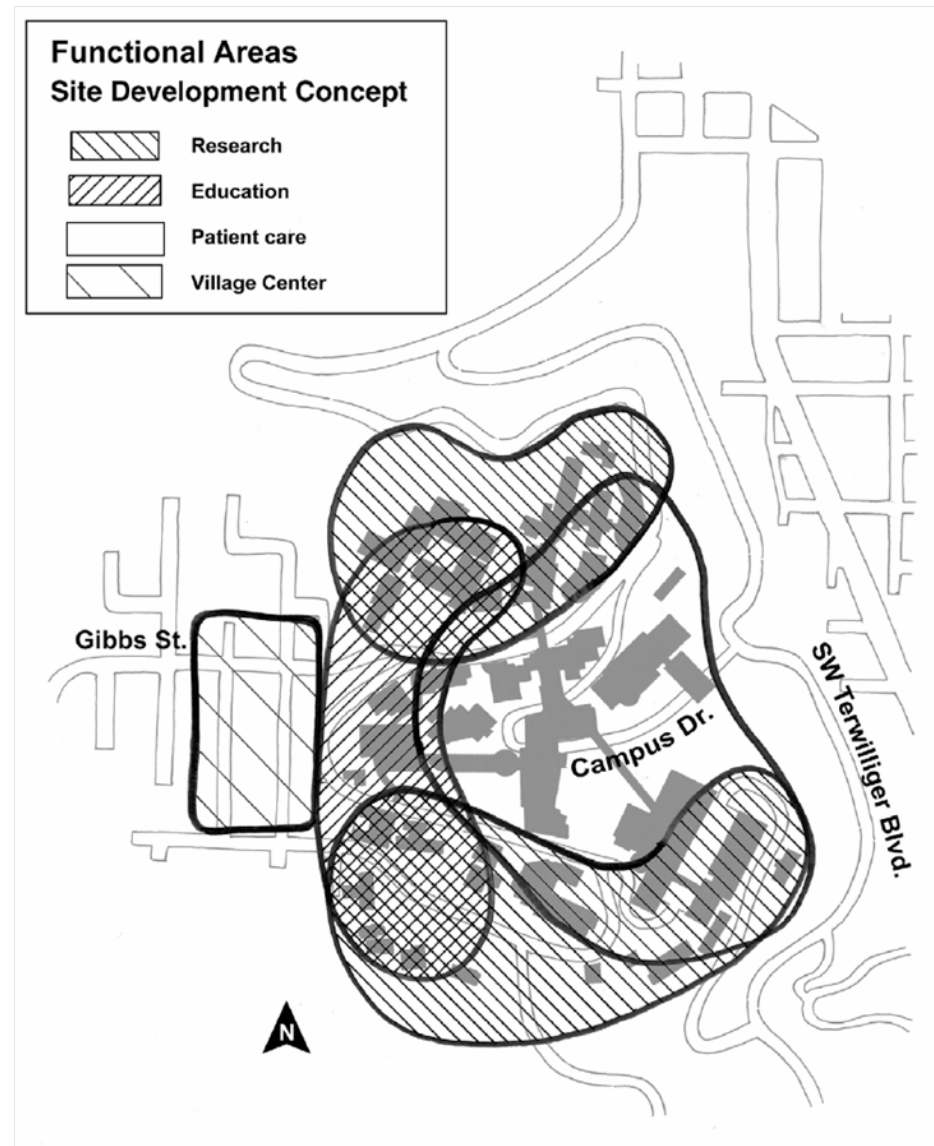
Portland Aerial Tram

© SkyShots Aerial Photography

The 1998-2002 planning efforts clearly demonstrated that the conditional use status of all OHSU buildings and facilities represented a regulatory hurdle to the future growth of the Campus. The Marquam Hill Campus had a base zoning of residential and all proposed development had to go through a discretionary process that often resulted in protracted disputes with the residential neighbors. OHSU and the City of Portland initiated a comprehensive planning process to balance the growth of the campus while mitigating impacts on residential and natural areas.

The Marquam Hill Plan was adopted in 2003 by the City of Portland as a 'Special District Plan', providing a regulatory framework and clear entitlements for institutional expansion on the campus. Though more specific in its provisions than the 1982 Plan, the 2003 Plan also sought to protect nearby residential communities and natural areas. The plan introduced the idea of four functional zones: three on the campus and a village center immediately west of it. The intention was to:

- Concentrate patient care in central campus with access off of Campus Drive;
- Create two research concentrations at the north and south ends of campus;
- Develop an education crescent on the west side of campus; and
- Cultivate a Village Center above and west of the campus on Gibbs Street.



Functional Areas Concept from Marquam Hill Plan

The Marquam Hill Plan includes nine development guidelines which provide OHSU and the Design Commission with a common basis for design review:

1. Enhance Views of Marquam Hill;
2. Develop Integrated Building Rooftops;
3. Maintain and Enhance Existing Views from Marquam Hill;
4. Develop Successful Formal Open Areas;
5. Strengthen the Pedestrian Network;
6. Support the Pedestrian Network with New Development;
7. Enhance Relationships with Adjacent Forested Areas and Terwilliger Parkway;
8. Strengthen Connections to the Village Center; and
9. Further the Implementation of the Site Development Concepts.

The Marquam Hill Plan was adopted by City Council in 2003, and the following year a Memorandum of Understanding was executed on joint implementation of a specified series of public-private actions that would aid achievement of adopted Plan objectives.

This 2011 Facilities Plan proposes a change to the Functional Areas concept by moving most academic uses to the Schnitzer Campus, and some ambulatory and research functions to the South Waterfront Central District. This relocation and redevelopment process is expected to be phased over two decades, and will be paced by the logistics involved in vacating and remodeling or replacing a series of structures on the Marquam Hill Campus without seriously disrupting operations of OHSU. Also, part of the mix are departments that currently occupy leased premises, but need to be reintroduced to one of the campuses to benefit from functional proximities.

Planning context continued on page 2.10

MARQUAM HILL CAMPUS MAP



Baird Hall (BH)



Biomedical Information and Communications Center (BICC)



Biomedical Research Building (BRB)



Building 28 (BTE)



Campus Services Building (CSB)



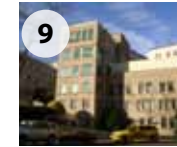
Casey Eye Institute (CEI)



Child Development and Rehabilitation Center (CDRC)



Child Development and Rehabilitation Center West (CDW)



Dillehunt Hall (DH)



Doernbecher Children's Hospital (DCH)



Dotter Interventional Institute (DOT)*



Emma Jones Hall (EJH)



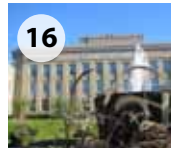
Gaines Hall (GH)



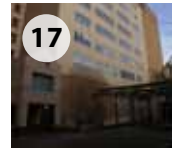
Hatfield Research Center (HRC)



Kohler Pavilion (KPV)



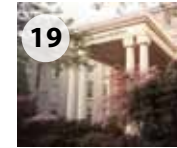
Mackenzie Hall (MAC)



Medical Research Building (MRB)



Modular Building Structure (MBS)



Multnomah Pavilion (MNP)



OHSU Auditorium (AUD)



OHSU Hospital (OHS)



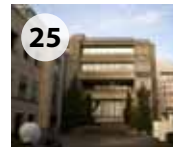
OHSU Student Center (OSC)



Physical Plant (PP)



Physician's Pavilion (PPV)



Richard Jones Hall for Basic Medical Sciences (RJH)



Sam Jackson Hall (SJH)



School of Dentistry (SOD)



School of Nursing (SON)



Vollum Institute (VIABR)

* Off of Map



Axonometric View of Existing Marquam Hill Campus

SOUTH WATERFRONT CENTRAL DISTRICT PLANNING

By the 1990s, limits to growth on the Marquam Hill Campus were becoming acute, and OHSU relied more heavily on leased space nearby, conscious that the benefits of collegiality were largely lost in the process. The institution had long contemplated the corridor between Macadam Avenue and the Willamette, watching its steady conversion from industrial uses to a mix of commercial and residential development. Though physically close, a drive between waterfront and hilltop campuses could take an unacceptably long time, and for many, ruled out the option of a satellite campus there. The idea of direct connection by aerial tram emerged from a study of transit options, and led to the acquisition of eight acres near the waterfront at the foot of Gibbs Street, above which the tram would ride its cables.

A landmark building was conceived at the foot of the landmark aerial tram. The Center for Health and Healing was completed in 2006 giving OHSU a strong presence in the South Waterfront District adjacent to I-5. Functionally, this building would intercept large numbers of ambulant patients who would otherwise drive to the Marquam Hill Campus, using up scarce road capacity and parking resources. Furthermore, staff who work in both places could move between them in comfort taking only four minutes for the journey. An un-anticipated benefit of the tram was that many staff who had previously driven or taken transit to Marquam Hill now accessed Central campus, many via bicycle or streetcar, and ride the tram to their hilltop campus destinations, further relieving pressure on road capacity and campus parking.



Schnitzer Campus and South Waterfront Central District

© SkyShots Aerial Photography



The Center for Health and Healing

© Cyril "Kent" Anderson



Axonometric View of South Waterfront Central District



Center for Health and Healing (CHH)



OHSU Logistics Center

SCHNITZER CAMPUS PLANNING

OHSU generated a compelling vision and development framework for the Schnitzer Campus in 2007. As envisioned, the campus will include all three of the University's schools and the pharmacy program, and will provide a unique interdisciplinary environment for the education and training of health care professionals. The framework plan contemplates that development of the campus will be phased over the next two to three decades and will ultimately include over two million square feet of new education and research facilities. To guide detailed design and development of the campus, reference should be made to ten fundamental guidelines from the 2002 South Waterfront Plan:

- A1-1 Develop River Edge Variety
- A1-2 Incorporate Active Uses along the River
- A4-1 Integrate Ecological Concepts in Site and Development Design
- A4-2 Develop Successful Formal Open Areas
- A5-1 Consider South Waterfront's History and Special Qualities
- B1-1 Facilitate Transit Connections
- B1-2 Enhance Accessway Transitions
- B2-1 Incorporate Outdoor Lighting that Responds to Different Uses
- C4-1 Develop Complementary Structured Parking
- C13-1 Coordinate District Signs



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View of Schnitzer Campus site.

Porter Street, which forms the south boundary of the campus, will connect downtown transit to a new transit bridge giving access to the east side of the Willamette. Light rail, buses and streetcars will all stop adjacent to the campus on Porter Street giving unprecedented access to the new campus from east and northwest. The new bridge will also give direct access to bicyclists and pedestrians from the east side of the river. Streetcars and local streets will also connect the Central District a quarter mile to the south.



Axonometric View of Schnitzer Campus

WEST CAMPUS PLANNING

The 263 acre West Campus is located in suburban Hillsboro. It resulted from the merging of several adjacent properties including the Oregon Regional Primate Research Center (ORPRC) and the former Oregon Graduate Institute (OGI). The campus is bounded to the south by the Westside light rail line, with housing beyond. There is also housing to the west along NW 206th Ave. To the northwest is the 220 acre Amberglen Business Park. Bronson Creek divides the campus diagonally from northeast to southwest, separating the western 50 acres of undeveloped land identified as the Quatama property, with the Quatama light rail station at its southwest corner. OHSU sold the former OGI campus to Wakefield Capital under a leaseback arrangement that expires at the end of 2013. The University's current plan is to vacate the campus at the end of the current term with the possible exception of the Cooley Science Building.

A Concept Development Plan (i.e. conditional use plan) covers the grounds of the ONPRC and was completed in 1998 and later extended to 2018. The CDP provides a framework for facility expansion that maintains a forested buffer around the site while detailing the location of service roads, parking, animal facilities and future research buildings. The CDP encompasses most planned improvements over the next decade, but should be updated in the near term to evaluate programmatic changes that were not contemplated when the original plan was adopted.

Finally, the Quatama parcel to the west and across Bronson Creek from the ONPRC is a potential site for joint development. The City of Hillsboro has adopted the Amberglen Community Plan that proposes significant upzoning of the land and a design framework that contemplates a more urban character with mid to high rise residential development. A light rail extension may branch off the current Blue Line to connect to Tanasbourne and areas to the northwest.



Aerial view of West Campus



Building One (NSI & VGTI)



Bronson Creek Building



ONPRC Research Building



Cooley Science Center

5 ASB 1, ASB 2, ASB 3

6 Cellular & Molecular Biology Building

7 Central Building

8 Howard Vollum Bldg

9 Jack Murdock Bldg

10 Modular Court

11 Montagna Auditorium

12 ONPRC Admin Bldg

13 Paul Clayton Bldg

14 Research Annex

15 Old Chemistry

16 Wilson Clark Center

17 Quatama

Existing Urban Design Features

TOPOGRAPHY & VIEWS

The natural contouring of the hilltop campus has largely determined the configuration of roadways and the siting and orientation of buildings. Elevations vary by up to 200' across the campus, with abrupt ridges and canyons obstructing north-south circulation. Way-finding is further complicated by wildly varying floor numbers: the ninth floor of one building equating to the first floor of another.

Views from the campus are often framed by the trees that surround it, but also by the buildings themselves. Views enjoyed from some of the earlier buildings on campus have long since been eclipsed by later buildings. Most prized are views east across the river towards Mount Hood. For most, however, views are limited to the immediate surroundings of each building; some with pleasant outlooks, while others are less fortunate and merit improvement.

The topography of the campus imposes some severe limitations on layout and use, but it also confers a unique character on the place, to which the appearance of the buildings contributes, as do the open spaces between them, the girdling forest and occasional dramatic views of distant mountains. Apart from the removal and replacement of buildings over time, the greatest scope for improvement to the function and quality of the campus is in the intricate pattern of spaces between buildings, and integration of these with an understandable system of campus circulation.

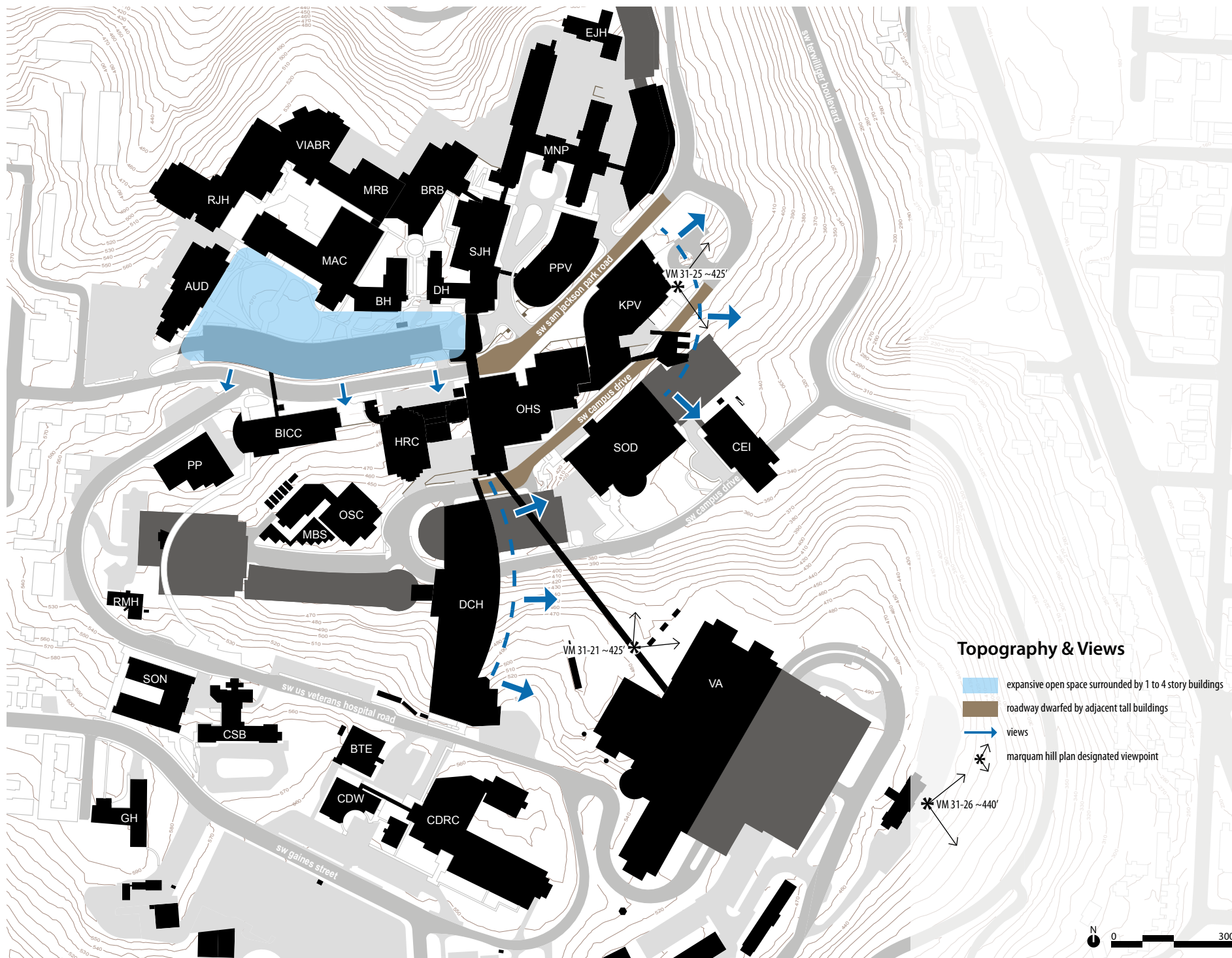


Terrace with distant view at Koeler Pavilion



Campus Views

© Photo courtesy of OHSU Digital Resources Library



EXISTING OPEN SPACE FRAMEWORK

'Framework' suggests a consciously wrought system of open spaces, though in truth much of what exists is a connected series of remnant spaces. In many cases, design focus has been on individual buildings to the exclusion of the spaces around and between them. There are some happy exceptions to this, such as the terraced garden outside Vollum and the fountain plaza that stands before Mackenzie Hall.



The Terraced Garden outside of Vollum



The Fountain Plaza in Front of Mackenzie Hall

The streets provide a logical progression through the campus, but overall, landscaped open spaces add neither comprehension of campus layout nor a sense of place fitting to the caliber of the institution. However the potential to create a true open space framework is great, given the encircling woodlands, the temperate climate and striking views afforded by campus topography.



Access and Transportation

VEHICULAR ACCESS AND CIRCULATION

Patient and visitor access to the Marquam Hill Campus is via Campus Drive from Terwilliger Blvd. Employee and student access is via Sam Jackson Drive on the north. Service access is primarily via Sam Jackson Drive although some large trucks use Campus Drive due to loading dock alignment at South Hospital and Kohler Pavilion.

Access using Sam Jackson Drive is challenging because it is steep, narrow and curvy. Improvements are limited by the steepness of the hillside into which it is cut. Backups frequently cause traffic to shift to Campus Drive and adjacent neighborhood Streets. Additional traffic and noise through the Homestead neighborhood is troublesome to residents.

The Marquam Hill Plan permits up to 5,139 parking spaces in the three zones that cover the OHSU campus. Currently, all but about 530 of those spaces have been built. While adding spaces above this number is possible, it requires a more rigorous and participatory review by the City of Portland. Further, adding parking spaces generates more peak hour congestion on the limited roadway capacity up and down Marquam Hill.

Responding to parking limitations and the aspiration of OHSU to be environmentally sensitive, many employees use mass transit, carpools, and bike transit to reach the campus. Yet automobiles remain the primary means of access by the public and visitors.

One of the goals of the Marquam Hill Plan is to manage overall single occupant vehicle trips and peak congestion on Marquam Hill. A related goal is to support the functional areas of the Marquam Hill Campus and complement the pedestrian circulation network.

Efficient access for service and emergency traffic remains vital to the functions of OHSU, so there have been numerous efforts to reduce congestion due to the number of cars entering the campus. Transportation Management Plans have succeeded in increasing the numbers of people using transit and carpooling, but perhaps the greatest success was the construction of the Center for Health and Healing in the South Waterfront Central District, which removes the need for many patients and visitors to access the Marquam Hill Campus. An additional benefit was realized when the aerial tram began to operate, and significant numbers of students and employees began bicycling to work, using the tram to climb the hill. Many more found streetcar access to the foot of the tram convenient, and started commuting that way.

The West Campus will continue to depend heavily on the automobile as the primary means of access because of its location and the scattered destinations of those who work there. However, the undeveloped Quatama parcel has direct access to a transit station, so could be expected to achieve a respectable modal split.



PEDESTRIAN ACCESS AND CIRCULATION

Walking is a practical means of access to the Marquam Hill Campus for a limited number of people who live nearby. Currently eight different Tri-Met bus routes serve the campus, swelling the numbers of those on foot. Transit passes, both annual and monthly, provide access for a growing proportion of OHSU employees. Once on campus, almost everyone depends on the pedestrian circulation system. It is therefore a priority to make circulation on foot safe, direct and comfortable. The existing circulation system includes both indoor and outdoor segments as well as stairs and elevators necessary to negotiate many changes in level across the campus. The system has been built incrementally as new buildings have necessitated new routes. Not surprisingly, there are missing links in this system, and navigating it can be challenging for visitors unfamiliar with the nexus of horizontal and vertical connections. Blind corners and missing

segments of sidewalk can expose pedestrians to vehicle conflicts and incomplete signage can misdirect visitors. Compromised pedestrian safety locations at crossings and loading areas have been identified (see Campus Repair & Placemaking Recommendations in Chapter 6), and recommendations are made for improving the safety, convenience and comfort of pedestrian circulation throughout the campus.

An increasing number of OHSU employees and students commute by bicycle – thanks to the Tram in the case of the Marquam Hill Campus. The South Waterfront Central District and the Schnitzer Campus can expect even greater numbers of cyclists when the new Willamette Transit Bridge opens, giving direct access to East Portland. The same bridge will bring unparalleled transit access via light rail, bus and streetcar from all directions.



Indoor and outdoor pedestrian circulation



Cyclist and bike storage



Docks & Loading

Marquam Hill Campus is served by 17 loading docks spread throughout the campus. Two of these, Numbers 4 and 16, handle 95% of deliveries prior to distribution. Deliveries to the north parts of the campus are hampered by constrained access to docks 7, 9 and 17.

Docks within the Central Campus, numbers 3, 5, 6, 8, 10, 11 and 13, are suitable to receive both the type and volume of delivery vehicles arriving at those facilities.

Of the docks located on Veteran's Hospital Road, numbers 12, 14 and 15, only dock 15 is problematic. This is due to poor grading and conflicts with traffic in the adjacent Building 28 parking lot.

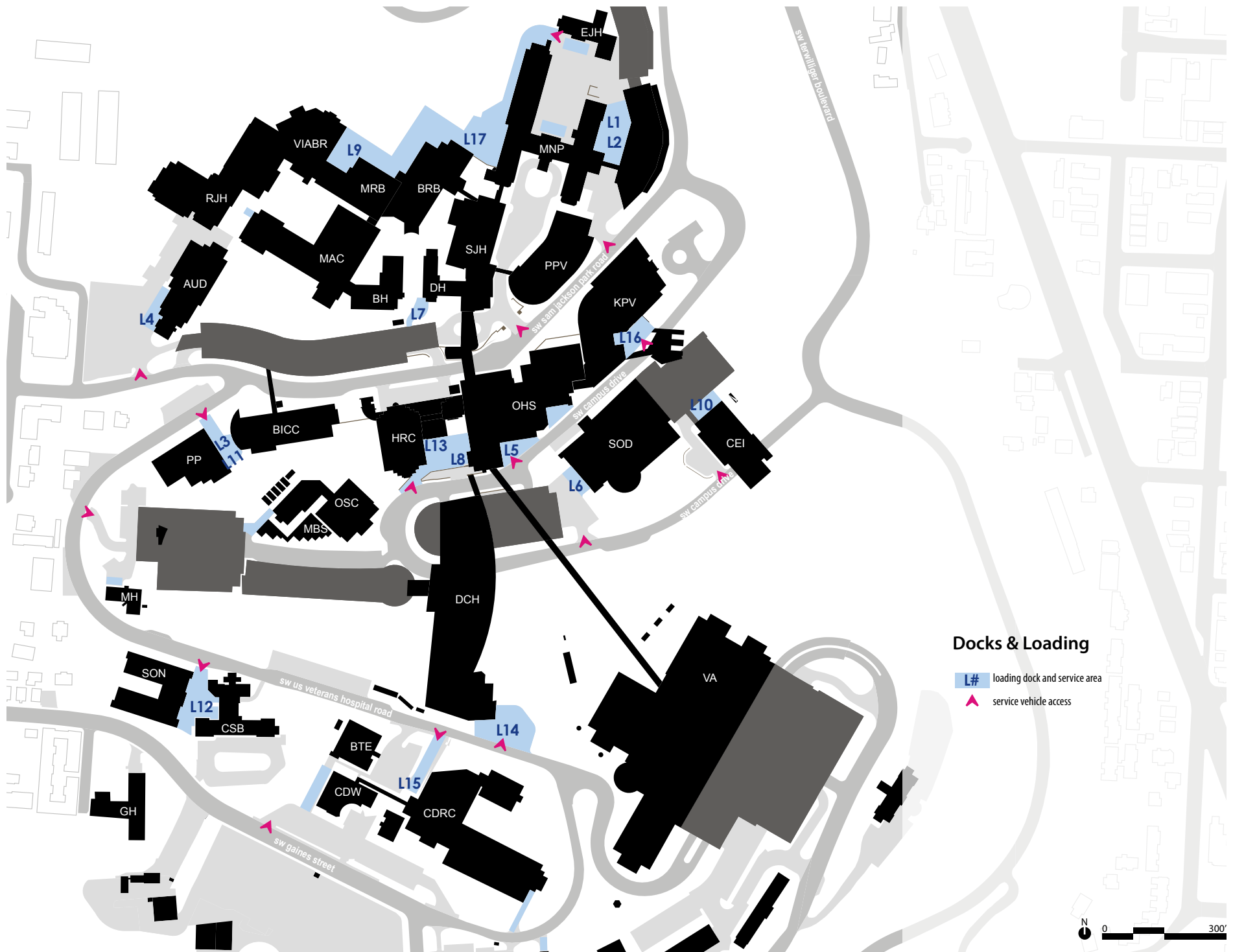
Located at the southwest corner of the Auditorium Building, dock 4 receives 80% of deliveries from vendors and shipping companies. Because of the small dock and handling area, deliveries sometimes have to wait for up to two weeks to be delivered to their final destination. This double handling of shipments is inefficient and causes traffic and safety problems due to dock 4's location on campus. The Logistics Department has a warehouse and storage facility on SW Moody in the South Waterfront District where hospital supplies are stored and processed for delivery, and part of the sterile storage operation is accommodated. A single hub facility has been requested to centralize all operations of the Logistics Department. The South Waterfront location is not suitable for this purpose due to limited parking, loading docks, and storage space.



OHSU Loading Dock 4



OHSU Loading Dock 16



Parking

LOCATION & CAPACITY

Parking on the Marquam Hill Campus is strictly governed by the Marquam Hill Plan. The Plan created parking caps for each of five Subdistricts. Any new parking facility on the campus is subject to a Type A parking review. Parking subdistrict A & B (North & Central Campus) have a combined cap of 4,429 spaces of which approximately 3,900 exist today. Subdistrict C (South Campus) is parked to its maximum limit of 710 spaces. Subdistrict D only applies to the VAMC campus. Parking adjacent to SW Terwilliger Blvd. in Subdistrict E is prohibited.

There are 8 parking structures and 9 surface lots on the Marquam Hill Campus, with a total of approximately 4,610 spaces; about 530 fewer than the permitted maximum of 5,140 spaces. Access to each location is controlled through a diamond pass system for employees and a daily pass system for visitors. The diamond pass system uses graduated charges related to convenience, the least expensive lots being the most distant. A refined employee parking payment scheme is in development in conjunction with more effective monitoring and control systems. There is a long waiting list for employee parking permits on the Marquam Hill Campus, with waiting times of up to five years.

South Waterfront Central District parking for OHSU is provided at four locations: three surface lots (two at CHH and one at the Schnitzer Campus) and garage parking under CHH. Parking in these facilities is also controlled by the diamond pass system for employees and daily passes for patients and visitors. Employees wait up to three months for a parking permit.

PARKING LEVELS

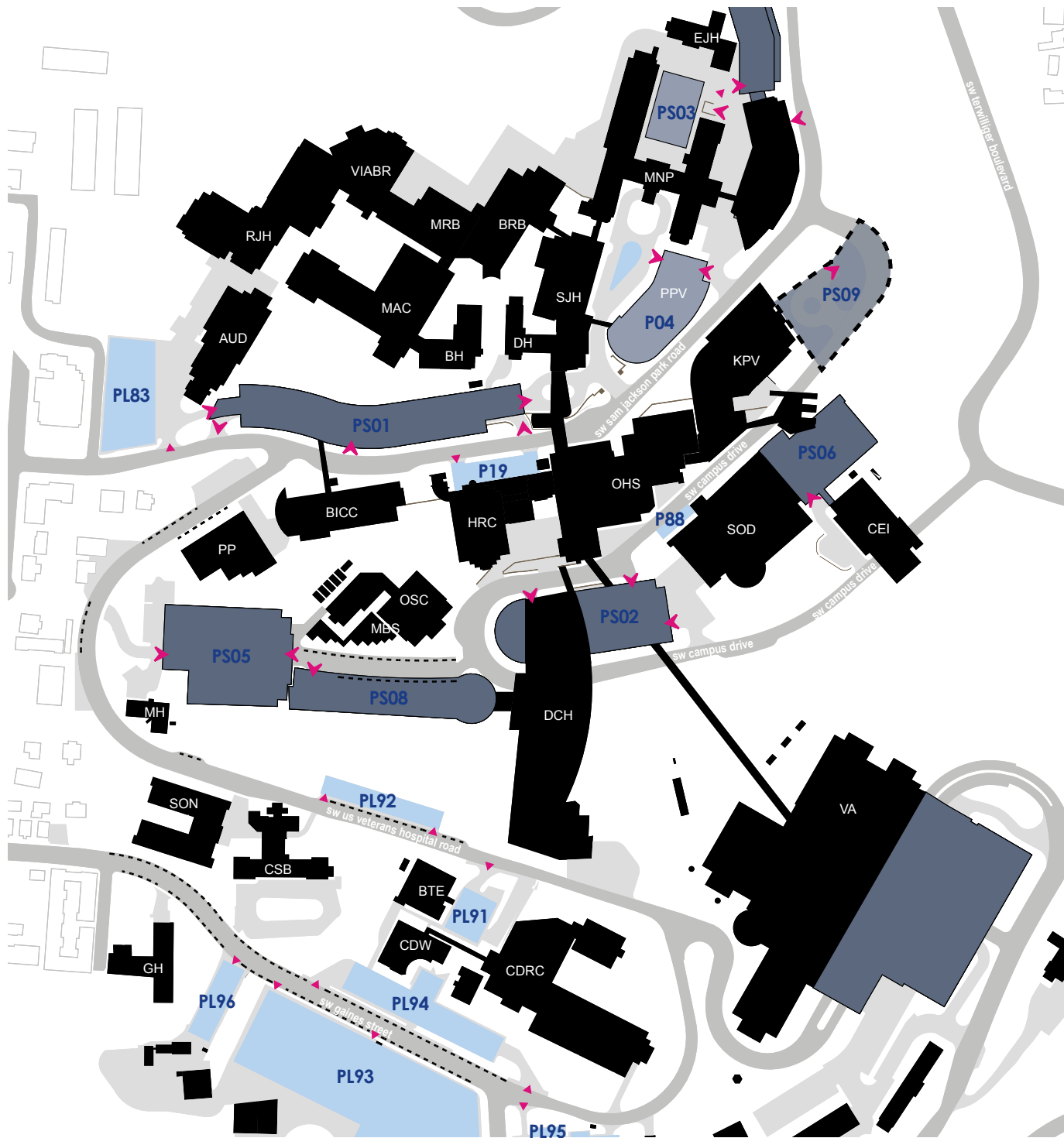
Per the Marquam Hill Plan, parking limits in the three sub-districts covered by OHSU are as follows:

PARKING DISTRICT	SPACE LIMIT	CURRENT PARKING SUPPLY
Sub-District A and B	4,429	3,900
Sub-District C	710	710

* Includes Shriners Hospital Parking



Top of OHSU Parking Structure



LOT NUMBER/NAME	Total Spaces
PL19 - Emergency Department Lot	8
PL83 - Old Library/Auditorium Lot	90
PL88 - School of Dentistry 6th Floor	6
PL91 - Building 28 Lot	34
PL92 - CSB Lot	28
PL93 - Gaines East Lot	364
PL94 - CDRC Lot	82
PL95 - Dotter Lot	219
PL96 - Gaines West Lot	40
PS01 - Sam Jackson Structure	383
PS02 - Campus Drive Structure	1076
PS03 - Emma Jones Structure	125
PS04 - Physicians Pavilion Structure	388
PS05 - Canyon Parking Structure	637
PS06 - Casey Eye Structure	327
PS08 - Doernbecher Structure	103
PS09 - Kohler Pavilion Structure	464
SS - Shriners Hospital Structure	235
TOTAL OHSU Parking	4,610

Parking

- # parking structure
- [#] below-grade parking structure
- # parking structure with office spaces above
- # surface parking lot
- ▲ parking structure access
- ▲ surface parking access
- on-street parking



OHSU Owned and Leased Property

As of June 2011, OHSU staff and programs occupy 118 buildings and 10 parking structures that collectively comprise 7.1 million square feet of facilities. This total includes both owned and leased space. Of that total, 36 buildings and five million square feet of space resides on the Marquam Hill Campus, 30 buildings and half a million square feet of space are at the ONPRC, and 8 buildings comprising 570,000 square feet are in Portland, but located off of Marquam Hill including the Center for Health and Healing in South Waterfront.

OHSU leases space in 44 buildings that collectively comprise 785,000 square feet of space. The former Oregon Graduate Institute, which was sold by OHSU in 2006, comprises 19 buildings and about 38% of the leased space square footage. The remaining leased sites are spread throughout Oregon and southwest Washington and range from large sites accommodating OHSU central service departments in downtown Portland to small outreach locations that OHSU clinicians visit once or twice per month.

The table to the right summarizes the major leased sites accommodating OHSU support services and affiliated organizations located in central Portland, including the OHSU Foundation and UMG Billing. The significance of these sites is that they comprise six buildings and approximately 195,000 rentable square feet. All

of the leases expire on or before June 30, 2017 and as leases come up for renewal they will be synchronized with that same termination date.

OHSU and its affiliated organizations will have the opportunity to centralize these departments in one leased location when the leases terminate in mid-2017. This can be done in one central location in downtown Portland or accommodated in a Support Services Building on OHSU owned land in the South Waterfront Central District that is built, owned and managed by a private partner. This option is examined further in the next two chapters.

OHSU Support Services Leased Space

BUILDING NAME	OHSU Department(s)	Rentable Sq. Ft.	Termination Date
ADP BUILDING	SON Simulation Lab Donate Life NW	14,686	3/31/2014
BANCROFT BUILDING	Research Grants & Contracts Sponsored Projects Admin. Technology Transfer & Business Development Corporate Integrity Office Research Integrity Office	19,727	6/30/2017
FIFTH AVENUE BUILDING (PN1069)	Patient Business Services (4th Floor) Hospital Financial Services (650, 660 & 680)	21,263	12/31/2013
FIFTH AVENUE BUILDING (PH1346)	Hospital Information Management (8th Floor) Hospital Integrity Office (8th Floor) Clinical Research Billing Office (8th Floor) UMG Billing Administration (6 Floor)	15,543	6/30/2017
MARKET SQUARE BUILDING	ITG (5th, 7th & 9th Floors) Hospital Registration (5th Floor) Hospital Clinical Content & Workflow (7th Floor) Hospital Quality Management (7th Floor) Hospital Clinical Informatics Department Risk Management (8th Floor)	74,531	6/30/2017
1121 SALMON BUILDING	OHSU Foundation DCH Foundation	24,378	7/31/2016
LLOYD CENTER	UMG Billing	25,452	1/31/2012

Utility Infrastructure

DOMESTIC WATER

The Marquam Hill Campus is served by a single line from the Portland Water Bureau reservoir tanks located on Council Crest. Most of the campus buildings are served by OHSU's own water distribution system, which is connected to the city lines in four places. Remaining campus buildings are supplied and metered directly from the city water lines branching from the main supply. The OHSU distribution system is designed as a loop with strategically placed isolation valves so that critical buildings have two points of supply in case of a line failure. Much of the distribution system was installed in the 1950's and 1960's. Due to age and capacity limitations, replacement of distribution lines should be considered whenever the opportunity arises. In the event of a city water line rupture, OHSU would experience a complete loss of city water supply, so domestic water storage for critical buildings should be considered.

STORM DRAINAGE

OHSU recognizes that it is the steward for the campus lands that it occupies in the Marquam Hill area and is responsible for the watersheds within the campus. As a result, OHSU has a commitment to protect the watersheds and reduce the stormwater contribution to the City sewer system. The primary goal of the stormwater strategy is to reduce the impervious areas to normalize the flow of stormwater to the City of Portland sewer system. A secondary goal of the management of campus stormwater is an expected improvement in the quality of

the stormwater that leaves the campus. A 2007 Stormwater Management Plan identified 30 projects for potential implementation.

Stormwater mitigation projects can be implemented during the construction of new buildings and retrofitted into existing facilities along with new maintenance activities to maintain water quality.

SANITARY SEWER

As was common practice, the older buildings on campus have combined storm and sanitary sewers, with a single point of connection from each building. In recent construction and in some upgrades, storm and sanitary waste water systems have been separated at the building in anticipation of separated City systems.

CAMPUS STEAM

Steam is provided from the Energy Management Center (EMC), and is piped in steam tunnels to serve most buildings on the campus. Dotter Institute and Physicians Pavilion (PPV) have independent domestic hot water and heating boilers, but no independent steam systems exist on the main campus. The main steam plant (EMC) has 180,000 pounds per hour (PPH) generating capacity, and peak demand currently averages ~130,000 PPH. Expansion of the plant is possible if needed. However, the capacity of the condensate return system has already been reached, so any increase in steam generation will require an upgrade.

CHILLED WATER

There are two centralized chiller plants and four individual building chiller systems providing cooling for the main campus.

1. The first phase of a north campus chiller plant project has been completed, with a non-condensing chiller plant installed in the basement of the Vollum Institute. It currently has 2600 tons of chiller capacity, but only 1300 tons of cooling tower capacity and serves Vollum, the Biomedical Research Building, and the Medical Research Building. The final phases of construction (additional towers and another chiller along with inter-tie piping) will need to be completed in order to serve the adjacent buildings or support growth in this part of campus. A capital request has been submitted for completion of this plant.
2. The Central Chiller Plant (CCP) has 5600 tons of capacity, and operates at capacity when outside air temperatures reach 90 degrees Fahrenheit. Two older chillers in this plant could be replaced to increase capacity, but secondary distribution pipe and pump sizing is a limiting factor. This plant serves BICC, HRC, Hospital, SOD, KPV, CEI, SON, CDRC, CCD-W and DCH.

ELECTRICAL POWER

The Marquam Hill Campus primary power source is three 12.5KV 600Amp underground cables and one 12.5KV 750Amp overhead cable. All critical buildings are fed by two of the four cables, which allows for the isolation of a feeder or a section of a feeder loop. Current combined average consumption load of 16MW of power that peaks at 21MW during summer months.

The PGE Substation that supplies Marquam hill consist of three 115KV transmission lines feeding two transformers. Two of the Marquam Hill feeders come from one of the these transformers. Emergency power can be provided by 27 diesel generators with a combined output of 18MW. Most of these generators are small stand-alone units for local use only. OHS, DCH and NCU have larger paralleled systems, and generators in OHS and NCU feed multiple buildings. Substantial additional construction will require a fourth electrical feeder to the campus, for which a point of connection already exists in the high voltage electrical room of the Casey Eye Institute building.

NATURAL GAS

Large natural gas lines are currently installed to serve the main steam plant on the south side of campus, as well as the old steam plant that was located in the basement of the OHSU Hospital. The remainder of the campus makes limited use of natural gas, although supply pipes are available.

