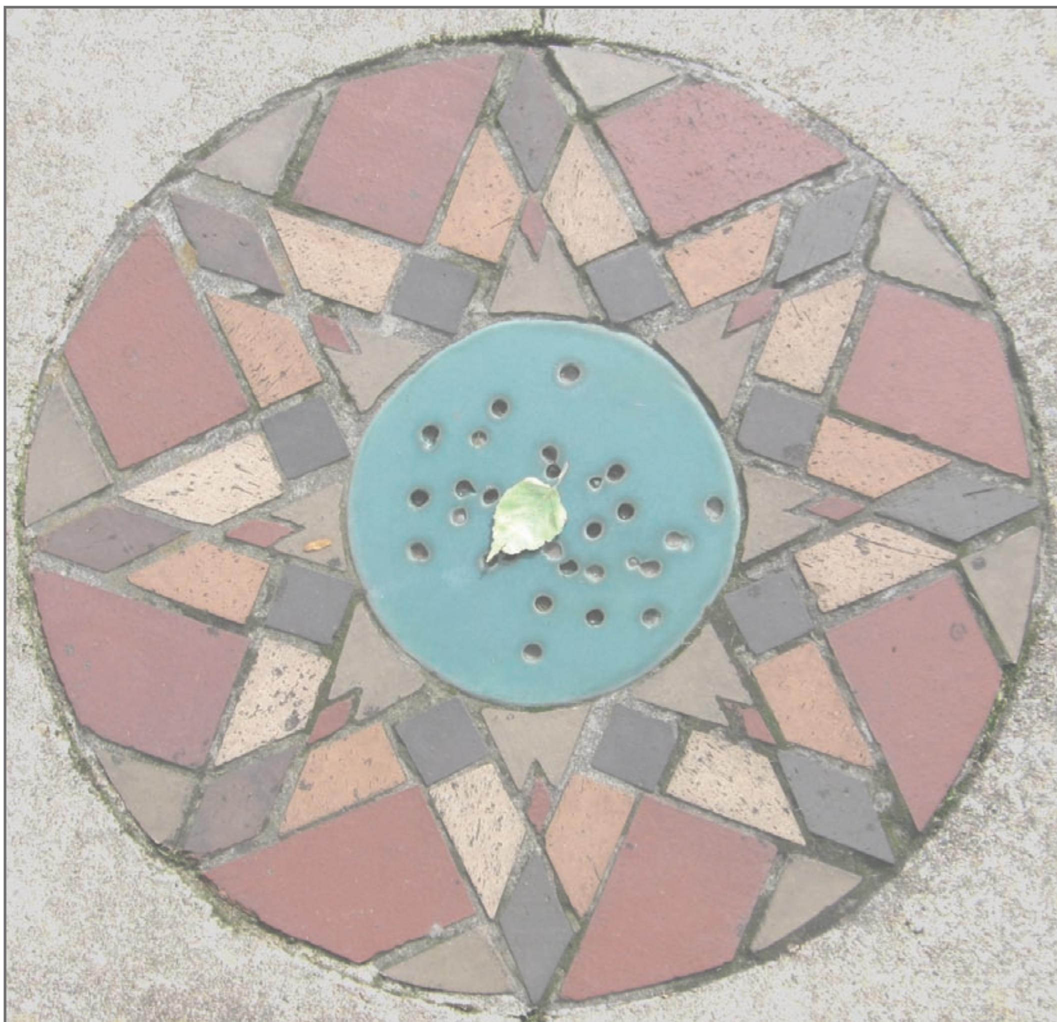
Robert & Beverly Lewis Integrative Science Building

Project Description



University of Oregon
Campus Planning and Real Estate
December 2, 2008

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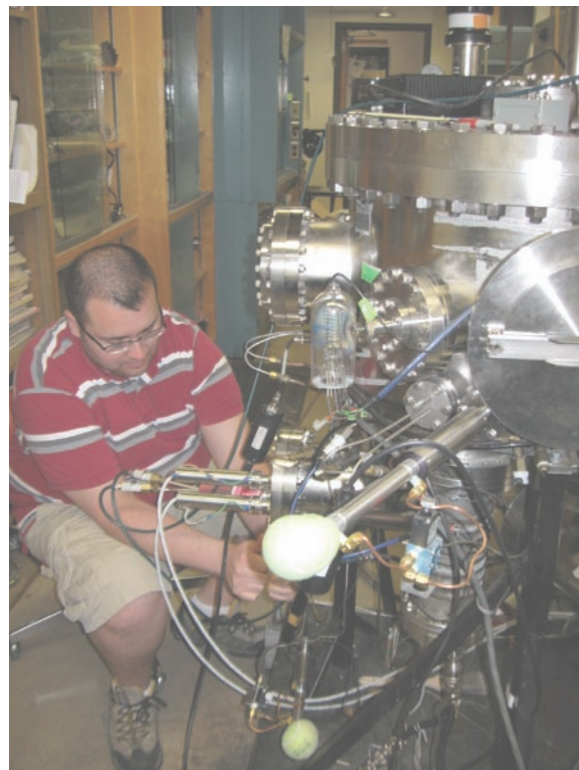
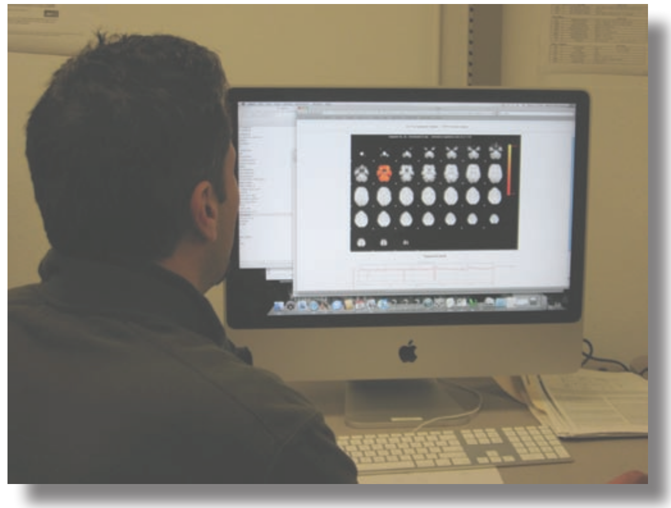


I. Introduction



This document describes the Robert & Beverly Lewis Integrative Science Building project (called "Integrative Science Complex, Phase 2," in the planning phase) as the University of Oregon best understands it at this time. It thus serves to inform prospective architects about the project as well as to start the relationship between the user group and the design team that is ultimately selected for this project. Your honest insights and suggestions are welcomed as the selection process moves forward. The following statements should be a beginning rather than an end.

Big Idea

The UO has a long history of supporting interdisciplinary approaches to scientific research. The building projects of the 1980s created appropriate settings for the development of interdisciplinary groups such as the Institute of Neuroscience, the Material Science Institute, the Oregon Center for Optics, the Institute of Molecular Biology and others.

Through this project, the University plans to create the setting for exciting advances in research. We believe that these will occur largely through integrative science, which asks questions that do not simply cross traditional boundaries, but blur and in some cases dissolve them. The first phase, the Lorry I. Lokey Laboratories, represents one example of this thinking. This second phase is an opportunity to extend this thinking and improve the strategies that yield results.

Goals

- Provide a setting for integrative research.
- Consolidate programs currently spread across sites and thus improve interaction.
- Support external collaborative partnerships.
- Support translational research that is mindful of the potential for real-world application.
- Provide proximity and connection to existing programs and research groups.
- Support the emerging UO Academic Plan, in particular for undergraduate and graduate research.

II. Site Concepts and Challenges

The Lokey Science Complex is the most densely built sector of the UO campus (approximately 760,000 gsf with a floor area ratio (FAR) of about 1.55), and the creation, preservation and quality of open space within this area is of the utmost importance to the science community and to the campus as a whole.

This site has a key role as the public face of the institution along Franklin Boulevard, the most heavily travelled corridor in the neighborhood. This major six-lane arterial incorporates Eugene's bus rapid transit, the EmX, running in a dedicated median bus way.

Within this context, the UO benefits from the interconnectedness of the Lokey Science Complex. All buildings except Deschutes are in some way connected to adjacent buildings. This interconnectedness, started in the 1960s and expanded in the 1980s, has been fundamental to the success of the UO interdisciplinary research institutes. Based on these successes, the user group strongly endorses linking the proposed new building with both Streisinger and Deschutes on as many levels as possible.

On the other hand, a dedicated campus open space and a campus pathway lie between the identified building site and Streisinger Hall, and an additional campus pathway lies between the identified building site and Deschutes. The users hope to obtain permission to amend the Campus Plan to reduce the north arm of this open space, build across it and join all floors to Streisinger. This will enclose the north end of the Science Green and give passersby on Franklin Boulevard a preview of the campus open space qualities enjoyed at the UO. Building in this area would create a large enough site for an efficient research laboratory building footprint, while preserving the two very large oak trees along Franklin Boulevard, north of Oregon Hall. These trees are the key elements for the reconsideration and improvement of the front door to campus.

III. Budget, Funding, Procurement and Cost

The total project budget and legislative expenditure limitation, including all costs, is $65 million, nearly all of which is pledged or authorized by the legislature. We expect that roughly two thirds of that total will be available for direct construction, which we hope will build about 100,000 gross square feet.

Parallel to the architect hiring process, the UO will hire a construction manager/general contractor (CM/GC), who will provide preconstruction services (cost estimating, analysis of proposed materials and systems and constructability reviews), and obtain subcontractor bids through the CM/GC process.

The UO plans to engage the design team and the CM/GC in a value-setting discussion during the programming phase to confirm the process for cost/value decisions and set initial project expectations and goals.

IV. Energy Efficiency and Sustainable Design

In addition to the legal and policy mandates that apply to this project, the UO will engage the design team and CM/GC in an integrated design process to describe specific areas of environmental concern, identify strategies, set goals and determine methods and metrics to measure performance relative to those goals. The UO expects to be an active participant in all phases of these discussions. It is not known at this time if this project will seek LEED certification in addition to the mandated State of Oregon DAS-LEED process, or will replace or supplement LEED with a different metric. The UO firmly endorses the principles of sustainable design and expects the design team to bring to the table an expertise in these issues, which is deeper and broader than simply checking off LEED points.

The UO is comfortable with using LEED as a rating system, but prefers to make each green building decision (in conjunction with the design team and CM/GC) on its own merits relative to our environmental ethics and goals. Those goals relate to specific environmental concerns, some of which are discussed in UO policies and public statements. These decisions are most effectively started early in the design process by integrating solutions rather than applying them after the fact. The selected team must have the skills to be an equal partner in this process and understand fundamental green building issues, not simply current standard approaches to sustainability.

V. Types and Amounts of Space

An extensive preliminary planning effort resulted in this generalized assignment of space in the project. These assumed areas will need to be examined in detailed programming, but this gives an accurate current view of space assignment projections. Each initiative is listed separately, in some cases with proximity considerations, and is included as a total initiative proposed by a planning group. Changes within each planning group are expected to occur, but changes to the total allocated space to each group require broad consultation within the user group.

Neurosciences and Life Sciences Planning Group - about 23,500 NASF

Mouse Genetics and OSVAC Expansion	6,500
Housing- mice	
Experimental rooms: surgery, behavior, isolation, etc.	
Cage/rack support & storage	
Notes: Adjacent to existing facility	
Secure perimeter	
Windows not needed	
Zebrafish Facility	2,200 (not included in new building area)
Build out shelled zebrafish expansion area (in ISC1/Lorry Lokey Laboratories)	
Blower/HVAC mechanical room	
Advanced Imaging Center	3,100
Offices & meeting room	
Two MRI bays, simulator, control rm.	
Animal and human prep areas	
Physically stable (low vibration, protection from moving magnetic fields)	
Needs access for equipment installation/removal	
Convenient for public access	
Psychology	840
Faculty offices associated with cognitive labs	
BBMI/BCB	
Conference/seminar rooms	500
Research wet laboratories, associated offices	6,000
Mouse genetics research labs on Level 2 or Level 3 for Streisinger Hall connections	
Cognitive (dry) laboratories, offices	6,000
Level 2 or Level 3 for Huestis Hall connections	
Bioinformatics	
Offices, networking, shared facilities	400

Materials and Physical Sciences Planning Group - about 19,300 NASF

Some labs at Level 0 (basement) for stability and/or Lokey Laboratories connections

Some labs possibly at Level 4 for potential connection to Klamath across Streisinger roof

Nanoscience and Sustainability		11,900
Nanoarchitecture for Enhanced Performance		4,400
Photovoltaics Initiative		
	Collaborative laboratory - UO, PSU, OSU	1,600
	Collaborative laboratory - industry collaborators	800
	Photovoltaic characterization laboratory	600

Computational and Information Sciences - about 1,250 NASF

Applied Computer and Information Sciences (ACIS) 1,250

Offices for NIC and CIS

Cyberlab

Research Data Center

Data center for research support 3,000

(Offsite or in renovated space, not included in total NASF of new building)

Onyx Bridge off-load: lab & office space 10,000 NASF

Wet labs and offices to free up space in Onyx Bridge to allow future redevelopment as part of the proposed ISC3 project. These are likely to be a mixture of chemistry, and biology research labs and offices.

Public Commons 1,500 NASF

This is dedicated commons space in addition to circulation space that is part of the unassigned area.

Totals: **about 55,500**

Assumed Available NASF **about 55,000**

Areas outside the new building scope:
These program initiatives are in discussion as renovations or as part of future phases and are outside the current building scope. Project planning must take into account the needs of the entire Lokey Science Complex in a generalized sense, and renovation elements may be added to the funded scope as plans and funding develop over the course of the project.

- Instructional facilities renovations and relocations (teaching labs, learning commons, support offices)

This initiative restructures teaching facilities for Biology, Physics and Chemistry on an inquiry-based, modular, potentially interdisciplinary basis, and organizes this new vision for learning science around the Willamette Atrium as a core, focuses Geological Sciences teaching on Science Walk, and moves Environmental Studies to a location that supports and is supported by these other programs.

- Environmental Studies Program

Relocation from Pacific basement to a more public and suitable location for offices, student support and project areas.

- Oregon's Visualization Laboratory

A series of display environments and facilities for support staff to provide visualization services for teaching and research in the sciences and other disciplines.

- Interdisciplinary Laboratory for Earth Surface Analysis (ILESA)

- Human and Primate Anatomy Core

In renovated space, a new cadaver anatomy teaching lab (moved from Onyx), research labs, and a dermastarium.

- Genomics Core Facility

A shared resource (staff and equipment) for genomics research support. First phase is planned for existing space in Klamath Hall, and future expansion in ISC3.

- Bioinformatics Core Facility

Bioinformatics expansion to a full core facility as part of ISC3 or in renovated space.

- High Energy Physics Expansion

Support of new initiatives in High Energy Physics in release/remodeled space.

- Support core

Environmental Health and Safety, Facilities Services, building complex management, central receiving are relocated to appropriate facilities in release space to free up Onyx Bridge for redevelopment as ISC3 and to better support the entire complex.

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VI. LISB and the *Campus Plan*

The *Campus Plan* contains a policy framework to guide the development of the University of Oregon, including the LISB project. The *Plan* is a process for making development decisions on an ongoing basis rather than a static fixed-image master plan, as the exact nature and magnitude of future changes cannot be predicted with any degree of certainty, and object-oriented plans based on explicit assumptions about the future become outdated as the "future" becomes known.

Policies, which apply to all projects within the *Campus Plan's* jurisdiction, describe the university's requirements with respect to physical development and how to apply the *Plan* to projects.

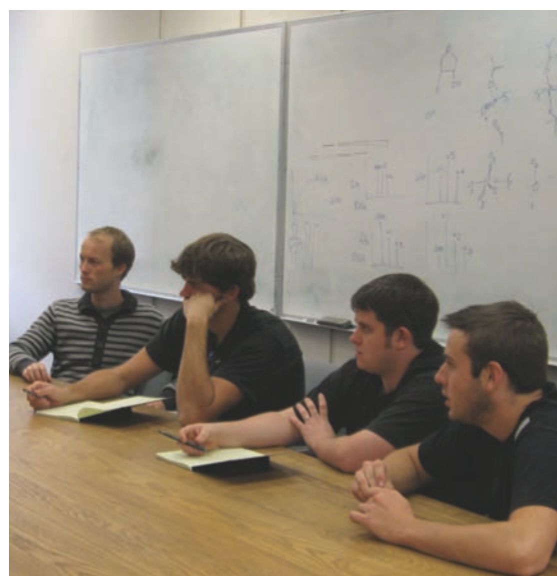
Plan Policies:

1. Process and Participation
2. Open-space Framework
3. Densities
4. Space Use and Organization
5. Replacement of Displaced Uses
6. Maintenance and Building Service
7. Architectural Style and Historic Preservation
8. Universal Access
9. Transportation
10. Sustainable Development
11. Patterns
12. Design Area Special Conditions

Four policies are explored more thoroughly because of their relevance to this project:

Process and Participation
Open-space Framework
Patterns
Sustainable Development

Please refer to the *Campus Plan* for the full text of each policy. A copy of the *Plan* is available at: http://uplan.uoregon.edu/LRCDPUpdateDraftPlanCover.html



Process and Participation

User Group

The user group is the primary representative in the design process, appointed by the Campus Planning Committee. It is the UO client group, according to the university's *Campus Plan*. Unlike user committees at many other institutions, this user group will be actively involved as a partner in the design process, including developing organizational approaches, generating design concepts, prioritizing needs, comparing building systems, and discussing cost and budget trade-offs. In addition, the user group may identify focus groups to address specific programmatic needs at different points in the process. There will also be information and comment sessions for the university community and the community at large.

The LISB project will engage multiple user groups. The project is led by the coordinating user group, which consists of faculty, students, and staff from the science departments and institutes as well as others representing the broader interests of the University. It includes the co-chairs of area-specific user groups, such as Life/Neuroscience, Material/Physical Science, and Instruction. In addition, the process to date has included and will include ad hoc groups devoted to specific topics, such as (but not necessarily limited to) building standards and data services.

Process

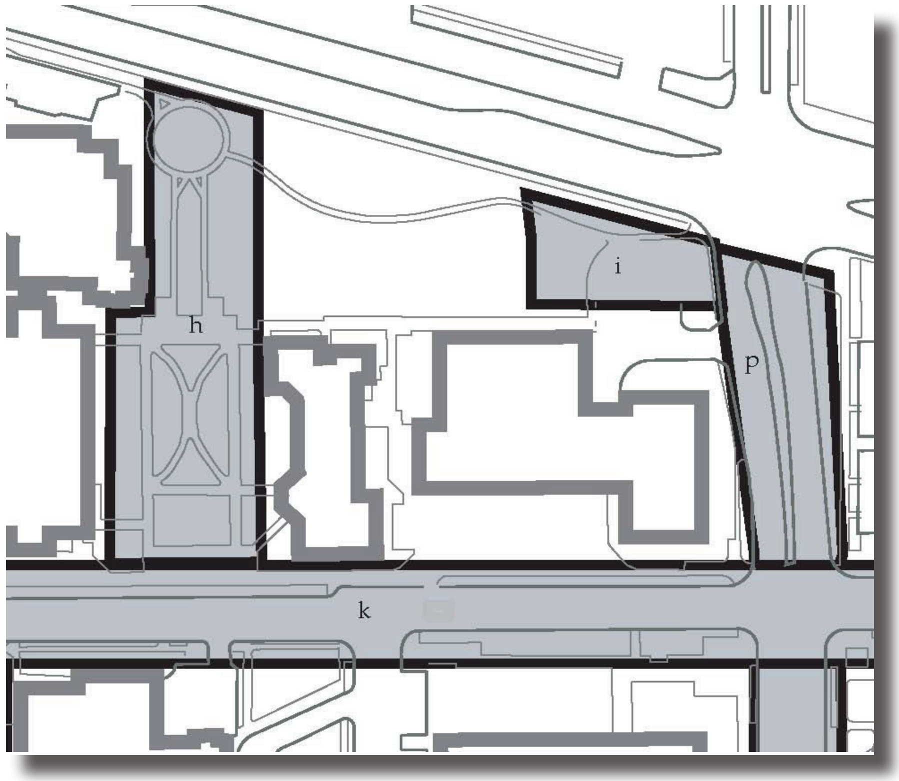
The selected design team will work collaboratively with the user group(s) to program and design the building through a series of exercises, user group meetings, program investigations and other methods. The schematic design process may also engage external groups such as the Campus Planning Committee and occupants of neighboring buildings.

After the proposed schematic design is approved by the coordinating user group, it must be reviewed and approved by the Campus Planning Committee and by the university administration. Staff support will be provided by Campus Planning & Real Estate in combination with Facilities Services Capital Projects throughout the design and construction process.

Open-space Framework

The University of Oregon's campus is organized as a system of quadrangles, malls, pathways and other open spaces. This organizational framework works well and also serves as a physical representation of the university's heritage. This policy calls for the preservation, completion and extension of the open-space framework through a series of dedicated open spaces in which buildings above ground are prohibited.

The site selected for the LISB lies adjacent to and east of a designated open space, Science Green ("h" on the Designated Open Spaces Map), located within Design Area D as described on p. 91 of the *Campus Plan*.



That section of the *Plan* includes a discussion of the Campus Edge (p. 91), which addresses the edge condition along Franklin Boulevard and views of and into the UO campus, the 13th Avenue Axis (p. 92, and "k" on the Designated Open Spaces Map), and Science Green (p. 94). The site contains important pathways such as Science Walk.

Page 29 of the *Campus Plan* describes requirements for projects to enhance or create designated open space. At an estimated 100,000 gross square feet, the LISB project will be required to enhance or create open space of at least 16% of the gross square footage. Compliance with this provision will be required when the Campus Planning Committee reviews the schematic design for the project.

Patterns

Patterns is one of the twelve policies of the *Campus Plan.* They are statements that describe and analyze design issues and suggest ways in which those issues might be resolved. Patterns articulate long-lasting, shared traditions and understandings, yet adapt to changing needs.

The term "pattern language" is best known from the book *A Pattern Language*. Its principal author, Christopher Alexander, helped the University of Oregon develop its planning process in the early 1970s, later published by Oxford Press as *The Oregon Experiment*. In that book, Alexander defines a pattern as "any general planning principle, which states a clear problem that may occur repeatedly in the environment, states the range of contexts in which this problem will occur, and gives the general features required by all buildings or plans which will solve this problem."

The *Campus Plan* identifies a list of campus patterns to be considered as projects are designed, to which the LISB project has added user generated patterns. A pattern is intended to help identify the essence of an issue that needs to be considered and to suggest ways in which the issue might be resolved, so patterns should not be interpreted literally without discussion. In some cases it is possible that, although the problem is properly identified, the pattern's suggested solution may not be appropriate, and the users, assisted by the design team, will find an alternate means of resolving the issue.

The University's use of patterns ensures that the design team establishes an effective means of communicating with the project user group (both talking and listening). This non-technical vocabulary of design principles allows users to communicate effectively with planners and designers.

Core Concepts and Patterns

The following page contains a list of *Campus Plan* patterns specific to the project, as well as User Generated Patterns (marked with an asterisk(*)). **Patterns in bold typeface** must be considered for every project.

LARGE SCALE CAMPUS

This first set of patterns defines how the campus is formed at the greatest scale and looks at the composition of the entire campus.

Universal Access
Sustainable Development
Open-space Framework
University Shape and Diameter
Campus Trees

TRANSPORTATION

This set of patterns defines the transportation systems (including pathways) of the entire campus.

Local Transport Area

SITE ARRANGEMENT

This set of patterns informs how buildings should be arranged to become a part of the campus.

Positive Outdoor Space
South Facing Outdoors
Pedestrian Pathways
Site Repair
Tree Places
Architectural Style
Building Character and Campus Context
Research Ties
Building Complex
Horizontal Connection-Connected Buildings*
Family of Entrances
Main Building Entrance
Flexibility and Longevity
Use Wisely What We Have
Integration
Existing Uses / Replacement
Quiet Backs
Wings of Light/Heart of Darkness

BUILDING DESIGN

This set of patterns informs how each building should be designed.

Wholeness of Project
Architectural Style
Four-story Limit
Future Expansion
Connecting Doors*
Blended Research Domains*
Flexibility & Longevity
Modular Interchangeable Wet Labs*
Integrated Local Core*
Home Base*
Smooth Cart Travel*
Organizational Clarity
Slice and Stack*
Public Gradient
Places for Interaction*
Peopleware*
Placement of Commons*
Social Stair*
Building Hearth
Fabric of Departments
Faculty-Student Mix
Classroom Distribution
Office Connections
Better Than My Apartment*
Operable Windows
Wings of Light
Quality of Light

User Generated Patterns:

Places for Interaction

Problem: Scientific research is not a solitary endeavor. Lab groups interact formally on a regular basis, but the frequent informal discussions are the soil from which the creative ideas sprout. The UO campus has an abundance of positive and negative spaces intended to support these interactions.
Therefore: Research current practices here and elsewhere. Reinforce these current practices and develop new paradigms to promote interaction at various scales: within the lab group, within a sub-discipline, across disciplinary boundaries and as part of an institute.

Peopleware

Problem: Designers start with architectural ideas to enhance interaction, yet social engineering is probably more important and a more efficient means of creating engineering. Leveraging the importance of certain individuals as a way of creating interaction opportunities is one example of how this could occur. Certain experts (analytical machine operators, computation experts, investigators with an area of expertise commonly sought out by others) can be the catalyst for these interactions.
Therefore: Think strategically about where key intellectual resources are placed, both as attractors as well as for the potential synergies when they are co-located. One example of co-location might be bioinformatics resources co-located with computer science resources.

Placement of Commons

Problem: If common areas such as break rooms and small meeting rooms are too private, they do not get used by many people, and are less effective for fostering interaction. On the other hand, if they are too public, they fail due to acoustical and visual privacy.
Therefore: Common areas should occur on or near major pathways and provide view from circulation to the common area. Provide physical and acoustical separation to allow separation when desired.

Slice and Stack

Problem: Conventional wisdom sometimes separates building floors by function (wet labs, theorist/dry labs, offices), yet that may not be the strongest model to support integrative groups.
Therefore: Consider turning the layer cake of functions on its side, so that at least some functions are spread to multiple floor layers. In doing so, avoid breaking important connections to existing cohesive groups that are the bedrock of our research endeavors.

Horizontal Connections - Connected Buildings

Problem: People are much more willing to move horizontally through the science complex than vertically. Take advantage of this quirk of human behavior by placing programs that would benefit from maximum interaction on the same floor level in new or adjacent, existing space.
Therefore: Connect as many building levels as possible at points that will maximize interaction and integration. See **Social Stair** to provide effective vertical connection between levels.

Social Stair

Problem: Good horizontal connections are not enough. UO has multistory buildings because campus space is limited, as is the horizontal distance that people are willing to travel within the science complex.
Therefore: Create vertical connections that encourage people to go from one floor to another and interact with others. Willamette Atrium and Streisinger's internal stair represent two good examples of how this can be done.
Essential elements:

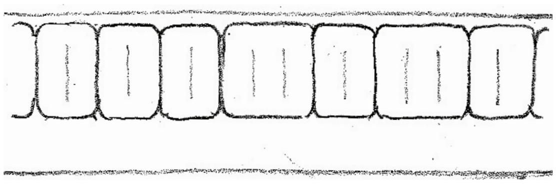
- Direct path of travel: Make the stair seem efficient by minimizing backtracking.
- Visible destination
- Generous stopping places: Provide places that encourage conversation along the way.
- Daylight

Smooth Cart Travel

Problem: Staff frequently moves materials and equipment throughout the complex on carts and uneven floor surfaces such as brick pavers or exposed aggregate adds a large measure of risk of spillage and damage.
Therefore: Ensure that floor surfaces provide a smooth rolling surface for carts in new areas and repair critical connections in Huestis and Klamath Halls.

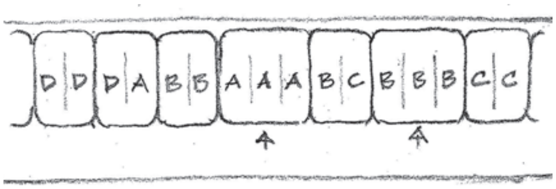
Modular Interchangeable Wet Labs

Problem: The UO has successfully applied a generic lab concept specific to different lab types to its lab planning since the mid-1980s, providing flexibility in key areas instead of applying it across the board. This is instead of building very large open labs or relying on expensive casework and utility systems to provide flexibility.



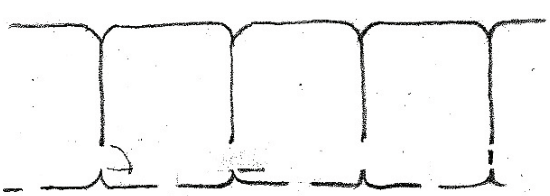
Therefore: Establish generic lab modules by type which are repeated in large quantities, possibly of various sizes. If properly designed, these reduce the need for change in the future, as has been experienced in Streisinger, and maintain a sense of equity among researchers. Size and organize the modules so that research teams can grow and shrink gracefully.

Blended Research Domains



Problem: Assigning research space within a fixed envelope misses some interaction possibilities and discourages a flexible long-term view of space assignment.
Therefore: Design the building to allow a flexible approach to space assignment. Instead of assigning contiguous space for each researcher, blend the research communities by interspersing bench space for other researchers with the domain of a principal investigator.

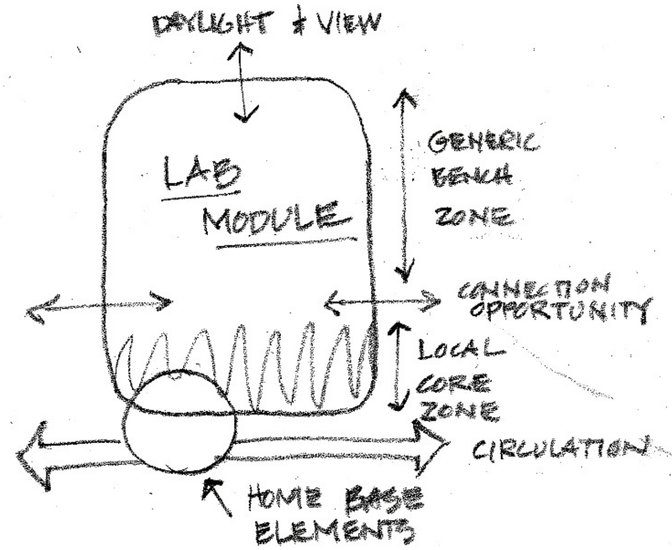
Connecting Doors



Problem: Walls between lab modules can become insurmountable obstacles to flexible assignment of space.
Therefore: Install connecting doors between lab modules which can be locked, unlocked, left open, or even removed entirely to suit the needs
Use redundant connecting doors to allow for future connections between lab modules as desired.

Home Base

Problem: In a building with flexible lab assignments, it can be difficult for groups of researchers to develop an identity.
Therefore: Create a “home base” for each lab group that provides identity at the entrance to their core lab space, a small informal meeting area, and so forth.



Integrated Local Core

Problem: Core equipment is often needed, such as centrifuges, sequencers and other major lab equipment
Therefore: Provide distributed core facilities for specialized equipment in common use to be:

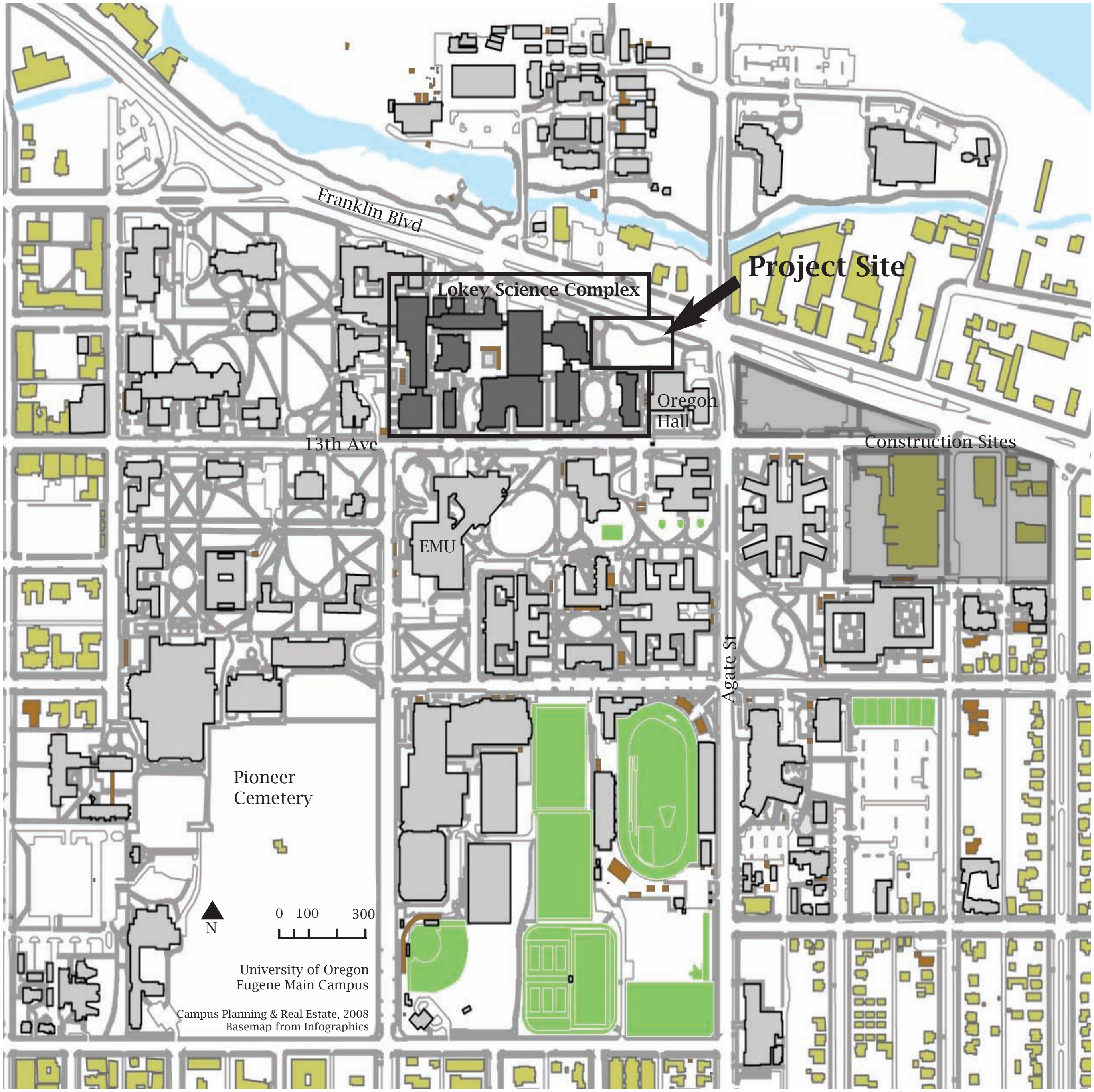
- Very convenient to lab benches
- Easily reconfigurable
- Easily shared
- Visible from circulation space (to encourage sharing)

Better Than My Apartment

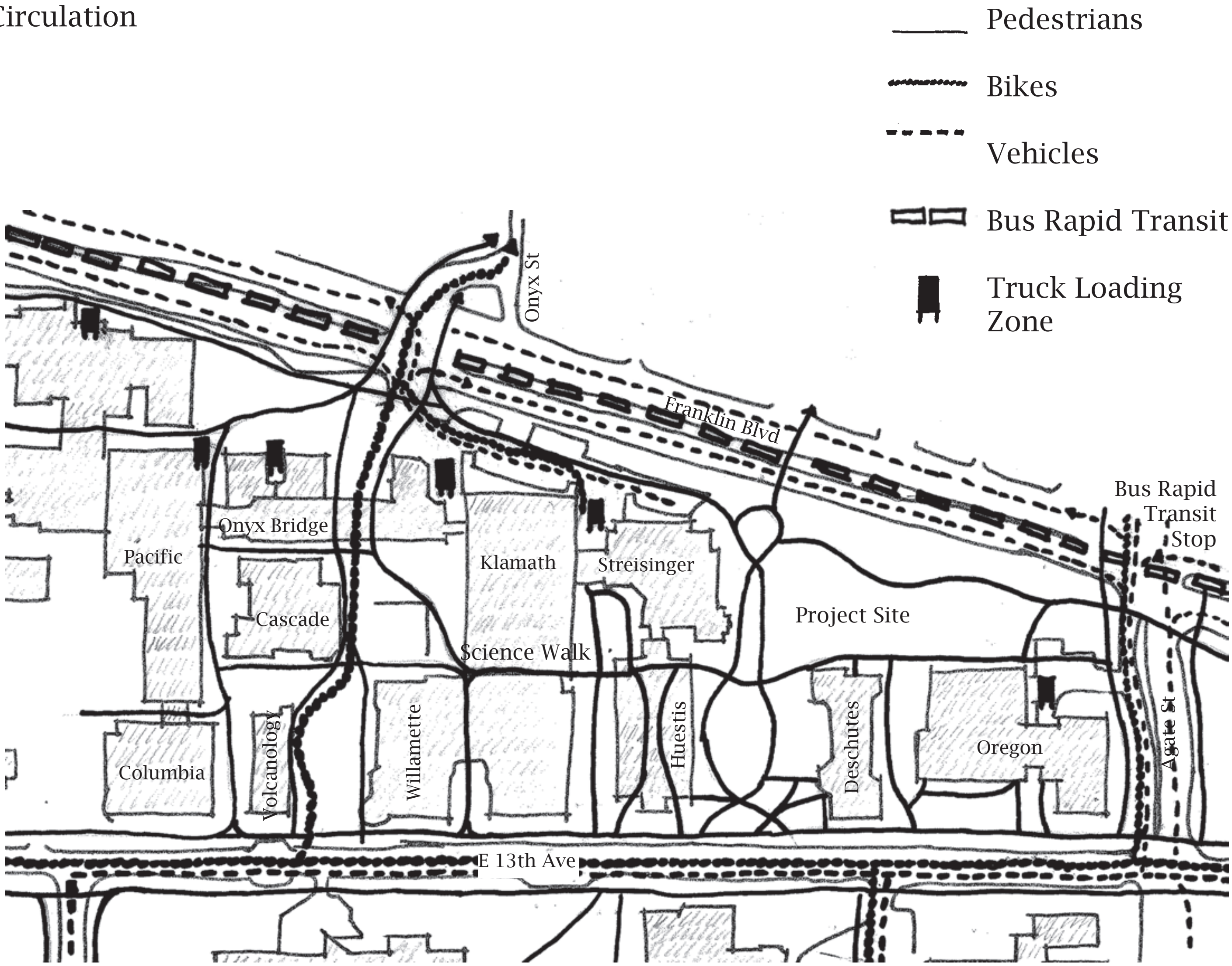
Problem: Students, post-docs and faculty who work in research labs work hard and work long hours. They often know their workspaces better than where they live. Their work suffers if the lab isn't a pleasant place designed to support human activity.
Therefore: Make the lab environments pleasant to work in so that people want to come to work, with windows, daylight, human scale and materials, and all of the other tricks of the architecture trade. Acoustical challenges, hazardous environments and other factors can make some lab environments challenging to make pleasant.
In these areas, make plentiful office and break areas physically separated from the lab, but visually connected with generous windows.

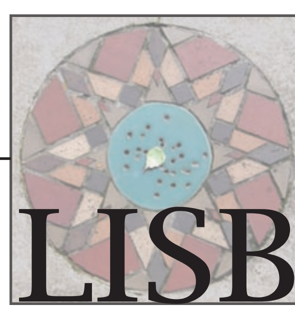
VII. LISB Site Information

Vicinity Map

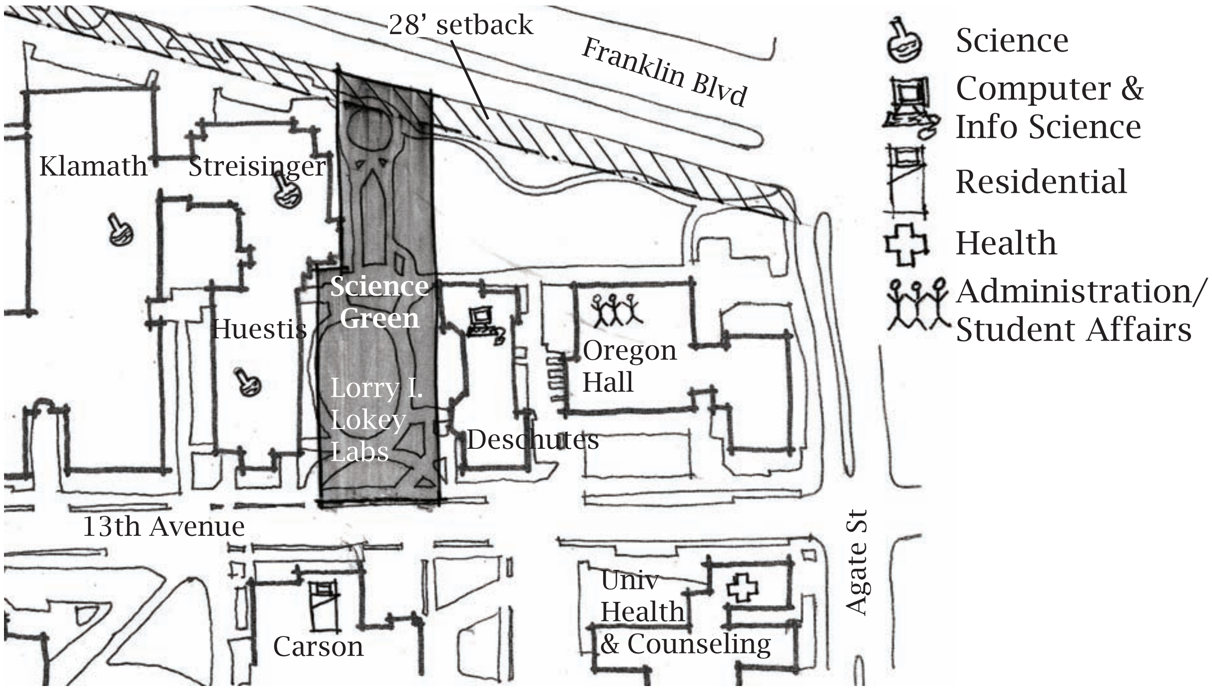


Circulation

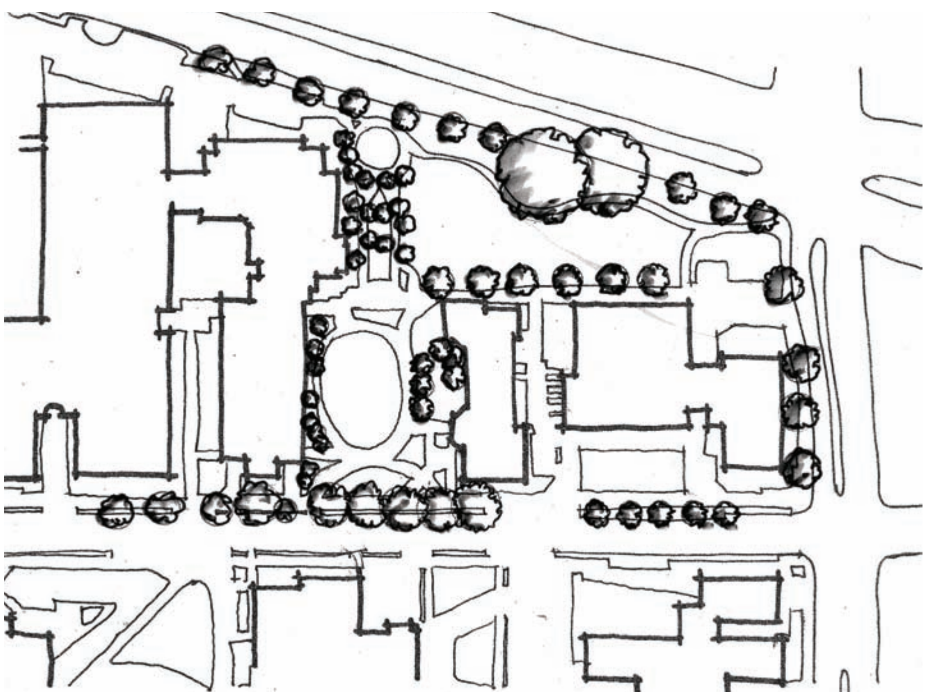




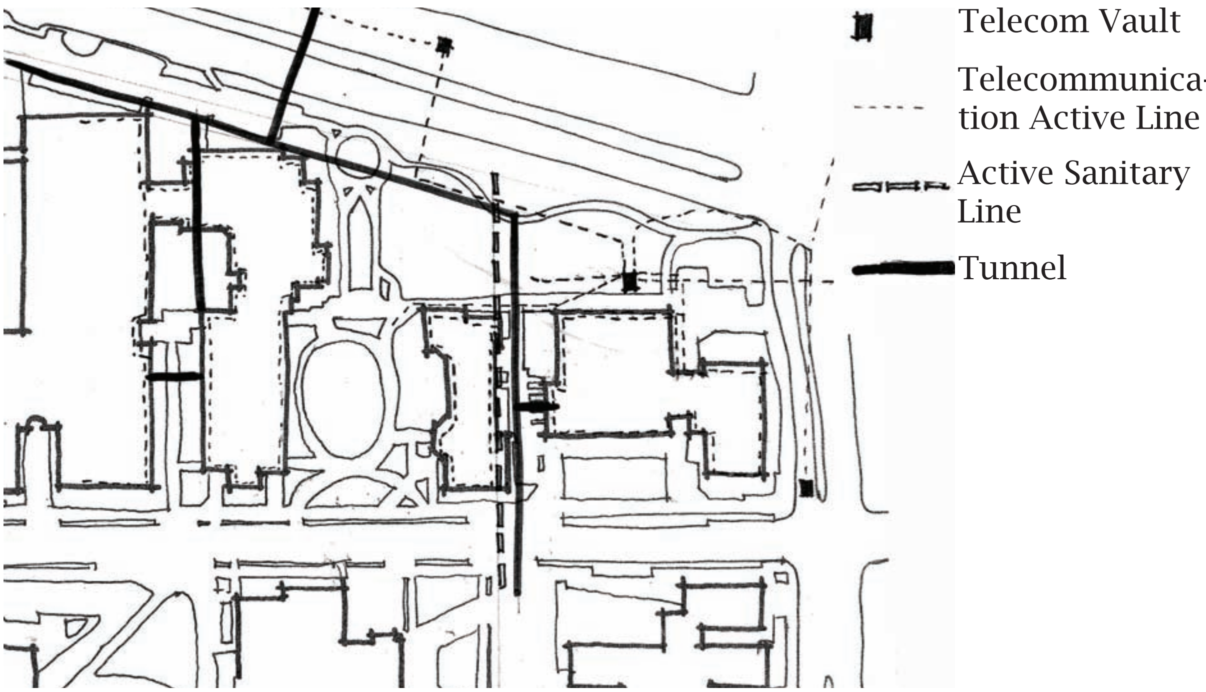
Open Space and Adjacent Uses



Trees



Utilities



Outdoor Environment